ZENO INVERTER SERIES_R32

Service Manual

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Symbol	Explanation
	**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. Appliance filled with flammable magas R32**
	**This symbol shows that the operation manual should be read carefully.**
	**This symbol shows that information is available such as the operating manual or installation manual.**
	**This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.**

1. Notes for Installation and Maintenance

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.

The following contents are very important for installation and maintenance.

WARNING:

- Installation Must be Performed in Accordance with the NEC/CEC by Authorized Personnel Only.

Please follow the instructions below:

- The installation or maintenance must accord with the instructions.

- Comply with all national electrical codes and local electrical codes.

- Pay attention to the warnings and cautions in this manual.

- All installation and maintenance shall be performed by distributor or qualified person.

- All electric work must be performed by a licensed technician according to local regulations and the instructions given in this manual.

- Be caution during installation and maintenance. Prohibit incorrect operation to prevent electric shock, casualty and other accidents.

⚠ WARNINGS

1. Electrical Safety Precautions

(1) Cut off the power supply of air conditioner before checking and maintenance.

(2) The air condition must apply specialized circuit and prohibit share the same circuit with other appliances.

(3) The air conditioner should be installed in suitable location and ensure the power plug is touchable.

(4) Make sure each wiring terminal is connected firmly during installation and maintenance.

(5) Have the unit adequately grounded. The grounding wire can't be used for other purposes.

(6) Must apply protective accessories such as protective boards, cable-cross loop and wire clip.

(7) The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.

(8) The power cord and power connection wires can't be pressed by hard objects.

(9) If power cord or connection wire is broken, it must be replaced by a qualified person.

(10) If the power cord or connection wire is not long enough, please get the specialized power cord or connection wire from the manufacture or distributor. Prohibit prolong the wire by yourself.

(11) For the air conditioner without plug, an air switch must be installed in the circuit. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.

(12) Make sure all wires and pipes are connected properly and the valves are opened before energizing.

(13) Check if there is electric leakage on the unit body. If yes, please eliminate the electric leakage.

(14) Replace the fuse with a new one of the same specification if it is burnt down; Don't replace it with a cooper wire or conducting wire.

(15) If the unit is to be installed in a humid place, the circuit breaker must be installed.

2. Installation Safety Precautions

(1) Select the installation location according to the requirement of this manual. (See the requirements in installation part)

(2) Handle unit transportation with care; the unit should not be carried by only one person if it is more than 20kg.

(3) When installing the indoor unit and outdoor unit, a sufficient fixing bolt must be installed; make sure the installation support is firm.

(4) Ware safety belt if the height of working is above 2m.

(5) Use equipped components or appointed components during installation.

(6) Make sure no foreign objects are left in the unit after finishing installation.

3. Refrigerant Safety Precautions

(1) When refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it should be handled by certified professionals or otherwise in compliance with local laws and regulations.

(2) Avoid contact between refrigerant and fire as it generates poisonous gas; Prohibit prolong the connection pipe by welding.

(3) Apply specified refrigerant only. Never have it mixed with any other refrigerant. Never have air remain in the refrigerant line as it may lead to rupture or other hazards.

(4) Make sure no refrigerant gas is leaking out when installation is completed.

(5) If there is refrigerant leakage, please take sufficient measure to minimize the density of refrigerant.

(6) Never touch the refrigerant piping or compressor without wearing glove to avoid scald or frostbite.

NOTE:

Improper installation may lead to fire hazard, explosion, electric shock or injury.

Safety Precautions for Installing and Relocating the Unit

⚠ WARNINGS

- **When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.**
  - Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.

- **When installing or moving this unit, do not charge the refrigerant which is not comply with that on the nameplate or unqualified refrigerant.**
  - Otherwise, it may cause abnormal operation, wrong action, mechanical malfunction or even series safety accident.

- **When refrigerant needs to be recovered during relocating or repairing the unit, be sure that the unit is running in cooling mode. Then, fully close the valve at high pressure side (liquid valve). About 30~40 seconds later, fully close the valve at low pressure side (gas valve), immediately stop the unit and disconnect power. Please note that the time for refrigerant recovery should not exceed 1 minute.**
  - If refrigerant recovery takes too much time, air may be sucked in and cause pressure rise or compressor rupture, resulting in injury.

- **During refrigerant recovery, make sure that liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.**
  - If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

- **When installing the unit, make sure that connection pipe is securely connected before the compressor starts running.**
  - If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

- **Prohibit installing the unit at the place where there may be leaked corrosive gas or flammable gas.**
  - If there leaked gas around the unit, it may cause explosion and other accidents.

- **Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact a local service center authorized and ask for a proper electric wire.**
  - Poor connections may lead to electric shock or fire.

- **Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that their terminals receive no external stresses.**
  - Electric wires with insufficient capacity, wrong wire connections and insecure wire terminals may cause electric shock or fire.

Safety Precautions for Refrigerant

R32 refrigerant warning

- To realize the function of the air conditioner unit, a special refrigerant circulates in the system. The used refrigerant is the fluoride R32, which is specially cleaned. The refrigerant is flammable and inodorous. Furthermore, it can lead to explosion under certain conditions. But the flammability of the refrigerant is very low. It can be ignited only by fire.
- Compared to common refrigerants, R32 is a nonpolluting refrigerant with no harm to the ozonosphere. The influence upon the greenhouse effect is also lower. R32 has got very good thermodynamic features which lead to a really high energy efficiency. The units there fore need a less filling.
- This product uses R32 difluoromethane refrigerant, which is a mildly flammable gas class A2L according to ISO 817 or ANSI/ASHRAE 34.
- "ANSI/ASHRAE 15 (USA) and CSA 852 (Canada)" stipulate that it must be handled by a refrigeration mechanic with an appropriate refrigerant handling licence.
- 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.)
- The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- The appliance shall be stored so as to prevent mechanical damage from occurring.
- Ducts connected to an appliance shall not contain an ignition source.
- Keep any required ventilation openings clear of obstruction.
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odour.
- Do not use means to accelerate the defrosting process or to clean,other than those recommended by the manufacturer.
- Servicing shall be performed only as recommended by the manufacturer.

- Should repair be necessary,contact your nearest authorized
- Service Centre. Any repairs carried out by unqualified personnel may be dangerous.
- Compliance with national gas regulations shall be observed. Read specialist's manual.

- 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,ASHRAE15.2,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.

Notices for using refrigerant sensor

- Only applicable to refrigerant sensor models.
- The refrigerant sensor can monitor whether R32 refrigerant leaks in real time. When the leakage of R32 refrigerant is detected, the sensor will trigger the alarm and emit a buzzer, and the indoor unit will display "EA" code. Meanwhile, the outdoor unit will stop running.
- In case of refrigerant leakage, please open the window immediately for ventilation to reduce the concentration of refrigerant in the room. Meanwhile, check the room to ensure that there is no fire source. After completing the above operations, please leave the room and go to the safe place, and then contact the after-sales service team for maintenance.
- When the refrigerant sensor reaches its service life or is damaged, the indoor unit will display "FE" code. Please contact the after-sales service team to replace the refrigerant sensor.
- Avoid oil and water splashing into the refrigerant sensor, otherwise it may cause damage to the refrigerant sensor.

  Avoid using it in the environment with electromagnetic interference, chemical substances (such as chemical plants, etc.), flammable gas, combustible and explosive gas and smog, etc.
- Avoid using items containing ethanol (such as perfume, etc.) and smogproducing items (such as cigarettes, etc.) near the refrigerant sensor, otherwise it will lead to abnormal conditions such as false alarms of the refrigerant sensor.

  If such phenomenon occurs, please contact the after-sales service team for maintenance.

Safety Operation of Flammable Refrigerant

1. Aptitude requirement for maintenance man(repairs should be done only be specialists).

- Any person who is involved with working on or breaking into a refrigerant circuit 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.
- Servicing shall only be performed as recommended by the equipment manufacturer. 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.

2. Safety preparation work

This product uses mildly flammable R32 refrigerant. Certain levels of refrigerant require minimum room sizes. Please ensure that these minimum room sizes are adhered to for standard installations.(Note: Please refer to the nameplate for the charging quantity of R32).

Appliance shall be installed, operated and stored in a room with a floor area larger than Xm2 . (Please refer to table "a")

table a - Minimum room area (m^2)

Charge amount (kg)	Installation height(m)		
	1.8	2.2	2.5
	Minimum room area (m^2)		
≤1.836	/	/	/
1.85	6.72	5.5	4.84
1.9	6.9	5.65	4.97
1.95	7.09	5.8	5.1
2	7.27	5.95	5.23
2.05	7.45	6.1	5.36

Charge amount (kg)	Installation height(m)		
	1.8	2.2	2.5
	Minimum room area (m^2)		
2.1	7.63	6.24	5.5
2.15	7.81	6.39	5.63
2.2	7.99	6.54	5.76
2.3	8.36	6.84	6.02
2.4	8.72	7.14	6.28
2.5	9.08	7.43	6.54
2.6	9.45	7.73	6.8
2.7	9.81	8.03	7.06
2.8	10.17	8.32	7.33
2.9	10.54	8.62	7.59
3	10.9	8.92	7.85
3.1	11.26	9.21	8.11
3.2	11.62	9.51	8.37
3.3	11.99	9.81	8.63
3.4	12.35	10.11	8.89
3.5	12.71	10.4	9.16

Information on servicing

- **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 minimised. For repair to the REFRIGERATING SYSTEM, the following precautions shall be completed prior to conducting work on the system.

- **Work procedure**

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

- **General work area**

  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.

- **Checking for presence of refrigerant**

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

- **Presence of fire extinguisher**

  If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

- **No ignition sources**

  No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space.

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.

- **Ventilated area**

  Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

- **Checks to the refrigerating equipment**

  Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.

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

  — *the actual refrigerant charge 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;*

  — *refrigerating 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.*

- **Checks to electrical devices**

  Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately

but it is necessary to continue operation, an adequate temporary solution shall be used. 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 no live electrical components and wiring are exposed while charging, recovering or purging the system;

— that there is continuity of earth bonding.

- **Repairs to sealed components**

  Sealed electrical components shall be replaced.

- **Repair to intrinsically safe components**

  Intrinsically safe components must be replaced.

- **Cabling**

  Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

- **Detection of flammable refrigerants**

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

  The following leak detection methods are deemed acceptable for all refrigerant systems.

  Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS,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 also 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 Clause "Removal and evacuation".

- **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 is followed since flammability is a consideration. The following procedure shall be adhered to:

— Safely remove refrigerant following local and national regulations;

— evacuate;

— purge the circuit with inert gas (optional for A2L);

— evacuate (optional for A2L);

— continuously flush or purge with inert gas when using flame to open circuit;

— 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 syste 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

- **Charging procedures**

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 minimise the amount of refrigerant contained in them.

— Cylinders shall be kept in an appropriate position according to the instructions.

— Ensure that the REFRIGERATING 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 REFRIGERATING SYSTEM.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

- **Decommissioning**

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. 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 recovered refrigerant. 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 REFRIGERATING SYSTEM unless it has been cleaned and checked.

- **Labelling**

Equipment shall be labelled stating that it has been decommissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS,ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

- **Recovery**

  When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

  When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. 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). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

  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. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

  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.

  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.

2. Summary

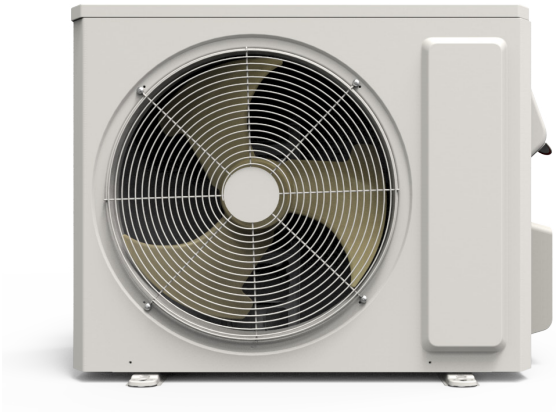
2.1 Indoor Unit

A1
panel

Remote Controller

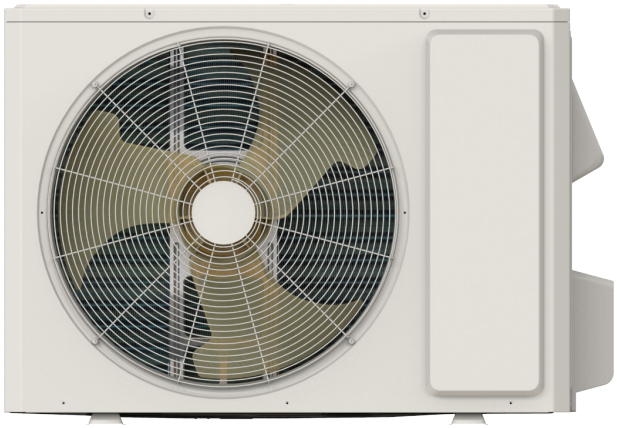
YAP1FF

2.2 Outdoor Unit



GRHFR32T09AS
GRHFR32T12ASA
GRHFR32T12AS

GRHFR32T18AS



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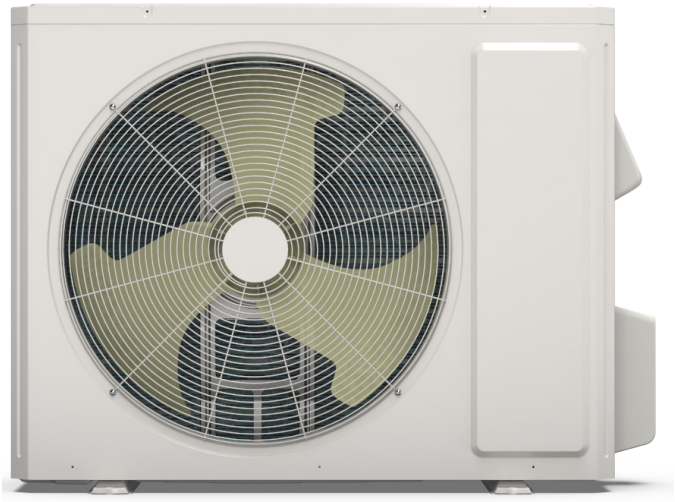


GRH32IT36AS

2.3 Model list

No.	Model	Product code	Indoor model	Indoor product code	Outdoor model	Outdoor product code	Remote Controller
1	GWHFR32T09S, GRHFR32T09AS	CB635000200_Y47596	GWHFR32T09S	CB635N00200_Y47596	GRHFR32T09AS	CB635W00200_Y47596	YAP1FF
2	GWHFR32T12SA, GRHFR32T12ASA	CB635001700_Y47596	GWHFR32T12SA	CB635N01700_Y47596	GRHFR32T12ASA	CB635W01700_Y47596	
3	GWHFR32T12S, GRHFR32T12AS	CB635001800_Y47596	GWHFR32T12S	CB635N01800_Y47596	GRHFR32T12AS	CB635W01800_Y47596	
4	GWHFR32T18S, GRHFR32T18AS	CB635000900_Y47596	GWHFR32T18S	CB635N00900_Y47596	GRHFR32T18AS	CB635W00900_Y47596	
5	GWHFR32T24S, GRHFR32T24AS	CB635003600_Y47596	GWHFR32T24S	CB635N03600_Y47596	GRHFR32T24AS	CB574W17800_Y47596	
6	GWH32IT36S, GRH32IT36AS	CB635002001_Y47596	GWH32IT36S	CB635N02001_Y47596	GRH32IT36AS	CB574W18100_Y47596	

3. Specifications

3.1 Specification Sheet

Basic Parameters

Model		-	GWHFR32T09S,GRHFR32T09AS
Product Code		-	CB635000200_Y47596
Power Supply	**Rated Voltage**	V~	208/230
	Rated Frequency	Hz	60
	Phases	-	1
Power Supply Mode		-	Outdoor
Cooling Capacity		Btu/h	9100
Heating Capacity		Btu/h	10000
Cooling Power Input		W	741
Heating Power Input		W	814
Cooling Current Input		A	3.65
Heating Current Input		A	3.95
Rated Input		W	1300
Rated Cooling Current		A	7.5
Rated Heating Current		A	7.5
Air Flow Volume		CFM	294/271/241/218/188/177/165
Dehumidifying Volume		Pint/h	1.69
EER		(Btu/h)/W	12.30
COP		(Btu/h)/W	12.3
SEER		-	18.8
SCOP		-	8.6
Application Area		yd^2	14-21

Indoor Unit Parameters

Indoor Unit Model	-	GWHFR32T09S
Indoor Unit Product Code	-	CB635N00200_Y47596
Fan Type	-	Cross-flow
Fan Diameter Length (D×L)	mm	Φ92×580
Cooling Speed	r/min	1300/1200/1120/1050/920/800/750
Heating Speed	r/min	1300/1200/1120/1050/950/850/800
Fan Motor Power Output	W	20
Fan Motor RLA	A	0.35
Fan Motor Capacitor	μF	1
Evaporator Form	-	Aluminum Fin-copper Tube
Evaporator Pipe Diameter	mm	Φ5
Evaporator Row-fin Gap	mm	2-1.4
Evaporator Coil Length (L×D×W)	mm	584×22.8×266.7
Swing Motor Model	-	MP24HF
Swing Motor Power Output	W	1.5
Fuse Current	A	3.15
Sound Pressure Level	dB (A)	Cooling:38/36/33/32/28/24/22 Heating:38/35/33/32/28/26/24
Sound Power Level	dB (A)	Cooling:48/46/43/42/38/34/32 Heating:48/45/43/42/38/36/34
Dimension (W×H×D)	inch	32 51/64X10 15/64X7 9/16
Dimension of Carton Box (L×W×H)	inch	34 13/32X12 7/16X10
Dimension of Package (L×W×H)	inch	34 23/32X13 5/64X10 7/16
Net Weight	lb	17.6
Gross Weight	lb	20.9

Outdoor Unit Parameters

Outdoor Unit Model	-	GRHFR32T09AS
Outdoor Unit Product Code	-	CB635W00200_Y47596
Compressor Manufacturer	-	ZHUHAI LANDA COMPRESSOR CO.,LTD
Compressor Model	-	QXF-A082zC170
Compressor Oil	-	RA68EH or equivalent
Compressor Type	-	Rotary
Compressor Locked Rotor Amp (L.R.A)	A	/
Compressor Rated Load Amp (RLA)	A	5.90
Compressor Power Input	W	730.2
Compressor Overload Protector	-	/
Throttling Method	-	Capillary
Set Temperature Range	°F	61~86
Cooling Operation Ambient Temperature Range	°F	0~118
Heating Operation Ambient Temperature Range	°F	-13~75
Condenser Form	-	Aluminum Fin-copper Tube
Condenser Pipe Diameter	mm	Φ7
Condenser Rows-fin Gap	mm	1-1.2
Condenser Coil Length (L×D×W)	mm	666×19.05×527
Fan Motor Speed	rpm	850
Fan Motor Power Output	W	30
Fan Motor RLA	A	0.65
Fan Motor Capacitor	μF	/
Air Flow Volume	m^3/h	1950
Fan Type	-	Axial-flow

Fan Diameter	mm	Φ400
Defrosting Method	-	Automatic Defrosting
Climate Type	-	T1
Isolation	-	I
Moisture Protection	-	IPX4
Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
Sound Pressure Level	dB (A)	51
Sound Power Level	dB (A)	61
Dimension(WXHXD)	inch	28 13/16X21 27/32X12 63/64
Dimension of Carton Box (LXWXH)	inch	31 9/64X14 11/16X23 15/64
Dimension of Package(LXWXH)	inch	31 17/64X14 51/64X24 7/32
Net Weight	lb	54
Gross Weight	lb	59.5
Refrigerant	-	R32
Refrigerant Charge	oz	17.6

Connection Pipe Parameters

Connection Pipe Length	ft	24.6
Connection Pipe Gas Additional Charge	oz/ft.	0.2
Outer Diameter of Liquid Pipe(Client Allocation)(British System)	-	1/4"
Outer Diameter of Gas Pipe(Client Allocation)(British System)	-	3/8"
Max Distance Height	ft	49.2
Max Distance Length	ft	65.6

Note: The connection pipe applies metric diameter.

The above data is subject to change without notice. Please refer to the nameplate of the unit.

Basic Parameters

Model		-	GWHFR32T12SA,GRHFR32T12ASA
Product Code		-	CB635001700_Y47596
Power Supply	**Rated Voltage**	V~	115
	Rated Frequency	Hz	60
	Phases	-	1
Power Supply Mode		-	Outdoor
Cooling Capacity		Btu/h	12000
Heating Capacity		Btu/h	12000
Cooling Power Input		W	1352
Heating Power Input		W	1172
Cooling Current Input		A	14.70
Heating Current Input		A	11.99
Rated Input		W	1400
Rated Cooling Current		A	15.22
Rated Heating Current		A	14.67
Air Flow Volume		CFM	365/294/265/241/218/194/159
Dehumidifying Volume		Pint/h	2.96
EER		(Btu/h)/W	8.88
COP		(Btu/h)/W	10.24
SEER		-	16
SCOP		-	8
Application Area		yd^2	19-29

Indoor Unit Parameters

Indoor Unit Model	-	GWHFR32T12SA
Indoor Unit Product Code	-	CB635N01700_Y47596
Fan Type	-	Cross-flow
Fan Diameter Length (D×L)	mm	Φ92×580
Cooling Speed	r/min	1430/1200/1100/1050/1000/800/750
Heating Speed	r/min	1350/1200/1100/1050/1000/850/800
Fan Motor Power Output	W	20
Fan Motor RLA	A	0.46
Fan Motor Capacitor	μF	4
Evaporator Form	-	Aluminum Fin-copper Tube
Evaporator Pipe Diameter	mm	Φ5
Evaporator Row-fin Gap	mm	2-1.4
Evaporator Coil Length (L×D×W)	mm	584×22.8×266.7
Swing Motor Model	-	MP24HF
Swing Motor Power Output	W	1.5
Fuse Current	A	3.15
Sound Pressure Level	dB (A)	Cooling:42/36/33/32/31/24/22 Heating:41/36/33/31/30/25/24
Sound Power Level	dB (A)	Cooling:52/46/43/42/41/34/32 Heating:51/46/43/41/40/35/34
Dimension (W×H×D)	inch	32 51/64X10 15/64X7 9/16
Dimension of Carton Box (L×W×H)	inch	34 13/32X12 7/16X10
Dimension of Package (L×W×H)	inch	34 23/32X13 5/64X10 7/16
Net Weight	lb	17.6
Gross Weight	lb	20.9

Outdoor Unit Parameters

Outdoor Unit Model	-	GRHFR32T12ASA
Outdoor Unit Product Code	-	CB635W01700_Y47596
Compressor Manufacturer	-	ZHUHAI LANDA COMPRESSOR CO.,LTD
Compressor Model	-	QXF-A098zC170H
Compressor Oil	-	ZE-GLES RB68GX
Compressor Type	-	Rotary
Compressor Locked Rotor Amp (L.R.A)	A	/
Compressor Rated Load Amp (RLA)	A	14.2
Compressor Power Input	W	862
Compressor Overload Protector	-	/
Throttling Method	-	Capillary
Set Temperature Range	°F	61~86
Cooling Operation Ambient Temperature Range	°F	0~118
Heating Operation Ambient Temperature Range	°F	-13~75
Condenser Form	-	Aluminum Fin-copper Tube
Condenser Pipe Diameter	mm	Φ7
Condenser Rows-fin Gap	mm	1-1.2
Condenser Coil Length (L×D×W)	mm	666×19.05×527
Fan Motor Speed	rpm	850
Fan Motor Power Output	W	30
Fan Motor RLA	A	0.66
Fan Motor Capacitor	μF	/
Air Flow Volume	m^3/h	1950
Fan Type	-	Axial-flow

Fan Diameter	mm	Φ400
Defrosting Method	-	Automatic Defrosting
Climate Type	-	T1
Isolation	-	I
Moisture Protection	-	IPX4
Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
Sound Pressure Level	dB (A)	51
Sound Power Level	dB (A)	61
Dimension(WXHXD)	inch	28 13/16X21 27/32X12 63/64
Dimension of Carton Box (LXWXH)	inch	31 9/64X14 11/16X23 15/64
Dimension of Package(LXWXH)	inch	31 17/64X14 51/64X24 7/32
Net Weight	lb	58.4
Gross Weight	lb	63.9
Refrigerant	-	R32
Refrigerant Charge	oz	21.2

Connection Pipe Parameters

Connection Pipe Length	ft	24.6
Connection Pipe Gas Additional Charge	oz/ft.	0.2
Outer Diameter of Liquid Pipe(Client Allocation)(British System)	-	1/4"
Outer Diameter of Gas Pipe(Client Allocation)(British System)	-	3/8"
Max Distance Height	ft	39.4
Max Distance Length	ft	65.6

Note: The connection pipe applies metric diameter.

The above data is subject to change without notice. Please refer to the nameplate of the unit.

Basic Parameters

Model		-	GWHFR32T12S,GRHFR32T12AS
Product Code		-	CB635001800_Y47596
Power Supply	**Rated Voltage**	V~	208/230
	Rated Frequency	Hz	60
	Phases	-	1
Power Supply Mode		-	Outdoor
Cooling Capacity		Btu/h	12000
Heating Capacity		Btu/h	12000
Cooling Power Input		W	1406
Heating Power Input		W	1212
Cooling Current Input		A	6.11
Heating Current Input		A	5.27
Rated Input		W	1820
Rated Cooling Current		A	7
Rated Heating Current		A	8
Air Flow Volume		CFM	365/294/265/241/218/194/159
Dehumidifying Volume		Pint/h	2.96
EER		(Btu/h)/W	8.55
COP		(Btu/h)/W	9.9
SEER		-	16
SCOP		-	8
Application Area		yd^2	19-29

Indoor Unit Parameters

Indoor Unit Model	-	GWHFR32T12S
Indoor Unit Product Code	-	CB635N01800_Y47596
Fan Type	-	Cross-flow
Fan Diameter Length (D×L)	mm	Φ92×580
Cooling Speed	r/min	1430/1200/1100/1050/1000/800/750
Heating Speed	r/min	1350/1200/1100/1050/1000/850/800
Fan Motor Power Output	W	20
Fan Motor RLA	A	0.35
Fan Motor Capacitor	μF	1
Evaporator Form	-	Aluminum Fin-copper Tube
Evaporator Pipe Diameter	mm	Φ5
Evaporator Row-fin Gap	mm	2-1.4
Evaporator Coil Length (L×D×W)	mm	584×22.8×266.7
Swing Motor Model	-	MP24HF
Swing Motor Power Output	W	1.5
Fuse Current	A	3.15
Sound Pressure Level	dB (A)	Cooling:42/36/33/32/31/24/22 Heating:41/36/33/31/30/25/24
Sound Power Level	dB (A)	Cooling:52/46/43/42/41/34/32 Heating:51/46/43/41/40/35/34
Dimension (W×H×D)	inch	32 51/64X10 15/64X7 9/16
Dimension of Carton Box (L×W×H)	inch	34 13/32X12 7/16X10
Dimension of Package (L×W×H)	inch	34 23/32X13 5/64X10 7/16
Net Weight	lb	17.6
Gross Weight	lb	20.9

Outdoor Unit Parameters

Outdoor Unit Model	-	GRHFR32T12AS
Outdoor Unit Product Code	-	CB635W01800_Y47596
Compressor Manufacturer	-	ZHUHAI LANDA COMPRESSOR CO.,LTD
Compressor Model	-	QXF-A098zC170H
Compressor Oil	-	RB68GX or equivalent
Compressor Type	-	Rotary
Compressor Locked Rotor Amp (L.R.A)	A	/
Compressor Rated Load Amp (RLA)	A	6.5
Compressor Power Input	W	885
Compressor Overload Protector	-	/
Throttling Method	-	Capillary
Set Temperature Range	°F	61~86
Cooling Operation Ambient Temperature Range	°F	0~118
Heating Operation Ambient Temperature Range	°F	-13~75
Condenser Form	-	Aluminum Fin-copper Tube
Condenser Pipe Diameter	mm	Φ7
Condenser Rows-fin Gap	mm	1-1.2
Condenser Coil Length (L×D×W)	mm	666×19.05×527
Fan Motor Speed	rpm	850
Fan Motor Power Output	W	30
Fan Motor RLA	A	0.65
Fan Motor Capacitor	μF	/
Air Flow Volume	m^3/h	1950
Fan Type	-	Axial-flow

Fan Diameter	mm	Φ400
Defrosting Method	-	Automatic Defrosting
Climate Type	-	T1
Isolation	-	I
Moisture Protection	-	IPX4
Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
Sound Pressure Level	dB (A)	52
Sound Power Level	dB (A)	62
Dimension(WXHXD)	inch	28 13/16X21 27/32X12 63/64
Dimension of Carton Box (LXWXH)	inch	31 9/64X14 11/16X23 15/64
Dimension of Package(LXWXH)	inch	31 17/64X14 51/64X24 7/32
Net Weight	lb	56.2
Gross Weight	lb	61.7
Refrigerant	-	R32
Refrigerant Charge	oz	22.9

Connection Pipe Parameters

Connection Pipe Length	ft	24.6
Connection Pipe Gas Additional Charge	oz/ft.	0.2
Outer Diameter of Liquid Pipe(Client Allocation)(British System)	-	1/4"
Outer Diameter of Gas Pipe(Client Allocation)(British System)	-	3/8"
Max Distance Height	ft	40
Max Distance Length	ft	65.6

Note: The connection pipe applies metric diameter.

The above data is subject to change without notice. Please refer to the nameplate of the unit.

Basic Parameters

Model		-	GWHFR32T18S,GRHFR32T18AS
Product Code		-	CB635000900_Y47596
Power Supply	**Rated Voltage**	V~	208/230
	Rated Frequency	Hz	60
	Phases	-	1
Power Supply Mode		-	Outdoor
Cooling Capacity		Btu/h	18000
Heating Capacity		Btu/h	18000
Cooling Power Input		W	1758
Heating Power Input		W	1465
Cooling Current Input		A	7.64
Heating Current Input		A	6.37
Rated Input		W	2200
Rated Cooling Current		A	10
Rated Heating Current		A	10
Air Flow Volume		CFM	589/506/471/435/400/335/282
Dehumidifying Volume		Pint/h	3.80
EER		(Btu/h)/W	10.2
COP		(Btu/h)/W	12.28
SEER		-	18
SCOP		-	8.2
Application Area		yd^2	28-41

Indoor Unit Parameters

Indoor Unit Model	-	GWHFR32T18S
Indoor Unit Product Code	-	CB635N00900_Y47596
Fan Type	-	Cross-flow
Fan Diameter Length (D×L)	mm	Φ108x691
Cooling Speed	r/min	1350/1200/1120/1050/980/860/750
Heating Speed	r/min	1350/1200/1120/1050/950/850/750
Fan Motor Power Output	W	45
Fan Motor RLA	A	0.7
Fan Motor Capacitor	μF	/
Evaporator Form	-	Aluminum Fin-copper Tube
Evaporator Pipe Diameter	mm	Φ5
Evaporator Row-fin Gap	mm	2-1.2
Evaporator Coil Length (L×D×W)	mm	700×22.8×381
Swing Motor Model	-	MP35CJ
Swing Motor Power Output	W	2.5
Fuse Current	A	3.15
Sound Pressure Level	dB (A)	Cooling:51/47/45/43/41/37/33 Heating:51/47/45/43/40/37/32
Sound Power Level	dB (A)	Cooling:61/57/55/53/51/47/43 Heating:61/57/55/53/50/47/42
Dimension (W×H×D)	inch	39 3/8 X 13 7/64 X 9 51/64
Dimension of Carton Box (L×W×H)	inch	41 1/2 X 15 43/64 X 12 33/64
Dimension of Package (L×W×H)	inch	41 11/16 X 15 63/64 X 12 29/32
Net Weight	lb	35.3
Gross Weight	lb	41.8

Outdoor Unit Parameters

Outdoor Unit Model	-	GRHFR32T18AS
Outdoor Unit Product Code	-	CB635W00900_Y47596
Compressor Manufacturer	-	ZHUHAI LANDA COMPRESSOR CO., LTD.
Compressor Model	-	QXF-A120zF170A
Compressor Oil	-	ZE-GLES RB68GX
Compressor Type	-	Rotary
Compressor Locked Rotor Amp (L.R.A)	A	20
Compressor Rated Load Amp (RLA)	A	8.1
Compressor Power Input	W	905
Compressor Overload Protector	-	/
Throttling Method	-	Capillary
Set Temperature Range	°F	61~86
Cooling Operation Ambient Temperature Range	°F	0~118
Heating Operation Ambient Temperature Range	°F	-13~75
Condenser Form	-	Aluminum Fin-copper Tube
Condenser Pipe Diameter	mm	Φ7.94
Condenser Rows-fin Gap	mm	1-1.2
Condenser Coil Length (L×D×W)	mm	761.5×19.05×528
Fan Motor Speed	rpm	940
Fan Motor Power Output	W	30
Fan Motor RLA	A	1.2
Fan Motor Capacitor	μF	/
Air Flow Volume	m^3/h	2520
Fan Type	-	Axial-flow

Fan Diameter	mm	Φ420
Defrosting Method	-	Automatic Defrosting
Climate Type	-	T1
Isolation	-	I
Moisture Protection	-	IPX4
Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
Sound Pressure Level	dB (A)	58
Sound Power Level	dB (A)	68
Dimension(WXHXD)	inch	31 37/64X21 27/32X13 25/32
Dimension of Carton Box (LXWXH)	inch	34 7/32X15 35/64X23 25/64
Dimension of Package(LXWXH)	inch	34 21/64X15 43/64X24 13/32
Net Weight	lb	62.9
Gross Weight	lb	68.4
Refrigerant	-	R32
Refrigerant Charge	oz	29.3

Connection Pipe Parameters

Connection Pipe Length	ft	24.6
Connection Pipe Gas Additional Charge	oz/ft.	0.2
Outer Diameter of Liquid Pipe(Client Allocation)(British System)	-	1/4"
Outer Diameter of Gas Pipe(Client Allocation)(British System)	-	1/2"
Max Distance Height	ft	32.8
Max Distance Length	ft	82.0

Note: The connection pipe applies metric diameter.

The above data is subject to change without notice. Please refer to the nameplate of the unit.

Basic Parameters

Model		-	GWHFR32T24S,GRHFR32T24AS
Product Code		-	CB635003600_Y47596
Power Supply	**Rated Voltage**	V~	208/230
	Rated Frequency	Hz	60
	Phases	-	1
Power Supply Mode		-	Outdoor
Cooling Capacity		Btu/h	24000
Heating Capacity		Btu/h	24000
Cooling Power Input		W	2010
Heating Power Input		W	1950
Cooling Current Input		A	9
Heating Current Input		A	9
Rated Input		W	2600
Rated Cooling Current		A	11
Rated Heating Current		A	12
Air Flow Volume		CFM	677/589/559/500/471/441/412
Dehumidifying Volume		Pint/h	5.28
EER		(Btu/h)/W	11.9
COP		(Btu/h)/W	12.3
SEER		-	19
SCOP		-	8.5
Application Area		yd^2	28-41

Indoor Unit Parameters

Indoor Unit Model	-	GWHFR32T24S
Indoor Unit Product Code	-	CB635N03600_Y47596
Fan Type	-	Cross-flow
Fan Diameter Length (D×L)	mm	Φ111.5×830
Cooling Speed	r/min	1350/1200/1100/1000/950/900/850
Heating Speed	r/min	1350/1200/1100/1000/950/900/850
Fan Motor Power Output	W	50
Fan Motor RLA	A	0.6
Fan Motor Capacitor	μF	/
Evaporator Form	-	Aluminum Fin-copper Tube
Evaporator Pipe Diameter	mm	Φ7
Evaporator Row-fin Gap	mm	2-1.4
Evaporator Coil Length (L×D×W)	mm	840×25.4×381
Swing Motor Model	-	MP35CP/MP24HF
Swing Motor Power Output	W	2.5/1.5
Fuse Current	A	3.15
Sound Pressure Level	dB (A)	Cooling:51/47/44/41/40/38/36 Heating:51/47/44/41/39/38/36
Sound Power Level	dB (A)	Cooling:61/57/54/51/50/48/36 Heating:61/57/54/51/49/48/46
Dimension (W×H×D)	inch	44 51/64X13 7/64X9 51/64
Dimension of Carton Box (L×W×H)	inch	46 57/64X16 1/32X12 7/8
Dimension of Package (L×W×H)	inch	47 3/32X16 11/32X13 17/64
Net Weight	lb	33.1
Gross Weight	lb	39.7

Outdoor Unit Parameters

Outdoor Unit Model	-	GRHFR32T24AS
Outdoor Unit Product Code	-	CB574W17800_Y47596
Compressor Manufacturer	-	ZHUHAI LANDA COMPRESSOR CO,LTD.
Compressor Model	-	FTz-SM151AXBD
Compressor Oil	-	FW68DA or equivalent
Compressor Type	-	Rotary
Compressor Locked Rotor Amp (L.R.A)	A	35
Compressor Rated Load Amp (RLA)	A	10
Compressor Power Input	W	1330
Compressor Overload Protector	-	HPC 115/95U1 KSD115°C
Throttling Method	-	Capillary
Set Temperature Range	°F	61~86
Cooling Operation Ambient Temperature Range	°F	0~118
Heating Operation Ambient Temperature Range	°F	-13~75
Condenser Form	-	Aluminum Fin-copper Tube
Condenser Pipe Diameter	mm	Φ7
Condenser Rows-fin Gap	mm	2-1.4
Condenser Coil Length (L×D×W)	mm	839×38.1×616
Fan Motor Speed	rpm	800
Fan Motor Power Output	W	50
Fan Motor RLA	A	1
Fan Motor Capacitor	μF	3.5
Air Flow Volume	m^3/h	3200
Fan Type	-	Axial-flow

Fan Diameter	mm	Φ520
Defrosting Method	-	Automatic Defrosting
Climate Type	-	T1
Isolation	-	1
Moisture Protection	-	IPX4
Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
Sound Pressure Level	dB (A)	58
Sound Power Level	dB (A)	68
Dimension(WXHXD)	inch	37 23/32X25 63/64X15 53/64
Dimension of Carton Box (LXWXH)	inch	40 33/64X17 53/64X28 5/32
Dimension of Package(LXWXH)	inch	40 5/8X17 61/64X29 1/64
Net Weight	lb	93.7
Gross Weight	lb	103.6
Refrigerant	-	R32
Refrigerant Charge	oz	42.3

Connection Pipe Parameters

Connection Pipe Length	ft	24.6
Connection Pipe Gas Additional Charge	oz/ft.	0.1
Outer Diameter of Liquid Pipe(Client Allocation)(British System)	-	1/4"
Outer Diameter of Gas Pipe(Client Allocation)(British System)	-	1/2"
Max Distance Height	ft	82
Max Distance Length	ft	131.2

Note: The connection pipe applies metric diameter.

The above data is subject to change without notice. Please refer to the nameplate of the unit.

Basic Parameters

Model		-	GWH32IT36S,GRH32IT36AS
Product Code		-	CB635002001_Y47596
Power Supply	**Rated Voltage**	V~	208/230
	Rated Frequency	Hz	60
	Phases	-	1
Power Supply Mode		-	Outdoor
Cooling Capacity		Btu/h	33600
Heating Capacity		Btu/h	34000
Cooling Power Input		W	3169
Heating Power Input		W	3267
Cooling Current Input		A	13.5
Heating Current Input		A	14.7
Rated Input		W	4000
Rated Cooling Current		A	20
Rated Heating Current		A	20
Air Flow Volume		CFM	794/647/618/559/500/471/441
Dehumidifying Volume		Pint/h	7.40
EER		(Btu/h)/W	10.6
COP		(Btu/h)/W	10.4
SEER		-	21
SCOP		-	8.5
Application Area		yd^2	55-84

Indoor Unit Parameters

Indoor Unit Model	-	GWH32IT36S
Indoor Unit Product Code	-	CB635N02001_Y47596
Fan Type	-	Cross-flow
Fan Diameter Length (D×L)	mm	Φ111.5×830
Cooling Speed	r/min	1450/1150/1100/1000/950/900/850
Heating Speed	r/min	1450/1200/1100/1050/1000/950/850
Fan Motor Power Output	W	60
Fan Motor RLA	A	0.7
Fan Motor Capacitor	μF	/
Evaporator Form	-	Aluminum Fin-copper Tube
Evaporator Pipe Diameter	mm	Φ7
Evaporator Row-fin Gap	mm	2-1.2
Evaporator Coil Length (L×D×W)	mm	840×25.4×381
Swing Motor Model	-	MP35CP
Swing Motor Power Output	W	2.5
Fuse Current	A	3.15
Sound Pressure Level	dB (A)	Cooling:52/45/44/41/40/38/36 Heating:53/46/43/42/40/38/36
Sound Power Level	dB (A)	Cooling:62/55/54/51/50/48/46 Heating:63/56/53/52/50/48/46
Dimension (W×H×D)	inch	44 51/64 X 13 7/64 X 9 51/64
Dimension of Carton Box (L×W×H)	inch	46 57/64 X 16 1/32 X 12 7/8
Dimension of Package (L×W×H)	inch	47 3/32 X 16 11/32 X 13 17/64
Net Weight	lb	35.3
Gross Weight	lb	41.9

Outdoor Unit Parameters

Outdoor Unit Model	-	GRH32IT36AS
Outdoor Unit Product Code	-	CB574W18100_Y47596
Compressor Manufacturer	-	ZHUHAI LANDA COMPRESSOR CO., LTD.
Compressor Model	-	QXFS-D280zX070
Compressor Oil	-	FW68DA or equivalent
Compressor Type	-	Rotary
Compressor Locked Rotor Amp (L.R.A)	A	40
Compressor Rated Load Amp (RLA)	A	16
Compressor Power Input	W	2294
Compressor Overload Protector	-	/
Throttling Method	-	Electron expansion valve
Set Temperature Range	°F	61~86
Cooling Operation Ambient Temperature Range	°F	-4~122
Heating Operation Ambient Temperature Range	°F	-13~75
Condenser Form	-	Aluminum Fin-copper Tube
Condenser Pipe Diameter	mm	Φ7
Condenser Rows-fin Gap	mm	2 - 1.4
Condenser Coil Length (L×D×W)	mm	955X38.1X704
Fan Motor Speed	rpm	850
Fan Motor Power Output	W	90
Fan Motor RLA	A	1.7
Fan Motor Capacitor	μF	/
Air Flow Volume	m^3/h	4500
Fan Type	-	Axial-flow

Fan Diameter	mm	Φ570
Defrosting Method	-	Automatic Defrosting
Climate Type	-	T1
Isolation	-	I
Moisture Protection	-	IPX4
Permissible Excessive Operating Pressure for the Discharge Side	MPa	4.3
Permissible Excessive Operating Pressure for the Suction Side	MPa	2.5
Sound Pressure Level	dB (A)	62
Sound Power Level	dB (A)	72
Dimension(WXHXD)	inch	39 3/8X29 3/8X16 13/16
Dimension of Carton Box (LXWXH)	inch	42 13/32X18 57/64X30 29/32
Dimension of Package(LXWXH)	inch	42 33/64X19 1/64X31 57/64
Net Weight	lb	122.4
Gross Weight	lb	133.4
Refrigerant	-	R32
Refrigerant Charge	oz	56.4

Connection Pipe Parameters

Connection Pipe Length	ft	24.6
Connection Pipe Gas Additional Charge	oz/ft.	0.4
Outer Diameter of Liquid Pipe(Client Allocation)(British System)	-	1/4"
Outer Diameter of Gas Pipe(Client Allocation)(British System)	-	5/8"
Max Distance Height	ft	82
Max Distance Length	ft	131.2

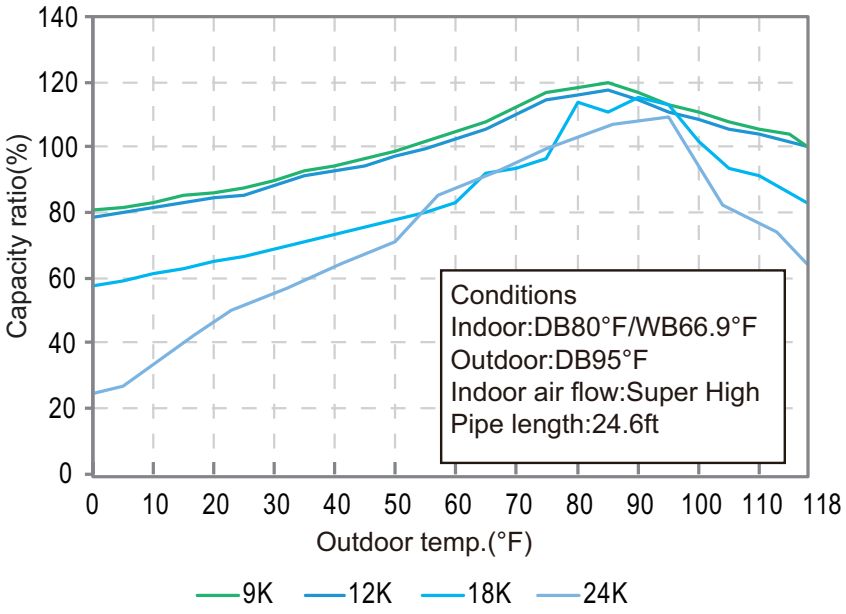
Note: The connection pipe applies metric diameter.

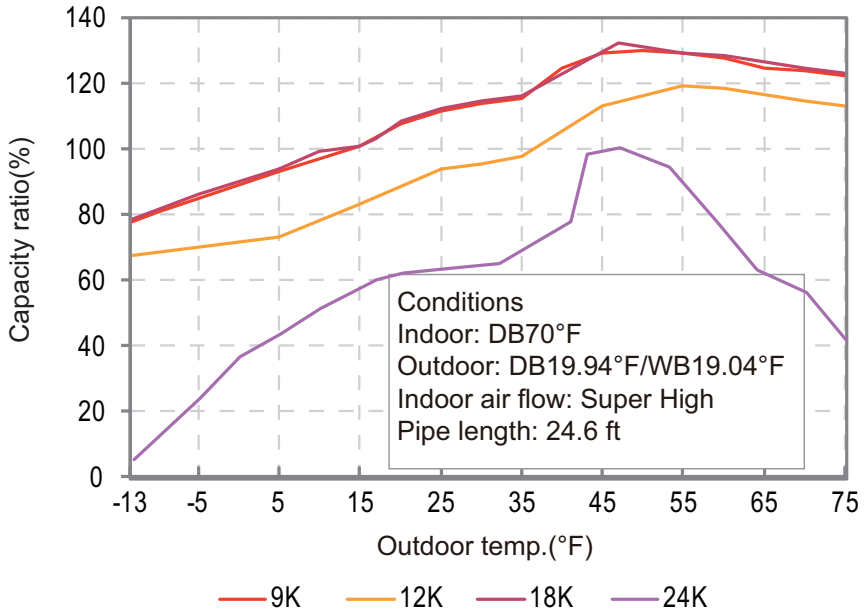
The above data is subject to change without notice. Please refer to the nameplate of the unit.

3.2 Capacity Variation Ratio According to Temperature

For cooling temperature range of 0~118°F models

Cooling ▶

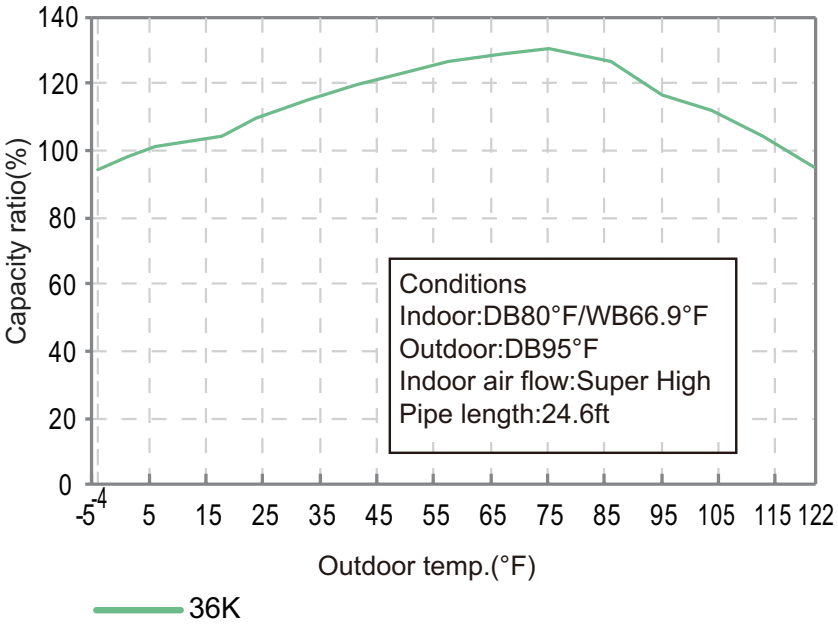


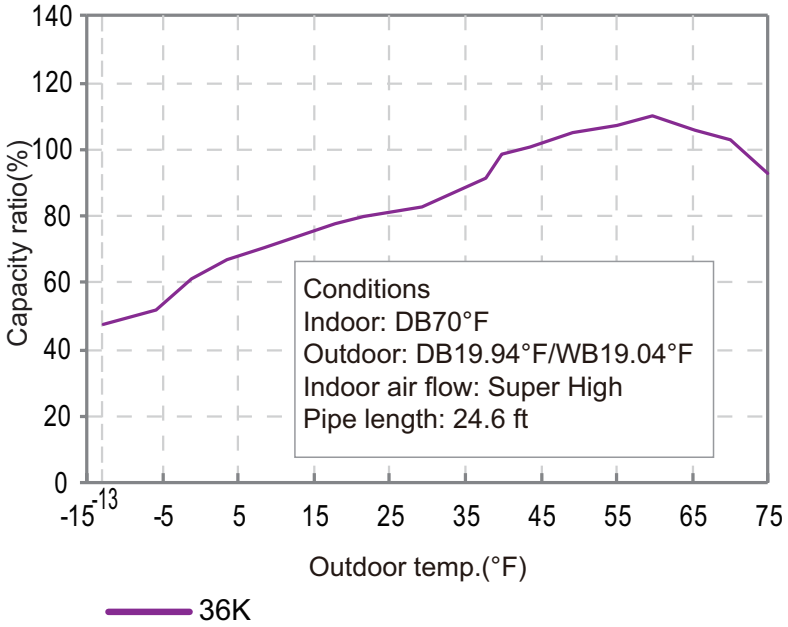


◀ Heating

For cooling temperature range of -4~122°F models

Cooling ▶





◀ Heating

3.3 Cooling and Heating Data Sheet in Rated Frequency

Cooling

Rated cooling condition (°C) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)		
80/66.9	95/-	09K	0.8~1.0	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4	Super High	High
80/66.9	95/-	12K	0.8~1.0	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4	Super High	High
80/66.9	95/-	18K	0.8~1.0	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4	Super High	High
80/66.9	95/-	24K	0.8~1.0	in:46.4~51.8 out:51.8~57.2	in:167~181.4 out:98.6~118.4	Super High	High
80/66.9	95/-	36K	0.8~1.1	in:46.8 out:52.8	in:127 out:96.8	Super High	High

Heating

Rated heating condition (°C) (DB/WB)		Model	Pressure of gas pipe connecting indoor and outdoor unit	Inlet and outlet pipe temperature of heat exchanger		Fan speed of indoor unit	Fan speed of outdoor unit
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)		
70/60	19.94/19.04	09K	2.4~2.8	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8	Super High	High
70/60	19.94/19.04	12K	2.4~2.8	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8	Super High	High
70/60	19.94/19.04	18K	3.4~3.8	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8	Super High	High
70/60	19.94/19.04	24K	3.4~3.8	in:167~181.4 out:98.6~113	in:33.8~37.4 out:35.6~42.8	Super High	High
70/60	19.94/19.04	36K	2.5~2.7	in:134.4 out:102	in:36 out:39	Super High	High

Instruction

T1: Inlet and outlet pipe temperature of evaporator

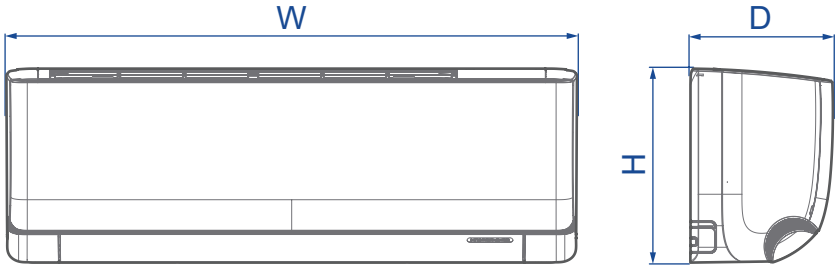
T2: Inlet and outlet pipe temperature of condenser

P: Pressure at the side of big valve

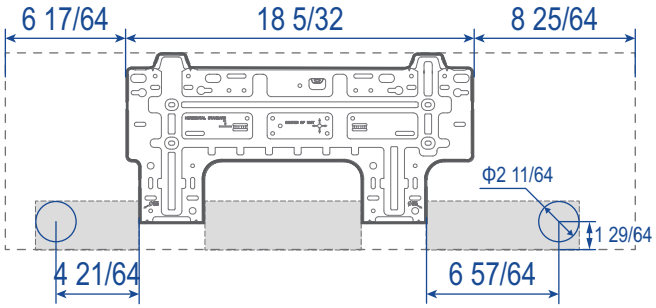
Connection pipe length: 24.6ft.

4. Outline Dimension Diagram

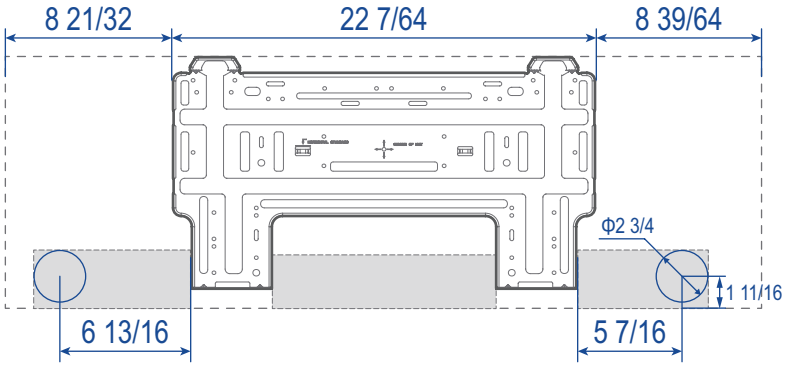
4.1 Indoor Unit



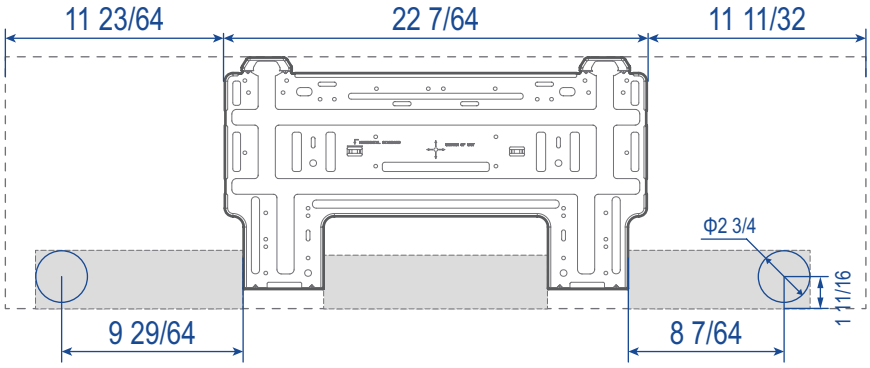
GWHFR32T09S
GWHFR32T12SA
GWHFR32T12S



GWHFR32T18S



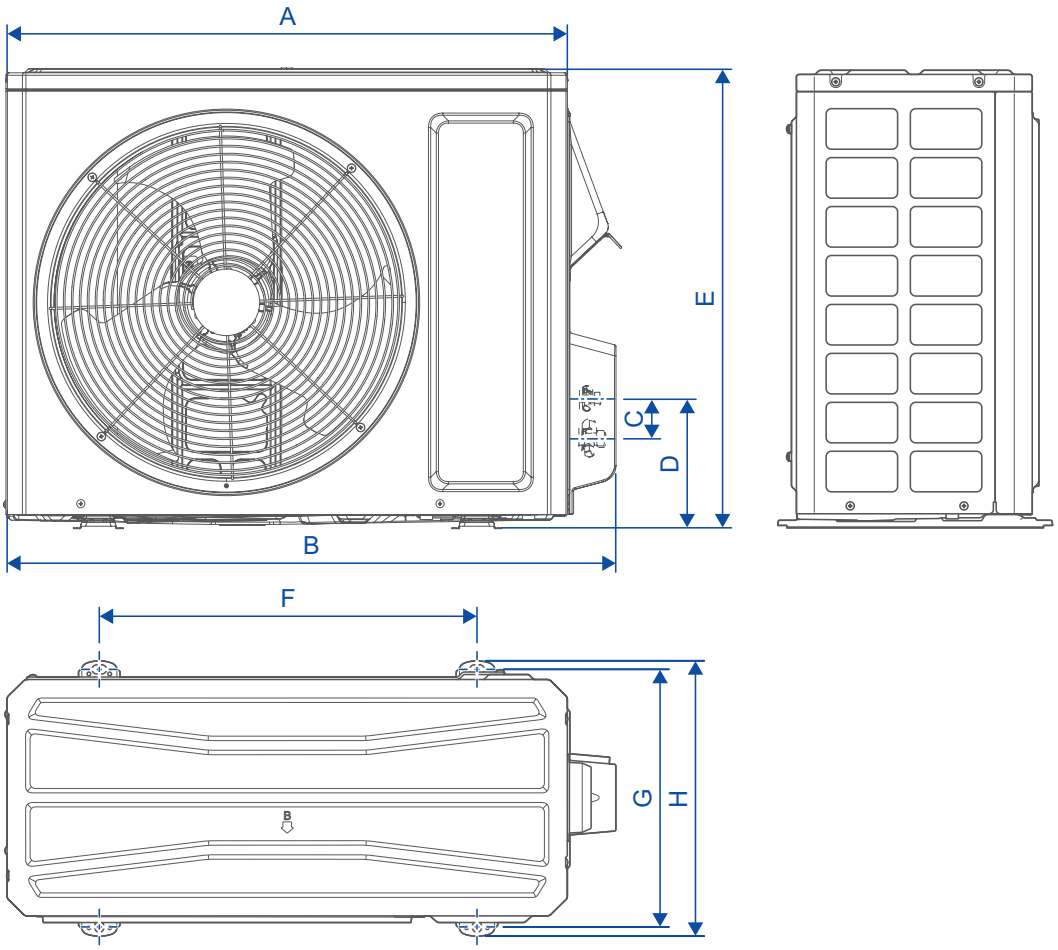
GWHFR32T24S
GWH32IT36S



Unit: inch

Indoor Unit Model	W	H	D
GWHFR32T09S GWHFR32T12SA GWHFR32T12S	32 51/64	10 15/64	7 9/16
GWHFR32T18S	39 3/8	13 7/64	9 51/64
GWHFR32T24S GWH32IT36S	44 51/64	13 7/64	9 51/64

4.2 Outdoor Unit



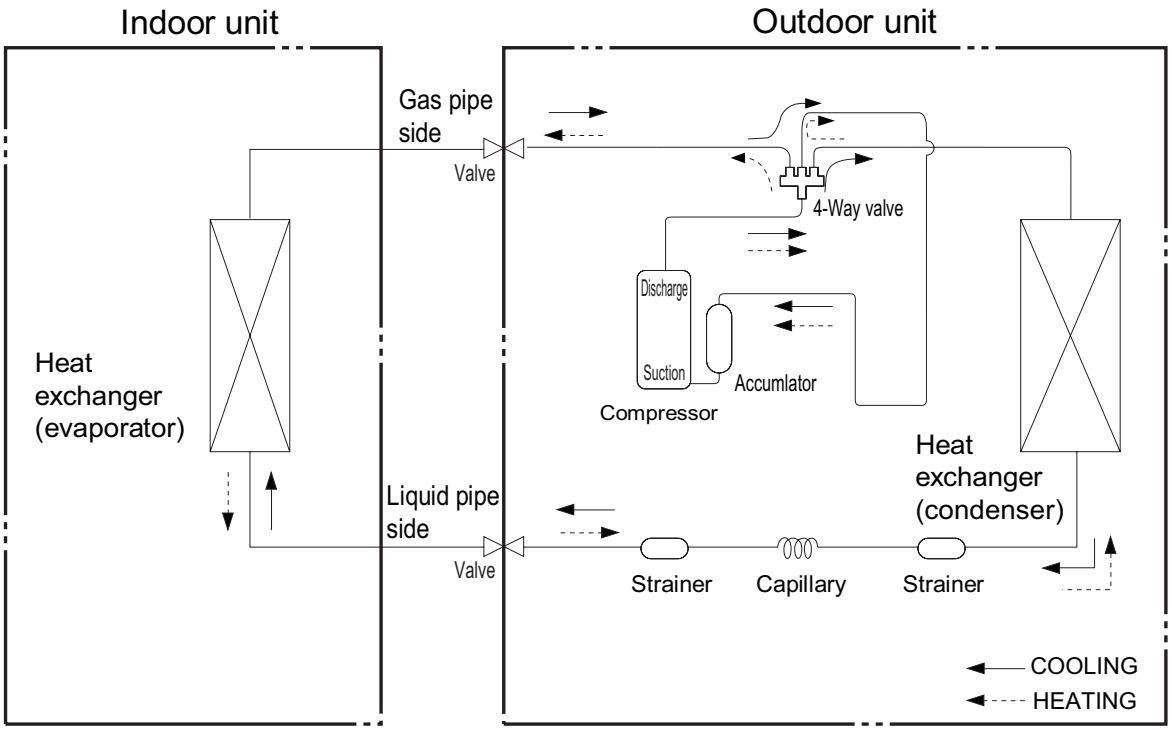
NOTE: The appearance of outdoor unit is for reference only.

Unit: inch

Outdoor Unit Model	A	B	C	D	E	F	G	H
GRHFR32T09AS GRHFR32T12ASA GRHFR32T12AS	26 37/64	28 13/16	2 9/16	6 27/64	21 27/32	17 29/32	12 13/64	12 63/64
GRHFR32T18AS	29 21/64	31 37/64	2 9/16	6 7/16	21 27/32	20 5/32	13 5/64	13 25/32
GRHFR32T24AS	35 3/64	37 23/32	2 9/16	6 33/64	25 63/64	22 7/16	14 39/64	15 53/64
GRH32IT36AS	36 11/32	39 3/8	2 61/64	6 57/64	29 3/8	24 1/64	15 35/64	16 13/16

5. Refrigerant System Diagram

Models with capillary throttling



Connection pipe specification

09K

Liquid pipe: **1/4"**
Gas pipe: **3/8"**

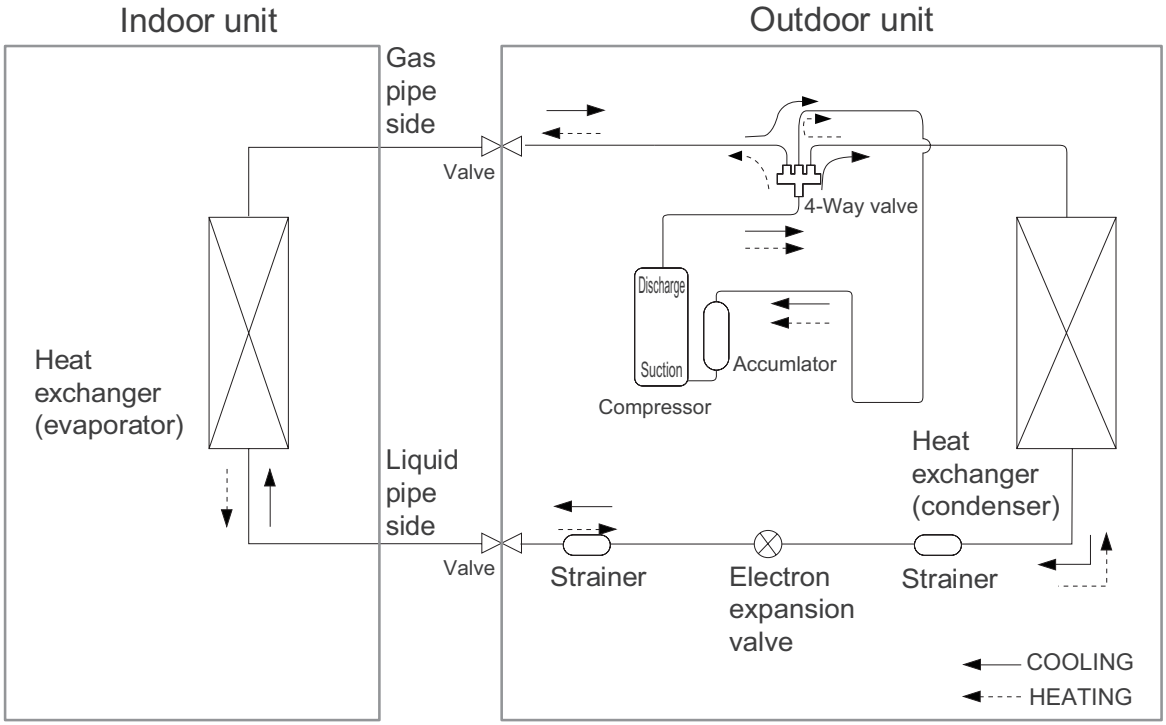
12K

Liquid pipe: **1/4"**
Gas pipe: **3/8"**

18K

Liquid pipe: **1/4"**
Gas pipe: **1/2"**

Models with Electron expansion valve throttling



Connection pipe specification

24K

Liquid pipe: **1/4"**
Gas pipe: **1/2"**

36K

Liquid pipe: **1/4"**
Gas pipe: **5/8"**

6. Electrical Part

6.1 Wiring Diagram

Instruction

Symbol	Symbol Color	Symbol	Symbol Color
WH	White	BU	Blue
YE	Yellow	BK	Black
RD	Red	OG	Orange
YEGN	Yellow/Green	GY	Gray
VT	Violet	CAP	Jumper cap
GN	Green	COMP	Compressor
BN	Brown	⏚	Grounding wire

NOTE:

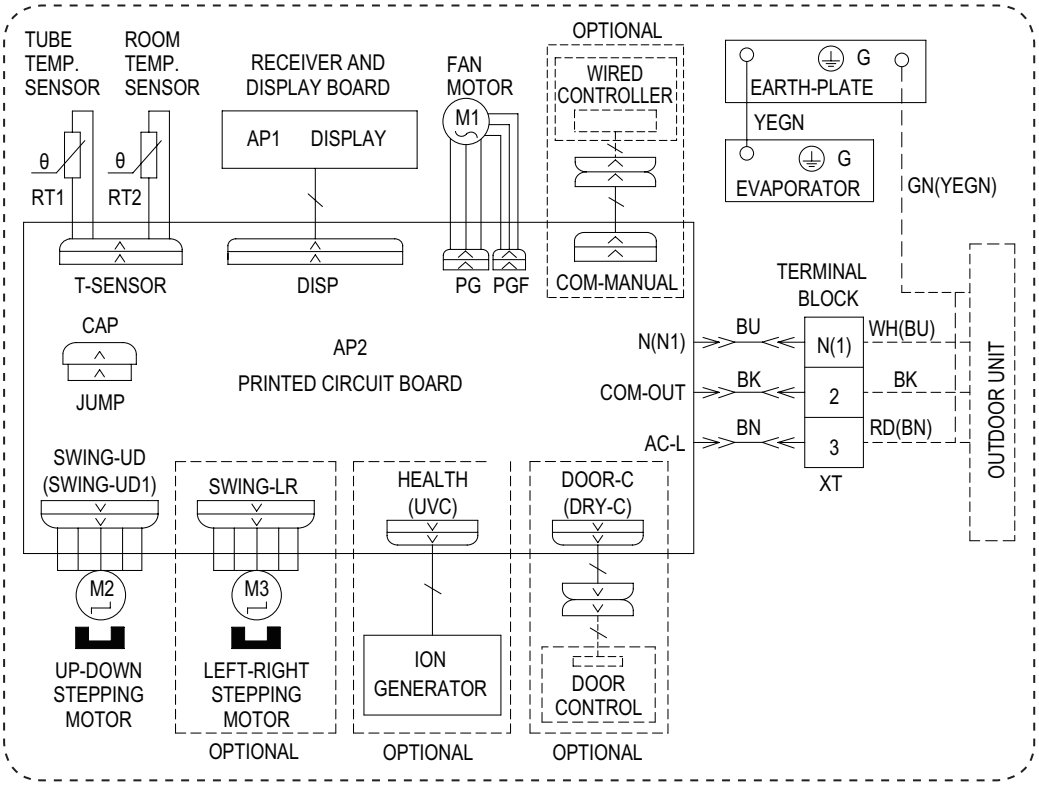
Jumper cap is used to determine fan speed and the swing angle of horizontal louver for this model.

List of Electrical Wiring Diagrams for Indoor Unit

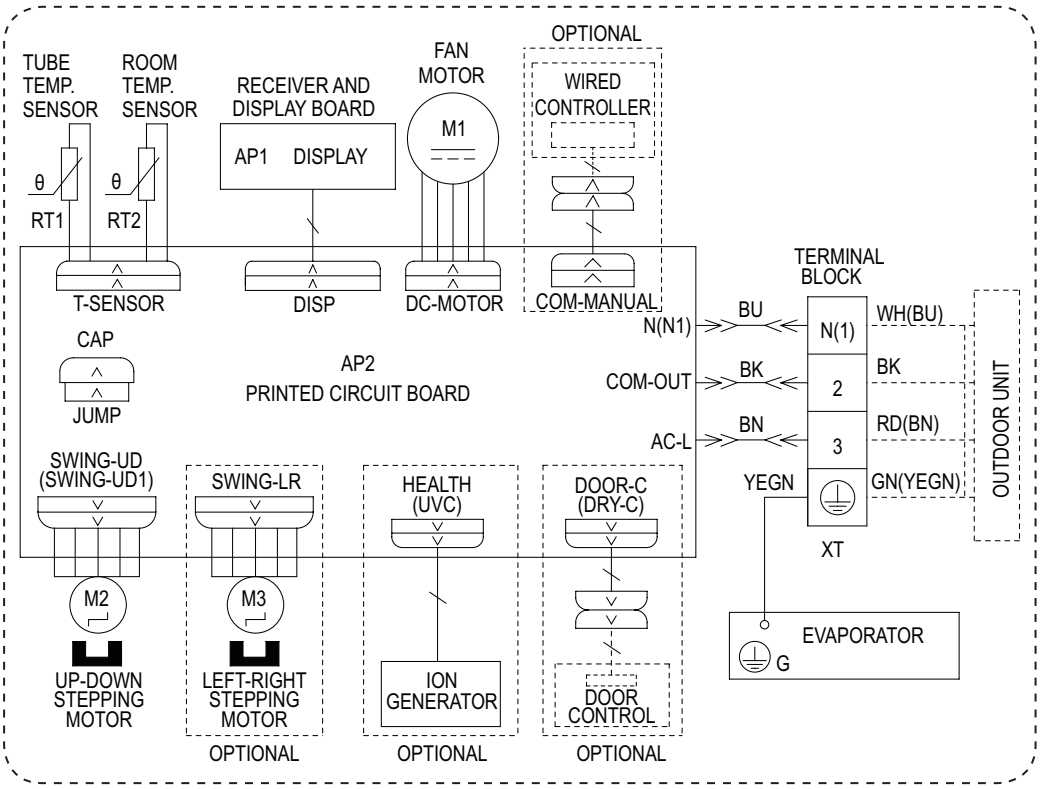
Indoor Unit Model	Indoor Unit Product Code	Wiring Diagram Code for Indoor Unit
GWHFR32T09S	CB635N00200_Y47596	600007066914
GWHFR32T12SA	CB635N01700_Y47596	600007066914
GWHFR32T12S	CB635N01800_Y47596	600007066914
GWHFR32T18S	CB635N00900_Y47596	600007067116
GWHFR32T24S	CB635N03600_Y47596	600007067116
GWH32IT36S	CB635N02001_Y47596	600007067116

These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

600007066914 ▶



600007067116 ▶

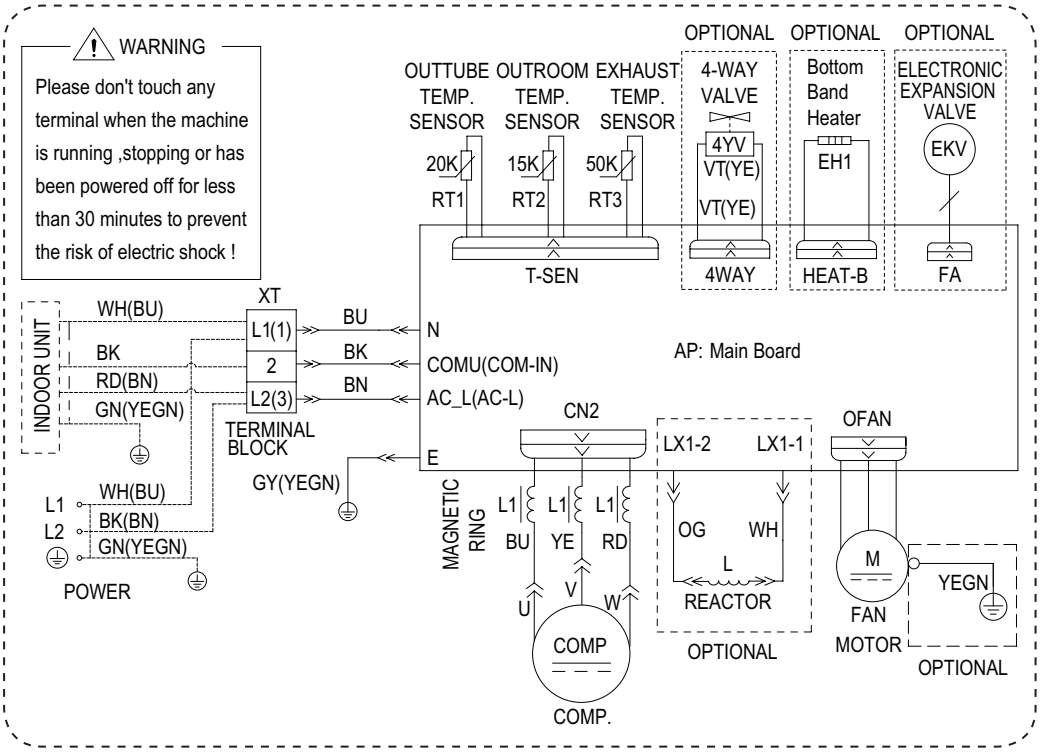


List of Electrical Wiring Diagrams for Outdoor Unit

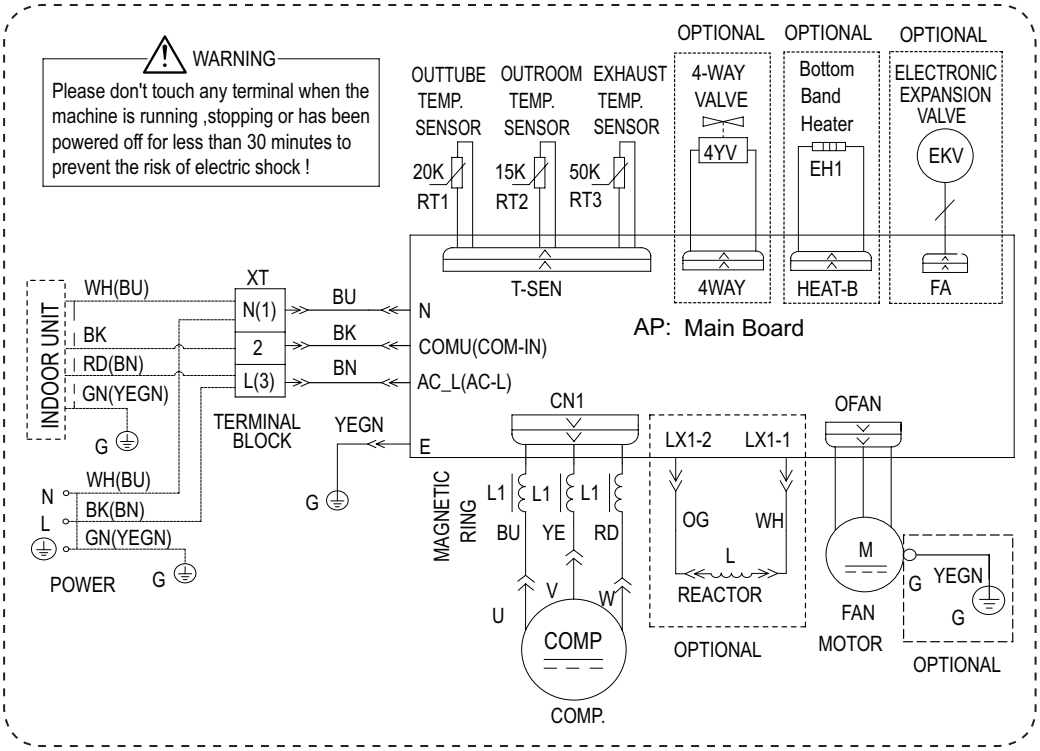
Outdoor Unit Model	Outdoor Unit Product Code	Wiring Diagram Code for Outdoor Unit
GRHFR32T09AS	CB635W00200_Y47596	60000706385601
GRHFR32T12ASA	CB635W01700_Y47596	600007065451
GRHFR32T12AS	CB635W01800_Y47596	60000706385601
GRHFR32T18AS	CB635W00900_Y47596	600007066431
GRHFR32T24AS	CB574W17800_Y47596	600007066468
GRH32IT36AS	CB574W18100_Y47596	600007066424

These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

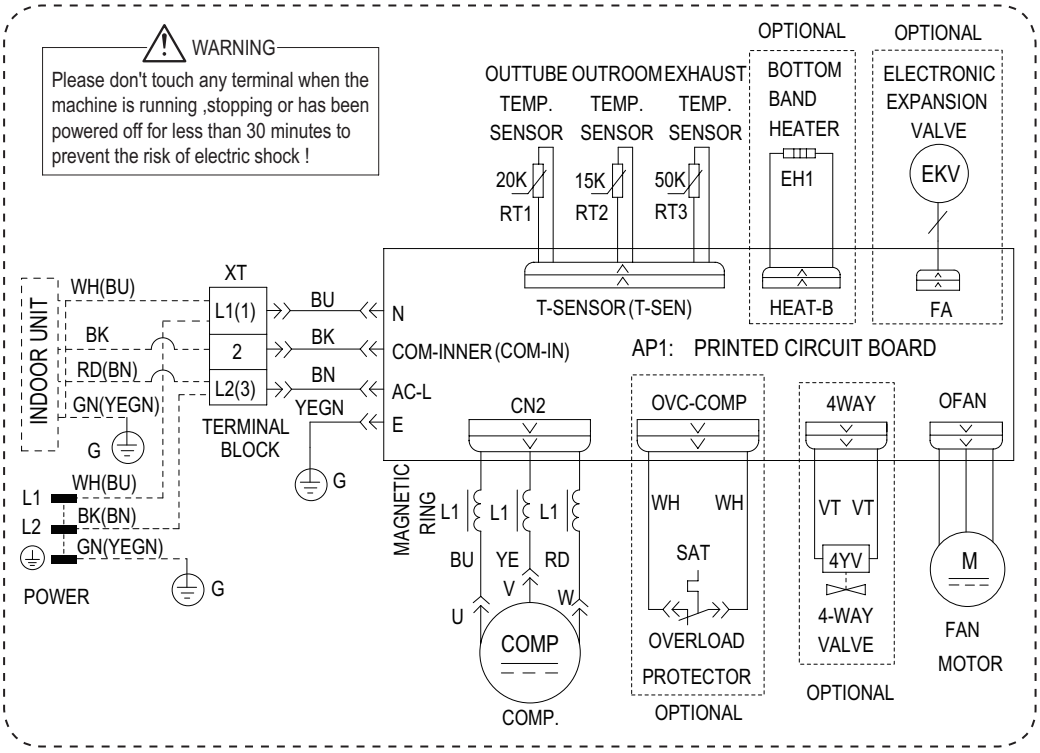
60000706385601 ▶



600007065451 ▶



600007066431 ▶



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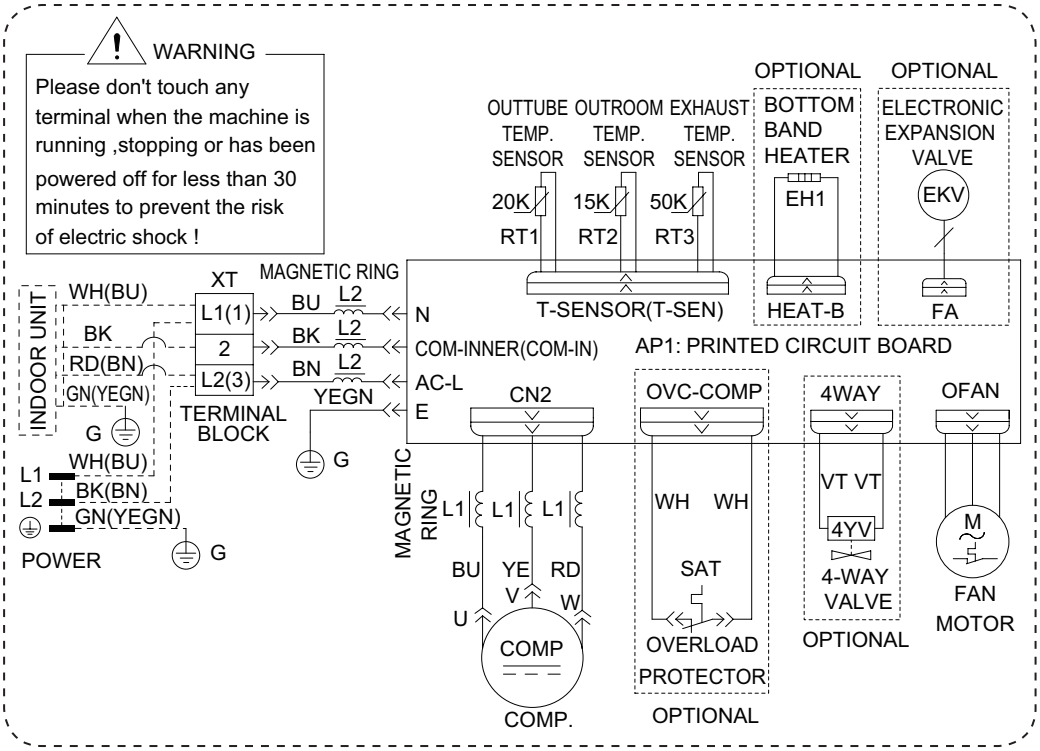

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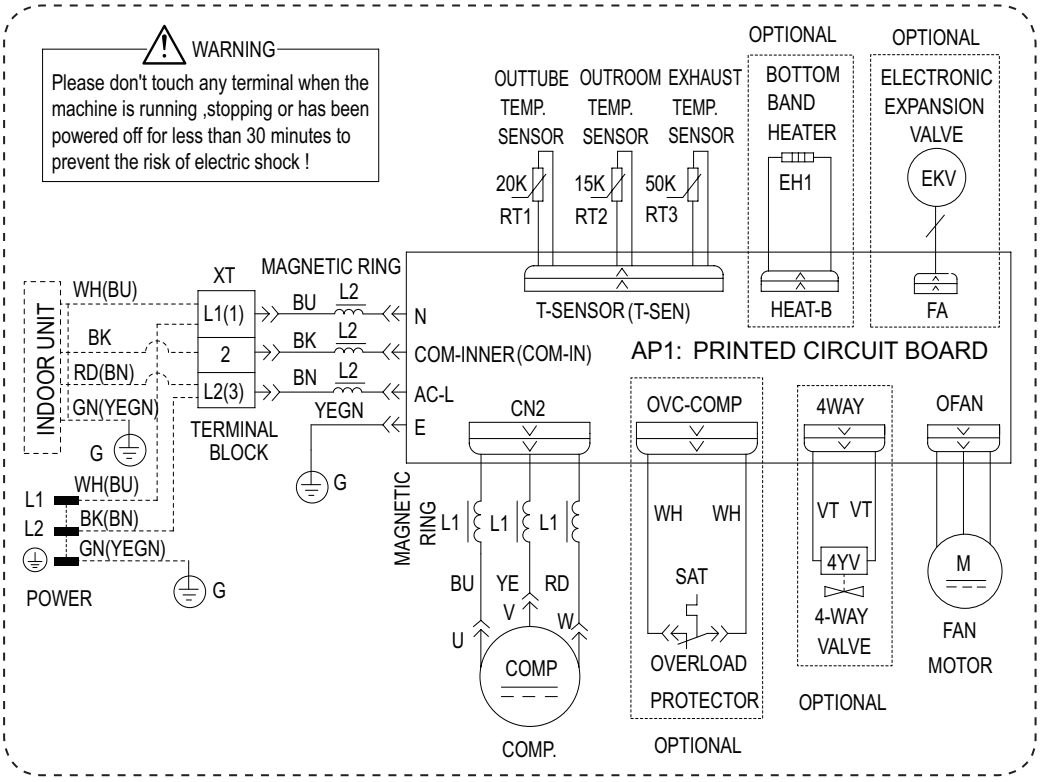
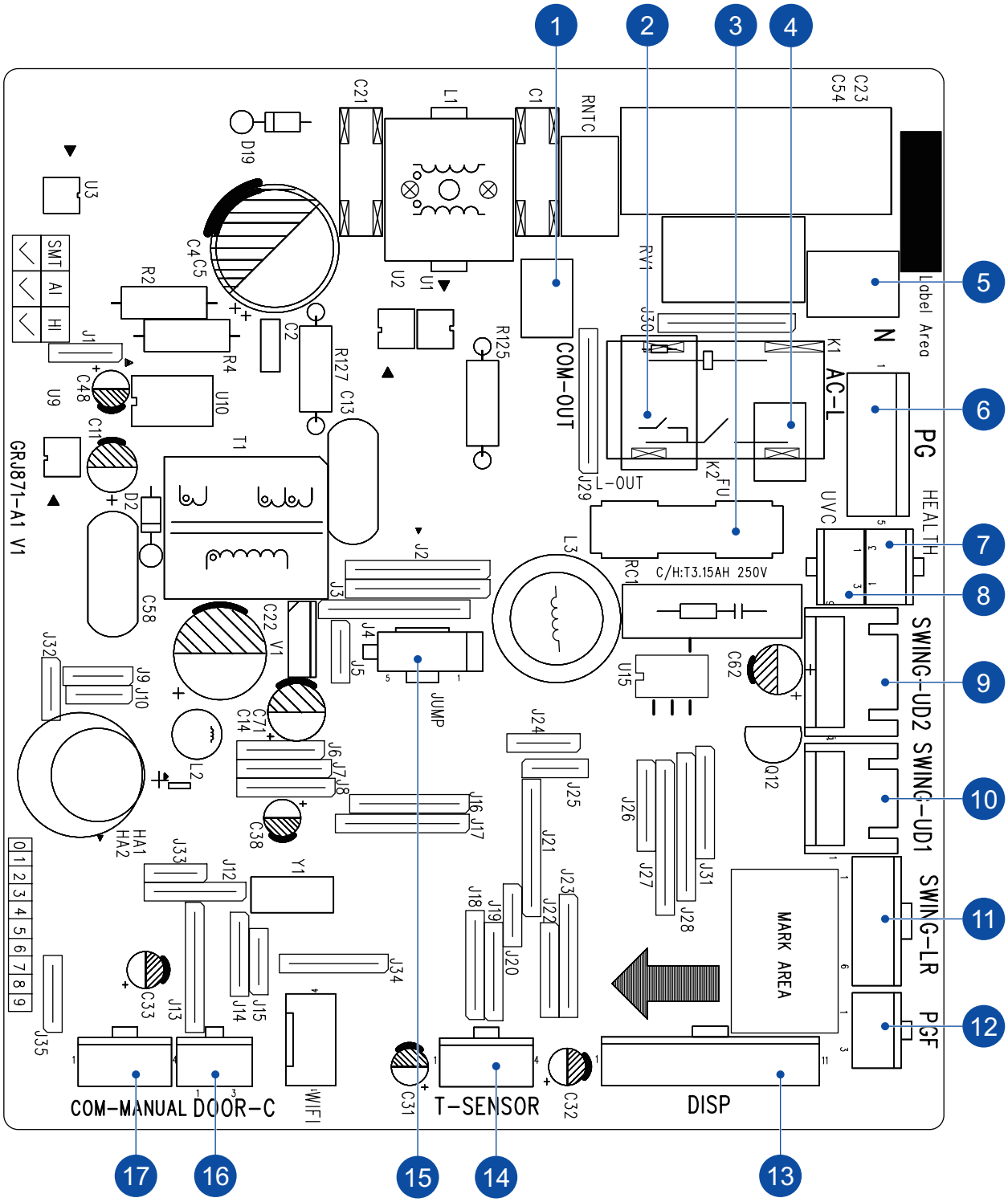


6.2 Printed Circuit Board Diagram

List of Printed Circuit Board Diagrams for Indoor Unit

Indoor Unit Model	Indoor Unit Product Code	Printed Circuit Board Model for Indoor Unit
GWHFR32T09S	CB635N00200_Y47596	GRJ871-A1
GWHFR32T12SA	CB635N01700_Y47596	GRJ871-A1
GWHFR32T12S	CB635N01800_Y47596	GRJ871-A1
GWHFR32T18S	CB635N00900_Y47596	GRJ869-A
GWHFR32T24S	CB635N03600_Y47596	GRJ869-A
GWH32IT36S	CB635N02001_Y47596	GRJ869-A

GRJ871-A1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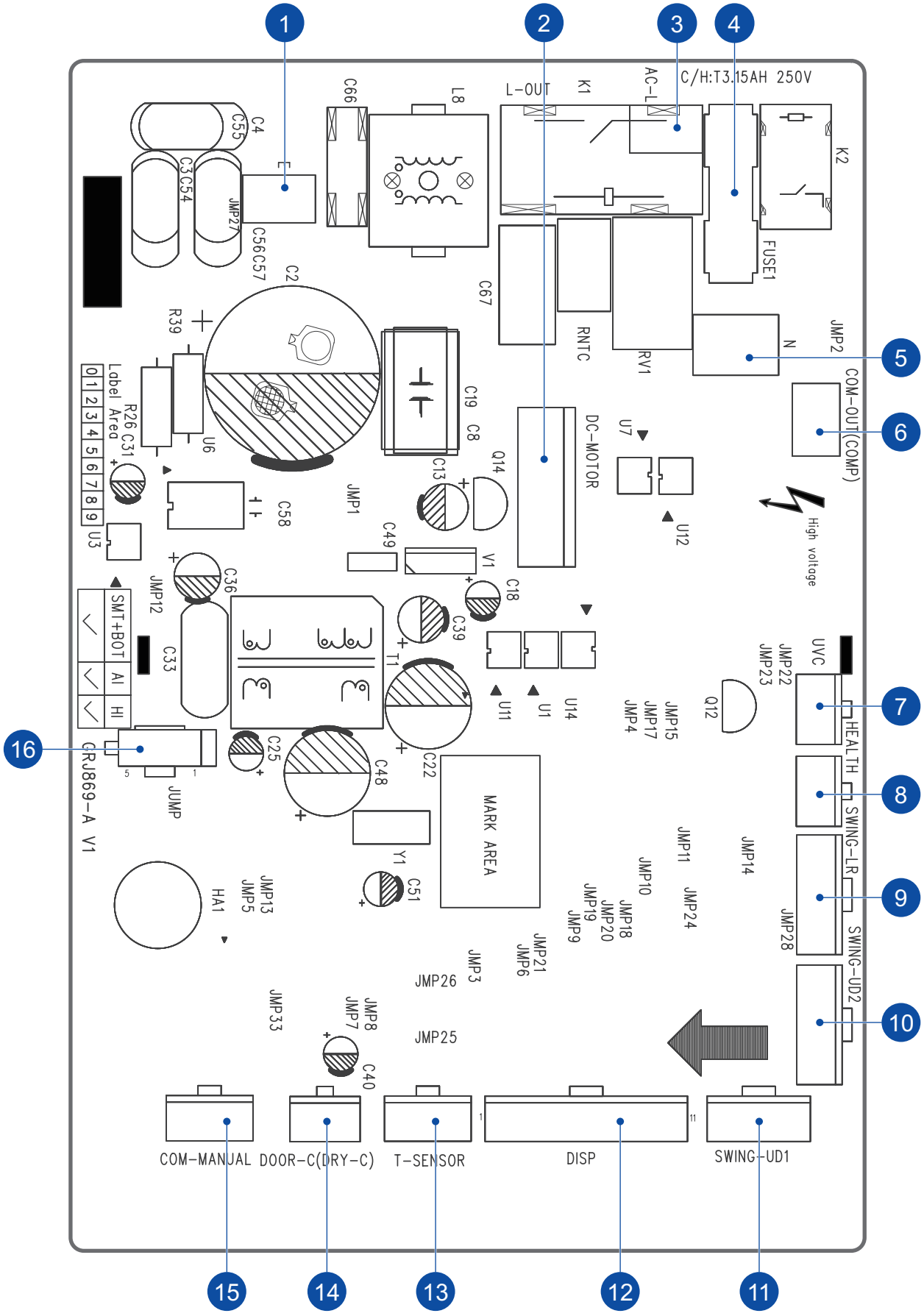
14
15
16
17
GRJ871-A1 V1
COM-OUT
L-OUT
AC-L
N
PG
HEALTH
UVC
C/H:T3.15AH 250V
SWING-UD2
SWING-UD1
SWING-LR
PGF
MARK AREA
DISP
T-SENSOR
COM-MANUAL DOOR-C
WIFI
JUMP
Label Area

No.	Name
1	Communication Wire Insertion
2	Live Wire Insertion (Outdoor unit)
3	Fuse
4	Live Wire Insertion
5	Neutral Wire Insertion
6	PG Motor Needle Stand
7	Plasmacluster Ion Needle Stand
8	Ultraviolet cleaning Needle Stand
9	Up & Down Swing Needle Stand 2

No.	Name
10	Up & Down Swing Needle Stand 1
11	Left & Right Swing Needle Stand
12	PG Motor Feedback Needle Stand
13	Display Board Needle Stand
14	Temperature Sensor Tube Needle Stand
15	Jumper
16	Door Control Needle Stand
17	Wired Controller Needle Stand

GRJ869-A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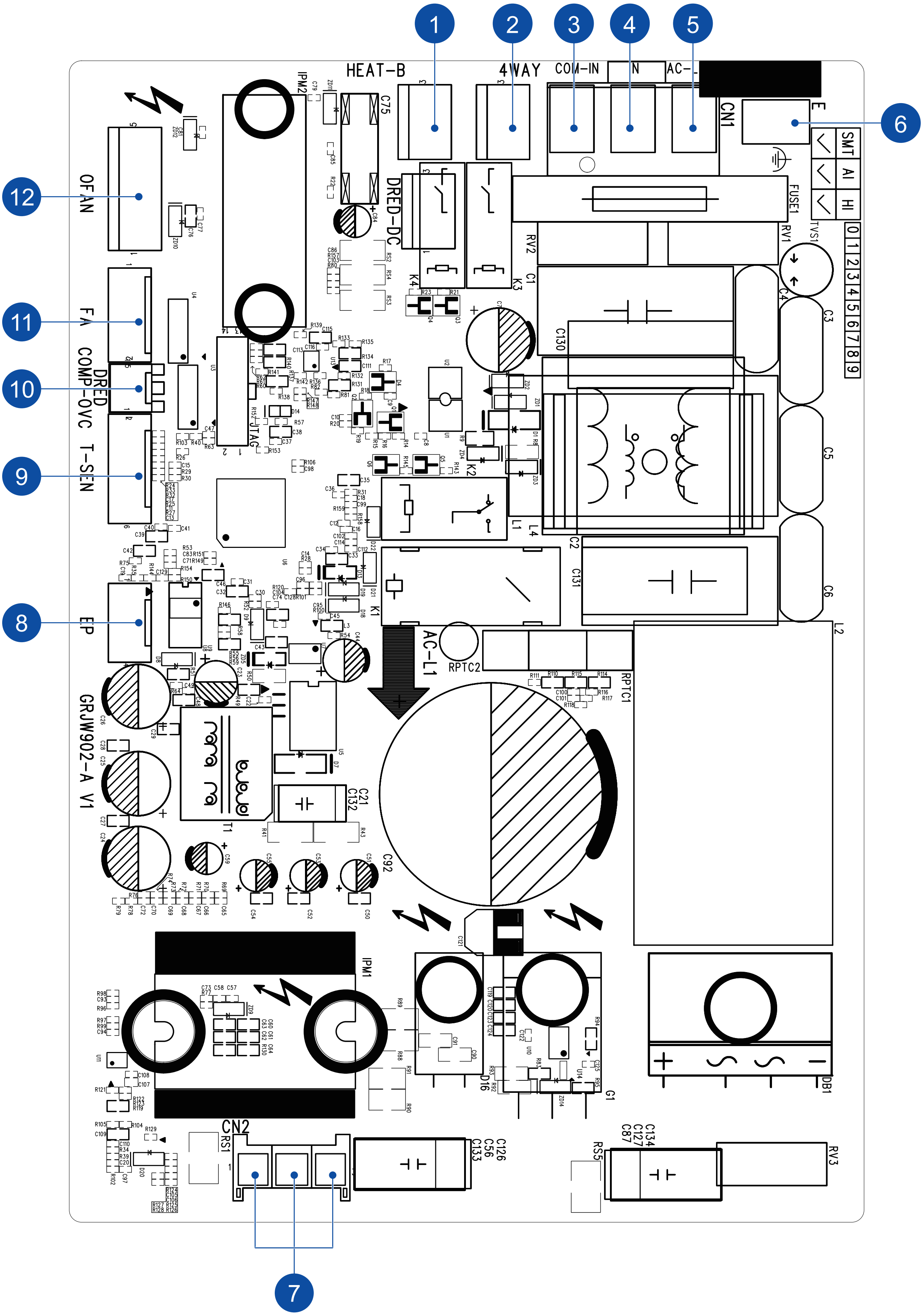
15
16
L-OUT
AC-L
C/H:T3.15AH 250V
K1
K2
FUSE1
L
N
JMP2
COM-OUT(COMP)
High voltage
DC-MOTOR
RNTC
RV1
C67
L8
C66
C4
C55
C3
C54
C56
C57
JMP27
C2
R39
C19
C8
U6
U7
U12
Q14
C13
JMP1
C58
C49
V1
C18
C39
T1
C36
JMP12
C33
U11
U1
U14
Q12
JMP22
JMP23
UVC
HEALTH
JMP15
JMP17
JMP4
SWING-LR
SWING-UD2
JMP28
JMP14
JMP11
JMP24
JMP10
JMP18
JMP20
JMP19
JMP9
JMP21
JMP6
JMP3
JMP26
JMP25
JMP33
JMP8
JMP7
C40
C22
C25
C48
MARK AREA
Y1
C51
HA1
JMP13
JMP5
SMT+BOT
AI
HI
JUMP
GRJ869-A V1
R26
C31
Label Area
U3
COM-MANUAL
DOOR-C(DRY-C)
T-SENSOR
DISP
SWING-UD1

No.	Name	No.	Name
1	Earthing Wire Insertion	9	Left & Right Swing Needle Stand
2	Brushless DC Motor Needle Stand	10	Up & Down Swing Needle Stand 2
3	Live Wire Insertion	11	Up & Down Swing Needle Stand 1
4	Fuse	12	Display Board Needle Stand
5	Neutral Wire Insertion	13	Temperature Sensor Needle Stand
6	Communication Wire Insertion	14	Door Control Needle Stand (Dry Contact)
7	Ultraviolet Cleaning Needle Stand	15	Wired Controller Needle Stand
8	Health Function Needle Stand	16	Jumper Needle Stand

List of Printed Circuit Board Diagrams for Outdoor Unit

Outdoor Unit Model	Outdoor Unit Product Code	Printed Circuit Board Model for Outdoor Unit
GRHFR32T09AS	CB635W00200_Y47596	GRJW902-A
GRHFR32T12ASA	CB635W01700_Y47596	GRJW870-A5
GRHFR32T12AS	CB635W01800_Y47596	GRJW902-A
GRHFR32T18AS	CB635W00900_Y47596	GRJW912-A
GRHFR32T24AS	CB574W17800_Y47596	GRJW924-A1
GRH32IT36AS	CB574W18100_Y47596	GRJW936-A

GRJW902-A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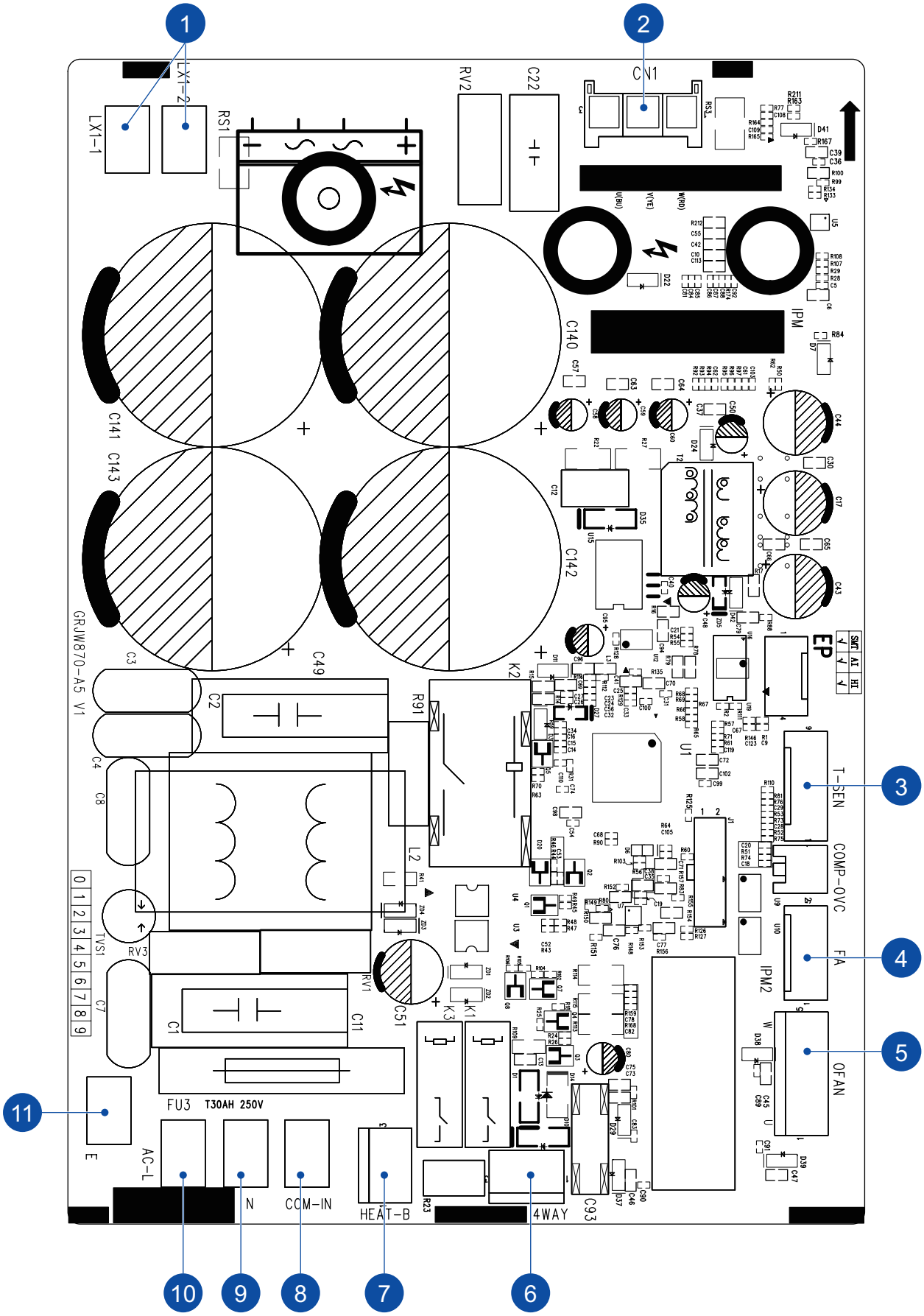
11
12
HEAT-B
4WAY
COM-IN
N
CN1
E
SMT
AI
HI
FUSE1
RV1
RV2
TVS1
IPM2
C75
DRED-DC
K4
K3
C1
C130
C3
C4
C5
C6
C2
C131
L1
L4
K2
K1
AC-L1
RPTC2
RPTC1
L2
OFAN
FAN
DRED
COMP-OVC
T-SEN
JTAG
EP
GRJW902-A V1
T1
C21
C132
C92
IPM1
CN2
RS1
C126
C56
C133
C134
C127
C87
RS5
RV3
DB1
G1
D16

No.	Name
1	Chassis Electric Heating Belt Needle Stand
2	Four-way Valve Needle Stand
3	Communication Wire Insertion
4	Neutral Wire Insertion
5	Live Wire Insertion
6	Earthing Wire Insertion

No.	Name
7	Compressor Needle Stand
8	EEP Flash Drive Needle Stand
9	Temperature Sensor Needle Stand
10	Compressor Overload Needle Stand
11	Electronic Expansion Valve Needle Stand
12	Outdoor Fan Needle Stand

GRJW870-A5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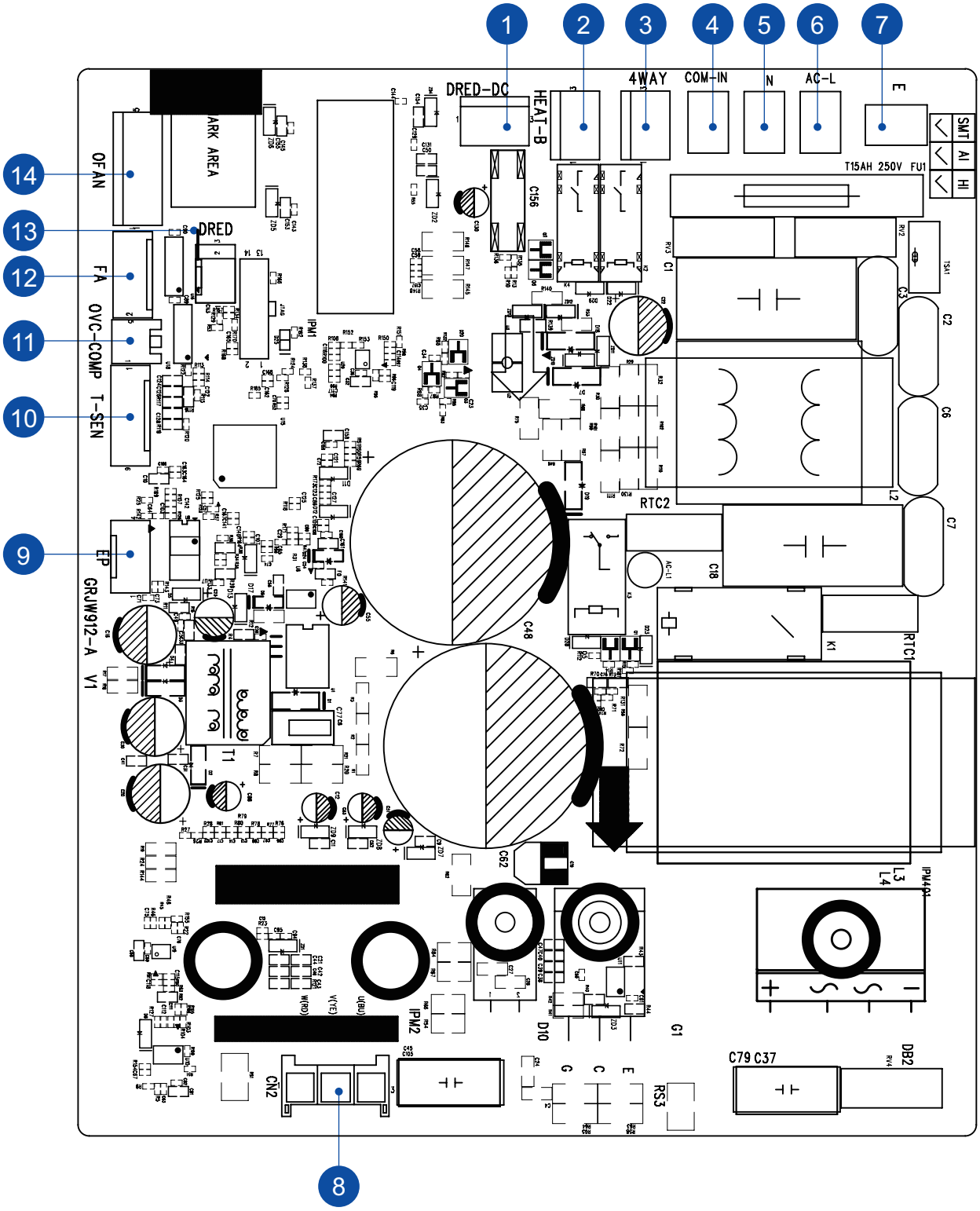
10
11
LX1-1
LX1-2
RS1
RV2
C22
CN1
C140
C141
C143
C142
C49
C3
C2
C4
C8
C7
C1
C11
C51
RV1
RV3
TVS1
L2
R91
K2
K3
K1
U1
IPM
EP
T-SEN
COMP-OVC
FA
IPM2
OFAN
FU3 T30AH 250V
AC-L
N
COM-IN
HEAT-B
4WAY
GRJW870-A5 V1

No.	Name
1	Interface of reactor
2	Three-phase terminal of compressor Needle Stand
3	Temperature sensor Needle Stand
4	Electronic expansion valve Needle Stand
5	Outdoor fan Needle Stand
6	4-way valve Needle Stand

No.	Name
7	Electric heating of chasssis Needle Stand
8	Terminal of communication wire Insertion
9	Neutral wire Insertion
10	Live wire Insertion
11	Earthing wire Insertion

GRJW912-A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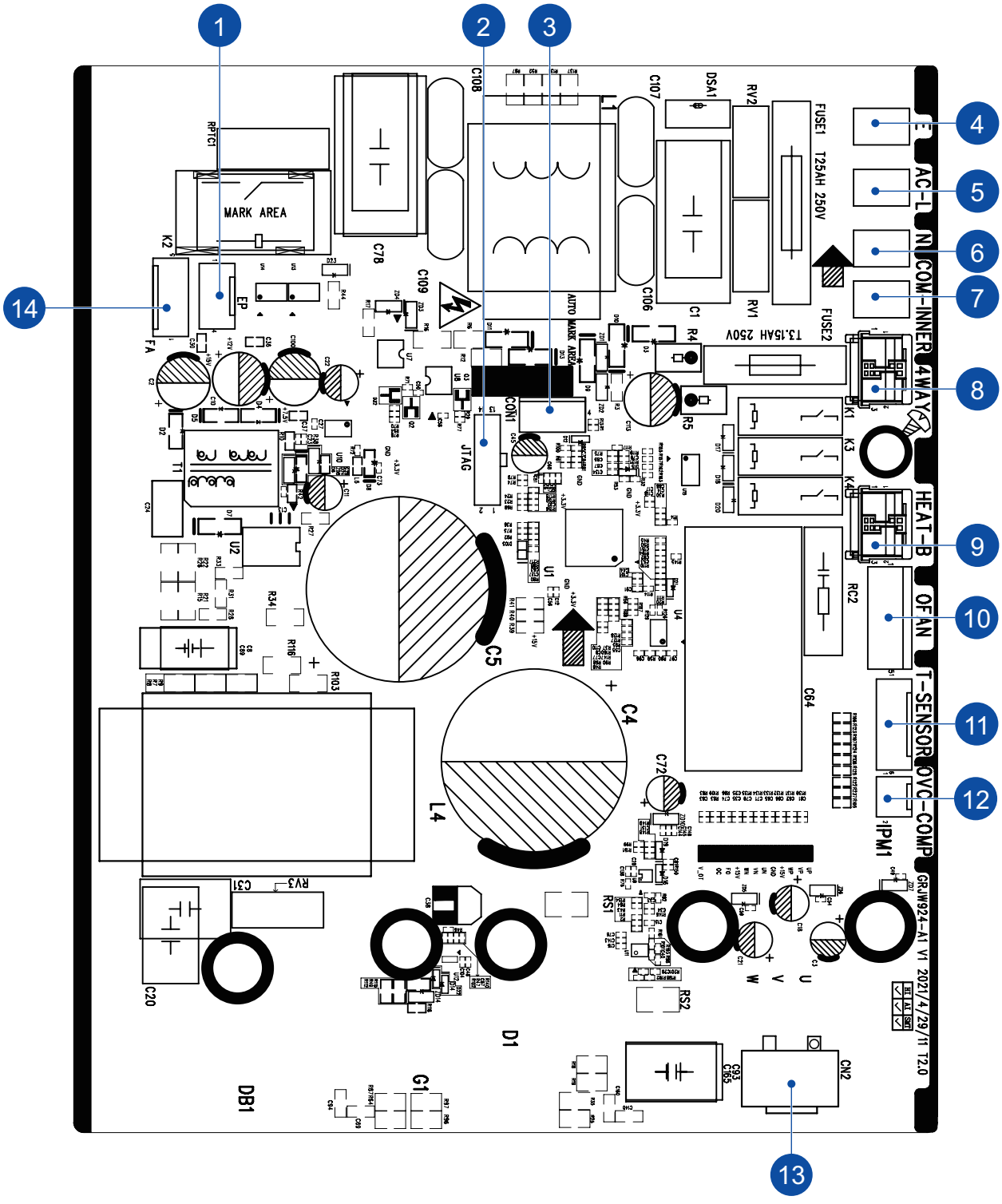
DRED-DC
HEAT-B
4WAY
COM-IN
N
AC-L
E
SMT
AI
HI
T15AH 250V FU1
OFAN
DRED
FA
OVC-COMP
T-SEN
EP
GRJW912-A V1
RTC2
RTC1
T1
IPM1
IPM2
CN2
C156
C48
C62
C79
C37
DB2
RS3
D10
G1
L3
L4

No.	Name	No.	Name
1	DRED-DC(Reserved)	8	Compressor Wire Insertion
2	Chassis Electric Heating Belt Needle Stand	9	EEP Flash Drive Needle Stand
3	Four-way Valve Needle Stand	10	Temperature Sensor Needle Stand
4	Communication Wire Insertion	11	Compressor Overload Needle Stand
5	Neutral Wire Insertion	12	Electronic Expansion Valve Needle Stand
6	Live Wire Insertion	13	DRED(Reserved)
7	Earthing Wire Insertion	14	Outdoor Fan Needle Stand

GRJW924-A1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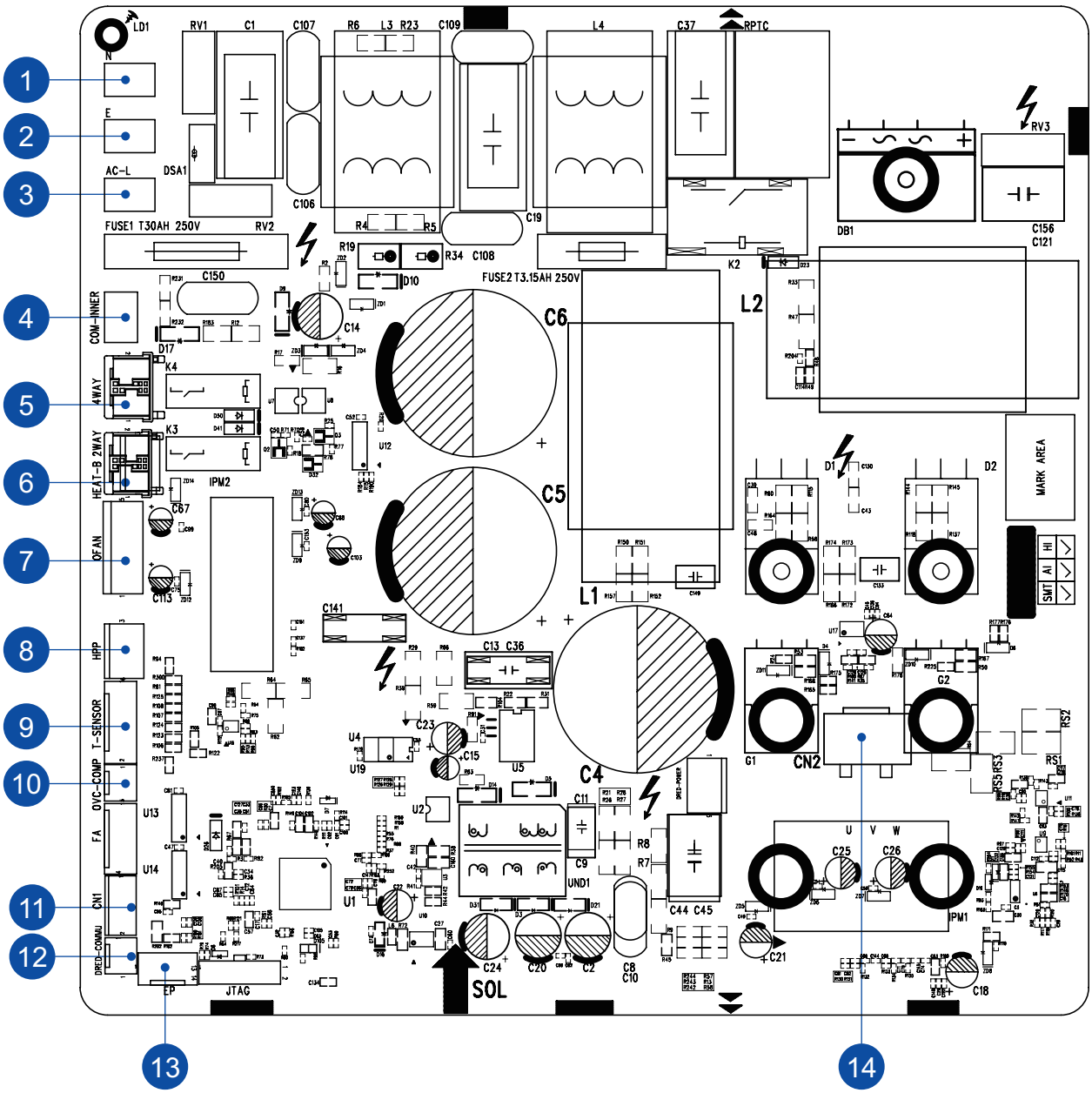
11
12
13
14
AC-L
N
COM-INNER 4WAY
HEAT-B
OFAN
T-SENSOR
OVC-COMP
MARK AREA
FUSE1 T25AH 250V
FUSE2 T3.15AH 250V
JTAG
CON1
AUTO MARK AREA
RPTC1
K1
K2
K3
K4
RC2
C84
IPM1
GRJW924-A1 V1 2021/4/29/11 T2.0
CN2
DB1
D1
L4
C5
C4
C20
C31
C78
C106
C107
C108
C109
RV1
RV2
DSA1
U1
U2
U4
T1
L1
G1
RS1
RS2

No.	Name	No.	Name
1	EEP Flash Drive Needle Stand	8	4-way valve Needle Stand
2	Program debug interface	9	Electric heating of chasssis Needle Stand
3	Interface monitoring	10	AC fan Needle Stand
4	Earthing wire Insertion	11	Temperature sensor Needle Stand
5	Live wire Insertion	12	Overload of compressor Needle Stand
6	Neutral wire Insertion	13	Compressor terminal
7	Communication wire Insertion	14	Electronic expansion valve Needle Stand

GRJW936-A


1
2
3
4
5
6
7
8
9
10
11
12
13
14
LD1
RV1
C1
C107
R6
L3
R23
C109
L4
C37
RPTC
RV3
DSA1
AC-L
C106
R4
R5
C19
DB1
C156
C121
FUSE1 T30AH 250V
RV2
R19
R34
C108
D10
FUSE2 T3.15AH 250V
K2
L2
C150
COM-INNER
D17
C14
C6
K4
AWAY
K3
HEAT-B 2WAY
IPM2
C67
C5
D1
D2
MARK AREA
OFAN
C113
C141
L1
HI
AI
SWT
HPP
C13 C36
T-SENSOR
C23
C15
U4
U19
U5
C4
G2
G1
CN2
RS1
RS2
RS3
OVC-COMP
U13
U2
C11
C9
R8
R7
FA
U14
U1
UND1
C44 C45
U V W
C25
C26
IPM1
CN1
C24
C20
C2
C8
C10
C21
C18
DRED-COMM
EP
JTAG
SOL

No.	Name	No.	Name
1	Neutral wire Insertion	8	Terminal of high pressure protection
2	Grounding wire Insertion	9	Temperature sensor Needle Stand
3	Live wire Insertion	10	Overload interface of compressor
4	Communication wire Insertion	11	Terminal of electronic expansion valve Needle Stand
5	4-way valve Needle Stand	12	Terminal of DRED
6	Electric heating belt of chassis Needle Stand	13	EEP Flash Drive Needle Stand
7	Outdoor fan Needle Stand	14	Terminal of compressor wire

7. Function and Control

7.1 Remote Controller Introduction for YAP1FF

		I feel
FAN AUTO		Set fan speed (Nof ▮▮▮▮▮ 、 ▮▮▮▮▮ an speed. It's displayed only after turning it on.)
		Turbo mode
		Send signal
Operation mode		Auto mode
		Cool mode
		Dry mode
		Fan mode
		Heat mode
		Sleep mode
		8℃ heating function
		Health mode
		Scavenging function
		Quiet
		X-FAN function
Temp. display type		Set temp.
		Indoor ambient temp.
		Outdoor ambient temp.
		Clock
88		Set temperature
WiFi		WiFi function
88:88		Set time
ONOFF		TIMER ON / TIMER OFF
		Left & right swing
		Up & down swing
		Child lock

Introduction for buttons on remote controller

NOTE:

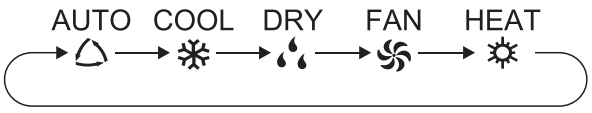
- This is a general use remote controller. It could be used for the air conditioner with multifunction. For the functions which the model doesn't have, if press the corresponding button on the remote controller, the unit will keep the original running status.
- After putting through the power, the air conditioner will give out a sound. Operation indicator " ⏻ " is ON (red indicator, the colour is different for different models). After that, you can operate the air conditioner by using remote controller.
- Under on status, pressing the button on the remote controller, the signal icon " ((•)) " on the display of remote controller will blink once and the air conditioner will give out a “ di ” sound, which means the signal has been sent to the air conditioner.

ON/OFF *button*

Press this button to turn on the unit. Press this button again to turn off the unit.

MODE *button*

Press this button to select your required operation mode :



- When selecting auto mode, air conditioner will operate automatically according to the sensed temperature. Set temperature can't be adjusted and will not be displayed as well. Press "FAN" button can adjust fan speed. Press " ≡ "/" ⇶ " button can adjust fan blowing angle.
- After selecting cool mode, air conditioner will operate under cool mode. Press " △ " or " ▽ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " ≡ "/" ⇶ " button to adjust fan blowing angle.
- When selecting dry mode, the air conditioner operates at low speed under dry mode. Under dry mode, fan speed can't be adjusted. Press " ≡ "/" ⇶ " button

to adjust fan blowing angle.

- When selecting fan mode, the air conditioner will only blow fan, no cooling and no heating. Press "FAN" button to adjust fan speed. Press " " / " " button to adjust fan blowing angle. When selecting heat mode, the air conditioner operates under heat mode. Press " △ " or " ▽ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " " / " " button to adjust fan blowing angle.
- When selecting heating mode, the air conditioner operates under heat mode. Press " △ " or " ▽ " button to adjust set temperature. Press "FAN" button to adjust fan speed. Press " " / " " button to adjust fan blowing angle. (Cooling only unit won't receive heating mode signal. If setting heat mode with remote controller, press ON/OFF button can't start up the unit).

NOTE:

- For preventing cold air, after starting up heat mode,indoor unit will delay 1~5 minutes to blow air (Actual delay time depends on indoor ambient temperature).
- Set temperature range from remote controller: 16~30°C(61-86°F).Fan speed: auto, low speed,medium speed, high speed.

FAN *button*

Pressing this button can set fan speed circularly as: auto (AUTO), low (▪), medium (▪▪) , high(▪▪▪).

NOTE:

- Under AUTO speed, air conditioner will select proper fan speed automatically according to factory default setting.
- It's low fan speed under dry mode.

TURBO *button*

Under COOL or HEAT mode, press this button to turn to quick COOL or quick HEAT mode. " " icon is displayed on remote controller. Press this button again to exit turbo function and " " icon will disappear. If start this function, the unit will

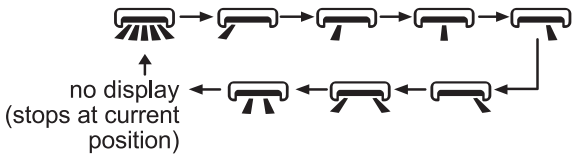
run at super-high fan speed to cool or heat quickly so that the ambient temperature approaches the preset temperature as soon as possible.

△ / ▽ button

- Press " △ " or " ▽ " button once increase or d ecrease set temperature 1°C (°F). Holding " △ " or " ▽ " button, 2s later, set temperature on remote controller will change quickly. On releasing button after setting is finished, temperature indicator on indoor unit will change accordingly.
- When setting T-ON, T-OFF or CLOCK, press " △ " or " ▽ " button to adjust time. (Refer to CLOCK, TON,T-OFF buttons)

button

Press this button can select left & right swing angle. Fan blow angle can be selected circularly as below:

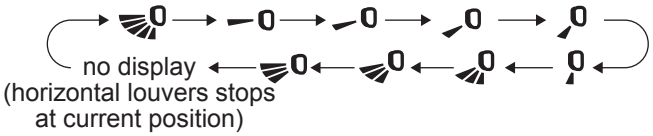


NOTE:

- Press this button continuously more than 2s, the main unit will swing back and forth from left to right, and then loosen the button, the unit will stop swinging and present position of guide louver will be kept immediately.
- Under left and right swing mode, when the status is switched from off to , if press this button again 2s later, status will switch to off status directly; if press this button again within 2s, the change of swing status will also depend on the circulation sequence stated above.
- The function is only available for some models.

button

Press this button can select up & down swing angle. Fan blow angle can be selected circularly as below:



- When selecting " ", air conditioner is blowing fan automatically. Horizontal louver will automatically swing up & down at maximum angle.
- When selecting " ", air conditioner is blowing fan at fixed position. Horizontal louver will stop at the fixed position.
- When selecting " ", air conditioner is blowing fan at fixed angle. Horizontal louver will send air at the fixed angle.
- Hold " "button above 2s to set your required swing angle. When reaching your required angle, release the button.

NOTE:

- " " may not be available. When air conditioner receives this signal, the air conditioner will blow fan automatically.
- Press this button continuously for more than 2s, the main unit will swing back and forth from up to down, and then loosen the button, the unit present position of guide louver will be kept immediately.
- Under up and down swing mode, when the status is switched from off to , if press this button again 2s later, status will switch to off status directly; if press this button again within 2s, the change of swing status will also depend on the circulation sequence stated above.

T-ON|T-OFF *button*

- T-ON button

  "T-ON" button can set the time for timer on. After pressing this button, " " icon disappears and the word "ON" on remote controller blinks. Press " △ " or " ▽ " button to adjust T-ON setting. After each pressing " △ " or " ▽ " button, T-ON setting will increase or decrease 1min. Hold " △ " or " ▽ " button, 2s later, the time will change quickly until reaching your required time. Press "T-ON" to confirm it. The word "ON" will stop blinking. " " icon resumes displaying. Cancel T-ON: Unde the condition that T-ON is started up, press "T-ON " button to cancel it.

- T-OFF button

  "T-OFF" button can set the time for timer off. After pressing this button, " " icon disappears and the word "OFF" on remote controller blinks. Press " △ " or " ▽ " button to adjust T-OFF setting. After each pressing " △ " or " ▽

" button, T-OFF setting will increase or decrease 1min. Hold " △ " or " ▽ " button, 2s later, the time will change quickly until reaching your required time. Press "T-OFF" word "OFF" will stop blinking.

" ◷ " icon resumes displaying. Cancel T-OFF. Under the condition that T-OFF is started up, press "T-OFF" button to cancel it.

NOTE:

- Under on and off status, you can set T-OFF or T-ON simultaneously.
- Before setting T-ON or T-OFF, please adjust the clock time.
- After starting up T-ON or T-OFF,set the constant circulating valid.
- After that, air conditioner will be turned on or turned off according to setting time.ON/OFF button has no effect on setting.If you don't need this function, please use remote controller to cancel it.

I FEEL *button*

Press this button to start I FEEL function and " " will be displayed on the remote controller. After this function is set, the remote controller will send the detected ambient temperature to the controller and the unit will automatically adjust the indoor temperature according to the detected temperature. Press this button again to cancel I FEEL function and " " will disappear.

- Please put the remote controller near user when this function is set. Do not put the remote contro ller near the object of high temperature or low temperature in order to avoid detecting inaccurate amb ient temperature.

  When I FEEL function is turned on, the remote controller should be put within the area where indoor unit can receive the signal sent by the remote controller.

CLOCK *button*

Press this button to set clock time. " ◷ " icon on remote controller will blink. Press " △ " or " ▽ " button within 5s to set clock time. Each pressing of " △ " or " ▽ " button, clock time will increas e or decrease 1 minute.If hold " △ " or " ▽ " button, 2s later, time will change quickly. Release this button when reaching your required time. Press "CLOCK" button to confirm the time. " ◷ " icon stops blinking.

NOTE:

- Clock time adopts 24-hour mode.
- The interval between two operations can't exceed 5s.

  Otherwise, remote controller will quit setting status. Operation for TIMER ON/TIMER OFF is the same.

SLEEP *button*

Under COOL, or HEAT mode, press this button to start up sleep function." " icon is displayed on remote controller. Press this button again to cancel sleep function and " " icon will disappear.After powered on, Sleep Off is defaulted. After the unit is turned off, the Sleep function is canceled. In this mode, set temperature will be adjusted with the change of time. Under Fan, DRY and Auto modes, this function is not available

X-FAN *button*

Pressing this button in COOL or DRY mode, the icon " " is displayed and the indoor fan will continue operation for a while in order to dry the indoor unit even though you have turned off the unit. After energization, X-FAN OFF is Having set X-FAN function on: After turning off the unit by pressing ON/OFF defaulted. X-FAN is not available in AUTO, FAN or HEAT mode.

This function indicates that moisture on evaporator of indoor unit will be blowed after the unit is stopped to avoid mould.

- Having set X-FAN function on: After turning off the unit by pressing ON/OFF button indoor fan will continue running for a while. at low speed.
- In this period, press X-FAN button to stop indoor fan directly.

  Having set X-FAN function off: After turning off the unit by pressing ON/OFF button, the complete unit will be off directly.

/ *button*

Press this button to achieve the on and off of health and scavenging functions in operation station. Press this button for the first time to start scavenging function; LCD displays " ". Press the button for the second time to start health and

scavenging functions simultaneously; LCD displays " " and " ". Press this button for the third time to quit health and scavenging functions simultaneously. Press the button for the fourth time to start health function; LCD display " ". Press this button again to repeat the operation above.

NOTE:

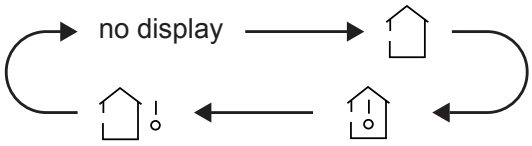
- This function is applicable to partial of models .

LIGHT *button*

Press this button to turn off display light on indoor unit. " " icon on remote controller disappears. Press this button again to turn on display light. " " icon is displayed.

TEMP *button*

By pressing this button, you can see indoor set temperature , indoor ambient temperature or outdoor ambient temperature on indoor unit's display. The setting on remote controller is selected circularly as below:



- When selecting " " or no display with remote controller, temperature indicator on indoor unit displays set temperature.
- When selecting " " with remote controller, temperature indicator on indoor unit displays indoor ambient temperature.
- When selecting " " with remote controller, temperature indicator on indoor unit displays outdoor ambient temperature.

NOTE:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives " " signal,while it displays indoor set temperature.
- It's defaulted to display set temperature when turning on the unit.There is no display in the remote controller.

- Only for the models whose indoor unit has dual-8 display.
- When selecting displaying of indoor or outdoor ambient temperature, indoor temperature indicator displays corresponding temperature and automatically turn to display set temperature after three or five seconds.

Function introduction for combination buttons

Energy-saving function

Under cooling mode, press "TEMP" and "CLOCK"buttons simultaneously to start up or turn off energysaving function. When energy-saving function is started up, "SE" will be shown on remote controller,and air conditioner will adjust the set temperature automatically according to ex-factorysetting to reach to the best energy-saving effect. Press "TEMP" and "CLOCK" buttons simultaneously again to exit energysaving function.

NOTE:

- Under energy-saving function, fan speed is defaulted at auto speed and it can't be adjusted.
- Under energy-saving function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.
- Sleep function and energy-saving function can't operate at the same time. If energy-saving function has been set under cool mode, press sleep button will cancel energy-saving function. If sleep function has been set under cool mode, start up the energy-saving function will cancel sleep function.

8°C heating function

Under heat mode, press "TEMP" and "CLOCK" buttons simultaneously to start up or turn off 8°C heating function. When this function is started up, " ⑧ " and "8°C" will be shown on remote controller, and the air conditioner keep the heating status at 8°C. Press "TEMP" and "CLOCK" buttons simultaneously again to exit 8°C heating function.

NOTE:

- Under 8°C heating function, fan speed is defaulted at auto speed and it can't be adjusted.
- Under 8°C heating function, set temperature can't be adjusted. Press "TURBO" button and the remote controller won't send signal.
- Sleep function and 8°C heating function can't operate at the same time. If 8°C heating function has been set under heat mode, press sleep button will cancel 8°C heating function. If sleep function has been set under heat mode, start up the 8°C heating function will cancel sleep function.
- Under °F temperature display, the remote controller will display 46°F heating.

Child lock function

Press " △ " and " ▽ " simultaneously to turn on or turn off child lock function. When child lock function is on, " 🔒 " icon is displayed on remote controller.If you operate the remote controller, the " 🔒 "icon will blink three times without sending signal to the unit.

Temperature display switchover function

Under OFF status, press "▼" and "MODE" buttons simultaneously to switch temperature display between °C and °F.

WiFi function

Press "MODE" and "TURBO" button simultaneously to turn on or turn off WIFI function. When WIFI function is turned on, the " WiFi " icon will be displayed on remote controller; Long press "MODE" and "TURBO" buttons simultaneously for 10s, remote controller will send WIFI reset code and then the WIFI function will be turned on. WIFI function is defaulted ON after energization of the remote controller.

NOTE:

- This function is only available for some models.

Replacement of batteries in remote controller

1. Lift the cover along the direction of arrow (as shown in Fig 1 ①).

2.Take out the original batteries (as shown in Fig 1 ②).

3.Place two 7# (AAA 1.5V) dry batteries, and make sure the position of “ + ” polar and “ - ” polar is correct (as shown in Fig 2 ③).

4.Reinstall the cover (as shown in Fig 2 ④).

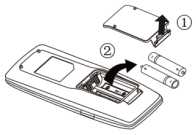


Fig.1

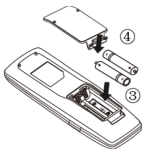


Fig.2

NOTICE:

- During operation, point the remote control signal sender at the receiving window on indoor unit. The distance between signal sender and receiving window should be no more than 8m, and there should be no obstacles between them.
- Signal may be interfered easily in the room where there is fluorescent lamp or wireless telephone; remote controller should be close to indoor unit during operation.
- Replace new batteries of the same model when replacement is required.
- When you don’t use remote controller for a long time, please take out the batteries.
- If the display on remote controller is fuzzy or there’s no display, please replace batteries.

7.2 Brief Description of Models and Functions

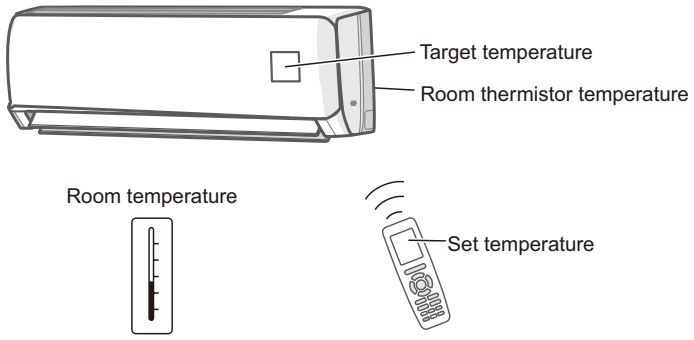
1. Main Functions

1.1 Temperature Control

- **Definitions of Temperatures**

  The definitions of temperatures are classified as following.

  - Room temperature: temperature of lower part of the room
  - Set temperature: temperature set by remote controller
  - Room thermistor temperature: temperature detected by room temperature thermistor
  - Target temperature: temperature determined by microcomputer



- **Temperature Control**

  The temperature of the room is detected by the room temperature thermistor. However, there is a difference between the temperature detected by room temperature thermistor and the temperature of lower part of the room, depending on the type of the indoor unit or installation condition. Practically, the temperature control is done by the target temperature appropriately adjusted for the indoor unit and the temperature detected by room temperature thermistor.

- **Ambient temperature display function**

  When the set temperature is set to be displayed by the remote controller, indoor unit displays current set temperature. When the remote control signal is switched to indoor ambient temperature display status from other display status, indoor ambient temperature will be displayed for 3s.

- **I Feel mode**

  In order to make room thermistor temperature almost same as the actual operation environment temperature, I Feel mode is designed. After I Feel mode is turned on, the remote controller will send the ambient temperature to the controller of indoor unit intermittently and constantly adjusts the calculated target temperature to make the operation of the air conditioner more suitable for users' needs.

1.2 Frequency Principle

- **Control Parameters**

  The frequency of the compressor is controlled by the following 2 parameters:

  - The load condition of the operating indoor unit
  - The difference between the room thermistor temperature and the target temperature

  The target frequency is adapted by additional parameters in the following cases:

  - Frequency restrictions
  - Initial settings

- **Inverter Features**

  The inverter provides the following features:

  - The regulating capacity can be changed according to the changes in the outdoor temperature and cooling/heating load.
  - Quick heating and quick cooling

    The rotation speed of the compressor is increased when starting the heating (or cooling).

    This enables to reach the set temperature quickly.
  - Even during extreme cold weather, high capacity is achieved.
  - Comfortable air conditioning

    A fine adjustment is integrated to keep the room temperature constant.
  - Energy saving heating and cooling

    Once the set temperature is reached, the energy saving operation enables to maintain the room temperature at low power.

- **Frequency Limits**

  The following functions regulate the maximum frequency:

  - Discharge pipe temperature control. Refer to 3.4.
  - Input current control. Refer to 3.5.

- Freeze-up protection control. Refer to 3.6.
- Heating peak-cut control. Refer to 3.7.

1.3 Airflow Direction Control

- **Power-Airflow Flap**

  The flap sends a large volume of air downward to the floor and provides an optimum control in cooling, dry, and heating operation.

  - Cooling/Dry

    During cooling or dry operation, the flap directs airflow horizontal. Then, cool air can be blown far and distributed all over the room.

  - Heating

    During heating operation, the flap directs airflow downward to spread the warm air to the entire room.

- **Wide-Angle Louvers**

  The louvers, made of synthetic resin, provide a wide range of airflow that guarantees comfortable air distribution.

- **Auto swing angle range**

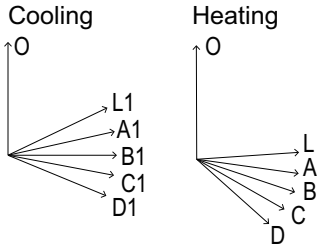
  After setting auto swing function, the air guide louver automatically swing among L1-A1-B1-C1-D under cooling mode. Under heating mode, the air louver automatically swing among L-A-B-C-D. As for different unit, the angle value is different for L1, A1, B1, C1, D1, L, A, B, C and D.

- **COMFORT AIRFLOW Operation**

  The flaps are controlled not to blow the air directly at the people in the room.

  The airflow will be in the upward direction while in cooling operation and in the downward direction while in heating operation, which will provide a comfortable wind that will not come in direct contact with people.

  When heating mode is just started up, the air guide louver will swing to the position where the cold air won't blow to the people for cold air prevention. When entering into defrosting stage, the air guide louver will also swing to the position where he cold air won't blow to the people.



1.4 Fan Speed Control for Indoor Unit

- **Fan**

  Indoor fan operates at the fan speed set by the remote controller.

- **AUTO**

  The fan speed is regulated according to the indoor heat exchanger temperature and the difference between the room thermistor temperature and the target temperature. When the set temperature is quite different from the room temperature, it indicates there is high demand for cooling and heating. Indoor fan will operate at the high fan speed. When temperature difference between the set temperature and the room temperature is not big, it indicates there is medium demand for cooling and heating. Indoor fan will operate at the medium fan speed. When temperature difference between the set temperature and the room temperature is small, it indicates there is small demand for cooling and heating. Indoor fan will operate at the low fan speed.

1.5 Program Dry Operation

Program dry operation removes humidity while preventing the room temperature from lowering. Since the microcomputer controls both the temperature and airflow rate, the temperature adjustment and FAN setting buttons are inoperable.

1.6 X-fan Function

When the unit is under cooling or dry mode, the X-fan function can be turned on by pressing the "X-fan" button on the remote controller (if there is X-fan button on the remote controller). If X-fan function is turned, when the unit is turned off by the remote controller, the indoor fan will still operate for several minutes at the low fan speed. When the unit is operating under X-fan mode, the complete unit will be turned off immediately if use the remote controller to turn off the X-fan function.

1.7 Automatic Operation

- **Automatic Cooling/Heating Function**

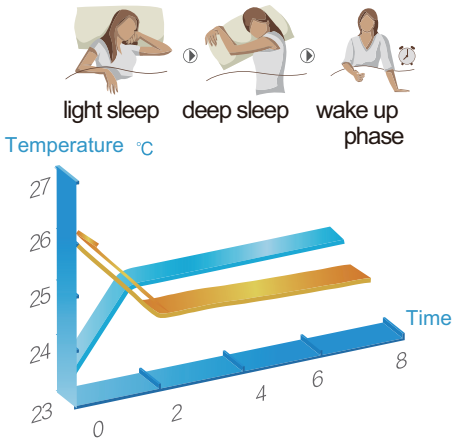
  When the automatic operation is selected with the remote controller, the microcomputer automatically determines the operation mode as cooling or heating according to the room temperature and the set temperature at start-up.

  The unit automatically switches the operation mode to maintain the room temperature at the set temperature.

1.8 NIGHT SET Mode

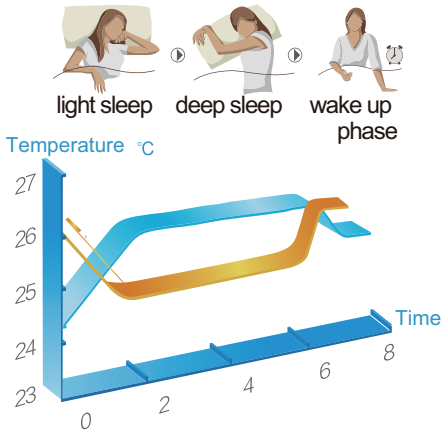
- **Some models are only with good sleep mode.**

  NIGHT SET Mode continues operation at the target temperature for the first one hour, then automatically raises the target temperature slightly in the case of cooling, or lowers it slightly in the case of heating. This prevents excessive cooling in summer and excessive heating in winterto ensure comfortable sleeping conditions, and also conserves electricity.



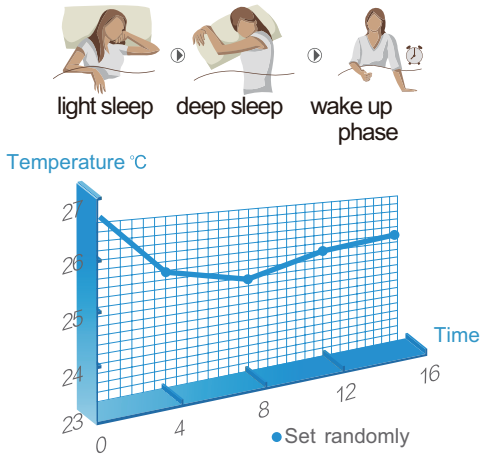
- Sound sleep mode

  set temperature is close to body temperature and will adjust automatically and intelligently.



- Good sleep mode

  before you get up, set temperature will decrease or increase automatically to refresh you in the morning.



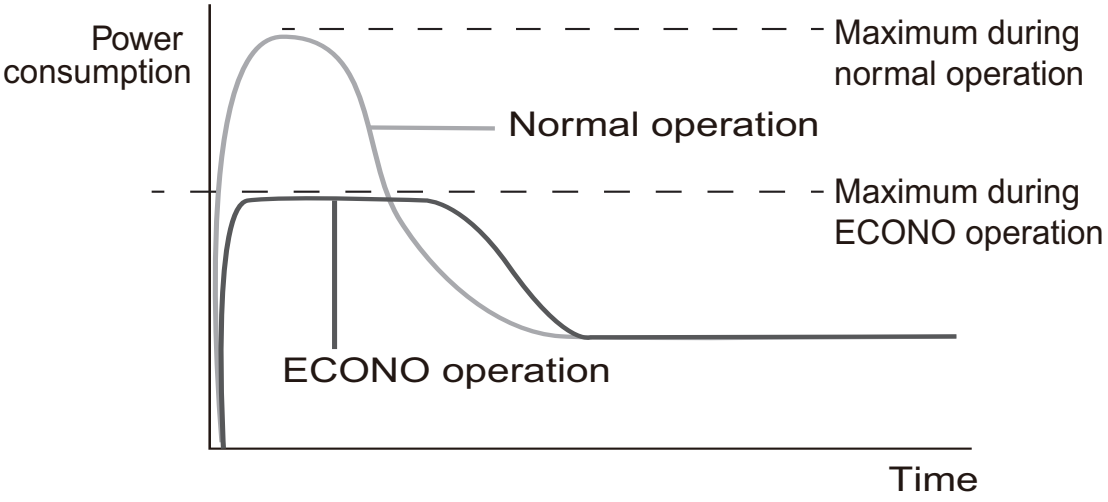
- DIY mode

you can set temperature curve and sleep time as you like.

1.9 ECONO Operation

ECONO operation reduces the maximum operating current and the power consumption.

This operation is particularly convenient for energy-saving. It is also a major bonus when breaker capacity does not allow the use of multiple electrical devices and air conditioners. This function can be set only in cooling mode.



1.10 Timer Function

The timing function of the complete unit is divided into general timer and clock timer, which can be switched by equipping different remote controls.

1. General timer function

- Timer ON function:

  Timer ON time can be set under unit off status (power is put through) through the remote control. Timer setting range is 0.5~24h in 30min increments.

- Timer OFF function:

  Timer OFF time can be set under unit on status through the remote control. Timer setting range is 0.5~24h in 30min increments.

2. Clock timer function

Unit on or unit off at a certain time can be set through the remote control with the precision of 1min.

- Timer ON function:

  Timer ON time can be set under unit off status (power is put through) through the remote control. When the set timer ON time is reached, the unit will start to run according to previous setting mode. If timer ON is set during operation of the unit, the unit will continue to operate.

- Timer OFF function:

Timer OFF time can be set under unit on status through the remote control. When the set timer OFF time is reached, the unit will stop operation. If timer OFF is set under unit off status, the system will keep standby status.

1.11 Refrigerant Recycling Function

Under cooling mode, the unit will enter the refrigerant recycling mode after receiving the command set by the remote control, and the compressor will run at high frequency for refrigerant recycling.

Control measure: within 5min of energizing, turning on the unit in cooling mode with set temperature of 16°C , continuously press light button for 3 times within 3s to enter refrigerant recycling mode. Fo will be displayed and refrigerant recycling mode will be sent to the outdoor unit.

1.12 8°C Heating Mode

Under heating mode, the set temperature is 8°C and indoor display board displays the set temperature 8°C (according to the "8" pattern displayed in the lower position and not displayed in the higher position). 46 is displayed in Fahrenheit temperature and the unit is in heating operation.

Control measures: according to the difference between the set temperature and the ambient temperature, the indoor fan chooses to run at different speeds.

1. When the compressor is running, the fan speed is adjusted according to the following automatic speed mode.

   When $(T_{amb.} - \Delta T_{supplementary}) \leq (T_{set} - 2°C)$, the indoor fan runs at high speed;

   When $(T_{set} - 2°C) < (T_{amb.} - \Delta T_{supplementary}) < T_{set}$, the indoor fan runs at medium speed;

   When $(T_{amb.} - \Delta T_{supplementary}) \geq T_{set}$, the indoor fan runs at low speed;

2. High speed, medium speed and low speed are switched, and a minimum running time of 3 minutes and 30 seconds must be ensured.

1.13 Comfortable Energy-saving Mode

Under cooling mode, when the comfortable energy-saving command is received from the remote control, the controller enters the comfortable energy-saving mode; the indoor unit executes set temperature of 27°C, and the horizontal louver turns to the angle that can blow cold air directly to the human body.

Control measures: under this mode, when the compressor is running, the fan speed is adjusted according to the automatic fan speed mode under the condition of energy-saving mode (see below); when the compressor stops, the indoor fan runs at a low speed.

1. When the compressor is running, the fan speed is adjusted according to the following automatic speed mode.

   When ($T_{amb.}$ – ⊿ $T_{supplementary}$) ≤ (T_{set} – 2°C), the indoor fan runs at low speed;

   When (T_{set} – 2°C)<($T_{amb.}$ – ⊿ $T_{supplementary}$) < T_{set}, the indoor fan runs at medium speed;

   When ($T_{amb.}$ - ⊿ $T_{supplementary}$) ≥ T_{set}, the indoor fan runs at high speed;

2. High speed, medium speed and low speed are switched, and a minimum running time of 3 minutes and 30 seconds must be ensured.

1.14 Mild Dry Function

For the air conditioner with this function, if the indoor unit receives the normal humidity value sent by WiFi (not 0), the "Mild Dry" sign and humidity value will be sent to the outdoor unit; if the indoor unit

doesn't receive the humidity value of the WiFi board, the "Without Mild Dry" sign will be sent to the outdoor unit;

After energization, as long as the normal humidity value sent by WiFi (not 0) is received, it is considered that there is a humidity sensor;

If the humidity sensor error or the WiFi communication error sent by the WiFi detection board is received and there is a humidity sensor, the humidity sensor error sign will be sent to the outdoor unit;

1.15 New Access Control Function

1. Switch control function

Customers are required to install the dry contact and wire controller by themselves to detect whether there is anyone in the room through the dry contact. If there is anyone (detection signal is high level), it will be handled according to the last remote control or timer. If there is no one (detection signal is low level), it will keep shutdown or shut down after operating for 6 minutes;

2. Shutdown error output function

When the unit has a shutdown error and the error is displayed, the main chip control port outputs low electrical level.

1.16 FastCool Function

Under cooling mode, when the FastCool command sent by the remote control is received, the controller enters the FastCool mode, and starts 20min timing. The running status is according to the remote control command. After 20 minutes, the temperature and fan speed will return to the cooling state before entering FastCool (if the cooling mode has not been run before entering FastCool after energization, it will run according to the automatic fan mode of 25°C); if the unit has ever been controlled by the APP, wired controller or auto button, FastCool mode will be exited.

1.17 Other Funtions

1. Auto clean function

When the remote control is under unit off status, holding the MODE button and FAN button for 5 seconds at the same time, the remote control displays "CL", and the unit enters the auto clean mode.

The auto clean function of the indoor unit includes preparation stage, condensing stage, frosting stage, defrosting and sterilization stage.

If the outer unit has auto clean function, the outdoor unit will enter the auto clean function after cleaning of indoor unit is completed.

The auto clean function of outdoor unit includes condensing stage, frosting stage, defrosting and deducting stage. If the outdoor unit doesn't have auto clean function, the indoor fan will exit the "auto clean" mode directly and operates according to the remote control setting.

NOTE:

Auto clean function will be entered at a certain ambient temperature. For the heat pump models, auto clean of the indoor unit includes high-temperature sterilization stage. For cooling only models, there is no such sterilization stage.

2. Auto preheating function

Under standby status, after the compressor stops for 10 minutes, if $T_{outdoor\ amb.} \leq -5°C$ and $T_{discharge} \leq -5°C$, the compressor coil starts preheating.

During the coil preheating period, if $T_{discharge} > 0°C$, the compressor stops preheating. After the compressor stops preheating, if Tdischarge ≤ -5°C and the outdoor ambient temperature meets the conditions for the compressor coil auto preheating control, it will enter the compressor coil auto preheating control again.

3. Buzzer

When the controller is energized or receives remote control signal, auto button and other valid control signals, the buzzer will give out a beep.

If the weak tone signal of buzzer is set by the remote control, the buzzer will give out weak tone. If the normal tone signal of buzzer is set by the remote control, the buzzer will give out normal tone.

4. Auto button

If this button is pressed under unit off status, the complete unit will operate in auto mode and IDU fan will operate at auto speed and swing function will be turned on. If this button is pressed under unit on status, the unit will be turned off.

5. Memory function

If a power failure (including one for just a moment) occurs during the operation, the operation restarts automatically when the power is restored in the same condition as before the power failure.

2. Thermistor Functions

2.1 Outdoor Heat Exchanger Thermistor

In cooling operation, the outdoor heat exchanger thermistor is used for high temperature protection.

In heating operation, the outdoor heat exchanger thermistor is used for defrost control.

2.2 Discharge Pipe Thermistor

The discharge pipe thermistor is used for controlling discharge pipe temperature. If the discharge pipe temperature (used in place of the inner temperature of the compressor) rises abnormally, the operating frequency becomes lower.

The discharge pipe thermistor is used for detecting disconnection of the discharge pipe thermistor.

2.3 Indoor Heat Exchanger Thermistor

In cooling operation, the indoor heat exchanger thermistor is used for frozen-preventing protection high temperature protection.

In heating operation, the indoor heat exchanger thermistor is used for high temperature protection.

3. Control Specification

3.1 Frequency Control

- **Control Parameters**

  The frequency of the compressor is controlled by the following 2 parameters:

  1. The load condition of the operating indoor unit
  2. The difference between the room thermistor temperature and the target temperature

  The target frequency is adapted by additional parameters in the following cases:

  1. Frequency restrictions
  2. Initial settings

- **Frequency limited**

  According to the building load, the outdoor ambient temperature determines the lower/upper limit of the frequency, and the frequency will also be limited according to the discharge temperature and the temperature value of the heat exchanger.

- **Inverter Features**

  The inverter provides the following features:

  1. The regulating capacity can be changed according to the changes in the outdoor temperature and cooling/heating load.
  2. Quick heating and quick cooling

     The rotation speed of the compressor is increased when starting the heating (or cooling).

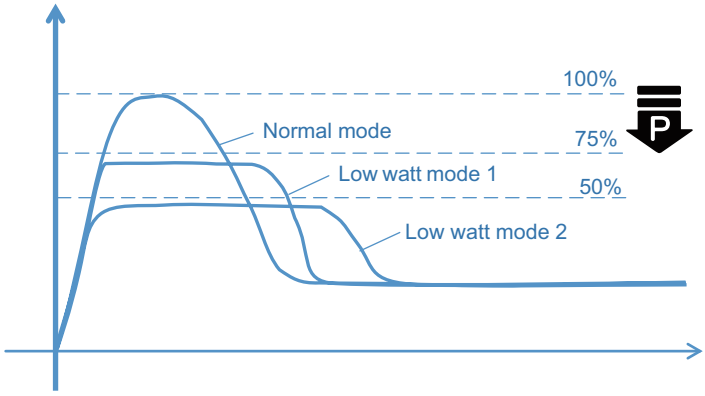
     This enables to reach the set temperature quickly.
  3. Even during extreme cold weather, high capacity is achieved. It is maintained even when the outdoor temperature is 2°C.
  4. Comfortable air conditioning

     A fine adjustment is integrated to keep the room temperature constant.
  5. Energy saving heating and cooling

Once the set temperature is reached, the energy saving operation enables to maintain the room temperature at low power.

3.2 Power limiting operation

The function is for limiting power of the whole unit. Press "Mode" and "Sleep" buttons simultaneously. The power is reduced to below 75% in low watt mode 1 and below 50% in low watt mode 2.



3.3 Mode Changing

- **4-way valve control**

  The four way valve coil is energized/not energized depending on the operation (Heating: ON, Cooling/Dry/Defrost: OFF). In order to eliminate the switching sound as the four way valve coil switches from ON to OFF when the heating is stopped, the OFF delay switch of the four way valve is carried out.

- **3-Minute Standby**

  Turning on the compressor is prohibited for 3 minutes after turning it off. (The function is not activated when defrosting.)

- **Compressor protection function-stop point and stop time during frequency-increasing process**

  When turning the compressor from OFF to ON, there is stop point of frequency during the frequency-increasing process. It will stop for some at certain frequency. This stop time is determined by the system. (The function is not activated when defrosting.)

3.4 Discharge Pipe Temperature Control

The discharge pipe temperature is used as the internal temperature of the compressor. If the discharge pipe temperature rises above a certain level, the upper limit of frequency is set to keep the discharge pipe temperature from rising furthe.

3.5 Input Current Control

The microcomputer calculates the input current while the compressor is running, and sets the frequency upper limit based on the input current.

3.6 Evaporator frozen-preventing protection function

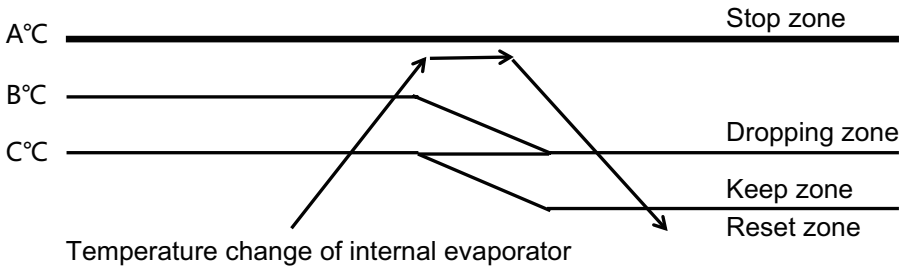
Whether decreasing frequency or not is determined by the temperature detected by the evaporator temperature sensor. If there is still frost after decreasing, the outdoor fan stops operation.

3.7 High Temperature Protection

Under cooling mode, the system is prevented from reaching abnormal high pressure by controlling the heat exchanger pipe temperature of the outdoor unit. Under heating mode, the system is prevented from reaching abnormal high pressure by controlling the heat exchanger pipe temperature of the indoor unit.

- **Control measures**

  Judge according to the temperature detected by the temperature sensor on the heat exchanger, and then control the frequency of the compressor.



Outdoor unit temperature under cooling mode:

Model	A (°C)	B (°C)	C (°C)
09K	62	58	52
12K	66	62	59
18K	65	61	59
24K or above	68	64	62

Indoor unit's pipe temperature under heating mode:

Model	A (°C)	B (°C)	C (°C)
09K	62	56	50
12K	62	56	50
18K	62	57	52
24K or above	62	57	52

Zone	Control
Stop zone	When the temperature reaches the stop zone, the compressor stops.
Dropping zone	The upper limit of frequency decreases.
Keep zone	The upper limit of frequency is kept.
Reset zone	The upper limit of frequency is canceled.

3.8 Outdoor fan control

1. Fan OFF control during defrosting

The outdoor fan is turned OFF during defrosting.

2. Fan OFF delay when stopped

The outdoor fan is turned OFF 60 seconds after the compressor stops.

3. The fan is started up before the compressor

The outdoor fan is turned on 20 seconds beffor the compressor starts.

4. Outdoor fan speed control under low-temperature cooling mode

If the unit is with low-temperature cooling function, the speed of the outdoor fan is controlled to ensure that the evaporator is not defrosting during cooling operation with low outdoor temperature.

1. When the pipe temperature of outdoor unit is low, the rotation speed of the outdoor fan is reduced.
2. When the pipe temperature of outdoor unit is high, the rotation speed of the outdoor fan is controlled as well as normal operation.

5. Fan speed control during indoor/outdoor unit quiet operation

The rotation speed of the outdoor fan is reduced by the command of the indoor/outdoor unit quiet operation.

6. Fan ON/OFF control when operation (cooling, heating, dry) starts/stops

The outdoor fan is turned ON when the operation starts. The outdoor fan is turned OFF when the operation stops.

3.9 Cold Air Prevention Control

- **Outline**

  Under heating mode, in order to improve the user's comfort experience, prevent cold air blowing to the user when the evaporator temperature is not high.

- **Detail**

  Under heating mode, the position of the horizontal louver and the speed of

the indoor unit are automatically adjusted according to the temperature of the indoor heat exchanger pipe:

1. When the compressor starts or enters defrosting, the horizontal louver is adjusted to the first position. After the indoor heat exchanger pipe temperature rises, the horizontal louver is adjusted to the default position in heating or the set position.

2. When the indoor ambient temperature and indoor heat exchanger pipe temperature are very low, the indoor fan does not operate, and the maximum time of non-operation is not more than 2 minutes. When the pipe temperature rises or the limit time of 2 minutes is reached, the indoor fan runs at a low speed, and the maximum time of low speed operation does not exceed 1 minute.

   When the pipe temperature continues to rise or the limit time of 1 minute is reached, the indoor fan runs at the set speed.

3. When the indoor ambient temperature is high, but the indoor heat exchanger pipe temperature is low, the indoor fan runs at a low speed, and the maximum time of low speed operation is not more than 1 minute. When the pipe temperature rises or the limit time of 1 minute is reached, the indoor fan runs at the set speed.

3.10 Defrost Control

- **Outline**

  Defrosting is carried out by the cooling cycle (reverse cycle). The defrosting time or outdoor heat exchanger temperature must be more than a certain value to finish defrosting.

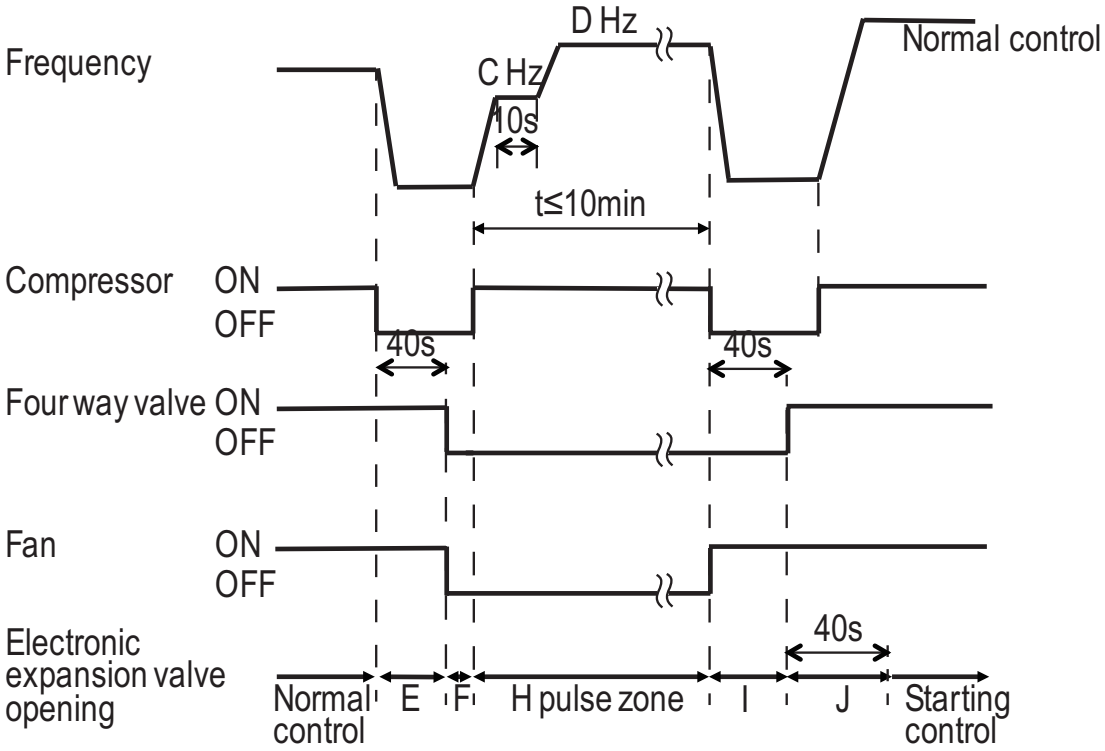
- **Detail**

  - **Conditions for Starting Defrost**

  1. The starting conditions are determined with the outdoor temperature and the outdoor heat exchanger temperature.
  2. The system is in heating operation.
  3. The compressor operates for 10 minutes.
  4. More than A minutes (depending on the duration of the previous defrost control) of accumulated time have passed since the start of the operation, or ending the previous defrosting.

  - **Conditions for Canceling Defrost**

  The judgment is made with the outdoor heat exchanger temperature. (B°C)



Model	A (minutes)	B (°C)	C (Hz)	D (Hz)	E (pulse)	F (pulse)	H (pulse)	I (pulse)	J (pulse)
07K, 09K	45	6~12	60	90	480	150	250	480	250★
12K	45	13~18	60	90	480	150	280	480	250★
18K	45	6~12	60	90	480	250	300	480	300★
24K	45	6~12	60	90	480	150	250	480	310★
30K, 36K	45	6~12	60	90	480	150	250	480	320★

★: Above data are different for different models.

3.11 Electronic Expansion Valve Control

- **Outline**

  The following items are included in the electronic expansion valve control.

- **Electronic expansion valve is fully opened**

  1. Electronic expansion valve is fully opened when turning off the power.
  2. Pressure equalizing control.

- **Change Control**

  1. Electronic expansion valve control when starting operation.
  2. Electronic expansion valve control when the frequency changes.
  3. Electronic expansion valve control for defrosting
  4. Electronic expansion valve control when the discharge pipe temperature is abnormally high.
  5. Electronic expansion valve control when the air conditioner limits or decreases frequency.

- **Feedback Control**

  Target discharge pipe temperature control

  1. Changing with Power ON

     The electronic expansion valve is initialized when turning on the power. The opening position is set and the pressure is equalized.

  2. Pressure Equalizing Control

     When the compressor is stopped, the pressure equalizing control is activated. The electronic expansion valve opens and the pressure is equalized.

  3. Opening Limit Control

     The maximum and minimum opening of the electronic expansion valve are limited.

Opening Situation	Pulse
Maximum opening	480
Minimum opening	50

The electronic expansion valve is fully opened when cooling operation stops, and is controlled at a fixed degree during defrosting.

4. Starting Operation Control

   The electronic expansion valve keeps initialized pulse 40s when the operation starts, thus preventing superheating or liquid compression.

5. Control when the Frequency Changes

   When the target discharge pipe temperature control is active, if the target frequency changes to a specified value in a certain time period, the target discharge pipe temperature control is canceled and the target opening of the electronic expansion valve is changed according to the frequency shift.

6. High Discharge Pipe Temperature Control

   When the compressor is operating, if the discharge pipe temperature exceeds a certain value, the electronic expansion valve opens and the refrigerant runs to the low pressure side. This procedure lowers the discharge pipe temperature.

7. Frequency Limiting or Decreasing Control

   When the system occurs frequency limiting or reduction for overcurrent, high temperature, overload and other reason, the opening degree of the electronic expansion valve is only allowed to increase but not allowed to decrease.

8. Target Discharge Pipe Temperature Control

   The target discharge pipe temperature is obtained from the indoor and outdoor environment temperature, and the electronic expansion valve opening is adjusted so that the actual discharge pipe temperature becomes close to the target discharge pipe temperature.

   The electronic expansion valve opening and the target discharge pipe temperature are checked every 40 seconds.

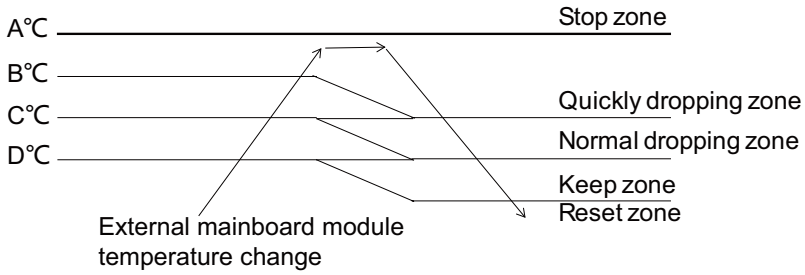
3.12 Mainboard Module Overheating Protection

- **Outline**

  During operation, you can control the temperature of the mainboard module to prevent the mainboard from being damaged due to excessive temperature.

- **Detail**

  According to the temperature and voltage output of the module on the mainboard, the temperature value is determined, and then the frequency of the compressor is controlled.



Mainboard module overheating protection temperature:

Model	A (°C)	B (°C)	C (°C)	D (°C)
09K	100	96	93	90
12K	100	95	93	90
18K	95	93	90	87
24K or above	98	95	93	90

Zone	Control
Stop zone	When the temperature reaches the stop zone, the compressor stops.
Quickly dropping zone	The upper limit of frequency quickly decreases until it drops to 44Hz or the lower limit.
Dropping zone	The upper limit of frequency decreases.until it drops to 44Hz or the lower limit.
Keep zone	The upper limit of frequency is kept.
Reset zone	The upper limit of frequency is canceled.
Keep zone	The upper limit of frequency is kept.
Reset zone	The upper limit of frequency is canceled.

NOTICE

If the unit stops for six consecutive times due to overheating protection of mainboard module, it cannot automatically resume operation, and ON/OFF shall be pressed to resume operation.

3.13 Refrigerant Lacking Protection

- **Outline**

  In the initial stage of operation under cooling or dry mode, it will be judged according to the change of outdoor heat exchanger pipe temperature, the change of indoor heat exchanger pipe temperature and the difference between indoor heat exchanger pipe temperature and indoor ambient temperature, and the start and stop of the compressor is controlled to prevent the compressor from being damaged due to excessive temperature rise of the compressor motor.

- **Detail**

  Under cooling or dry mode, when the compressor is operating, if the following conditions are met at the same time:

  Outdoor heat exchanger pipe temperature change ≤2°C

  Indoor heat exchanger pipe temperature change ≤2°C

  The difference between the indoor heat exchanger pipe temperature and the indoor ambient temperature ≤2°C

  Compressor operating frequency ≥30Hz

  It is determined that the system lacks refrigerant, and the complete unit is shut down for protection. If the unit stops for 3 consecutive times due to protection, the operation cannot be automatically resumed, and the indoor unit displays refrigerant lacking and valve blockage error code F0, which needs to be restored by reenergization.

3.14 Malfunctions

1. Sensor Malfunction Detection

Sensor malfunction can be detected in the following thermistors:

1. Outdoor heat exchanger thermistor
2. Discharge pipe thermistor
3. Outdoor temperature thermistor

When the temperature sensor error is detected, the complete unit will stop for protection.

2. Detection of Overcurrent and Overload

- **Outline**

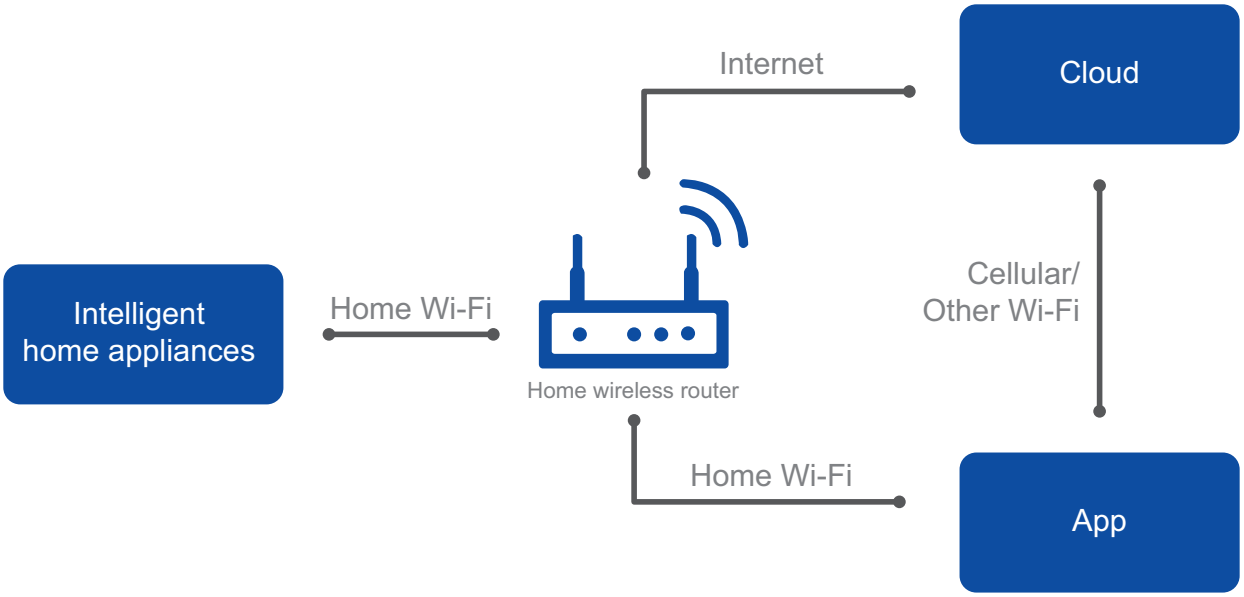
  An excessive output current is detected and the overload temperature is observed to protect the compressor.

- **Detail**

  1. If the overload (compressor head) temperature exceeds 115°C, the system shuts down the compressor.
  2. If the inverter current exceeds 10~22A (depending on the model), the system shuts down the compressor.

7.3 Ewpe Smart App Operation Manual

Control Flow Chart



Operating Systems

Requirement for User's smart phone:

iOS system
Support iOS 7.0 and above version

Android system
Support Android 4.4 and above version

Download and installation

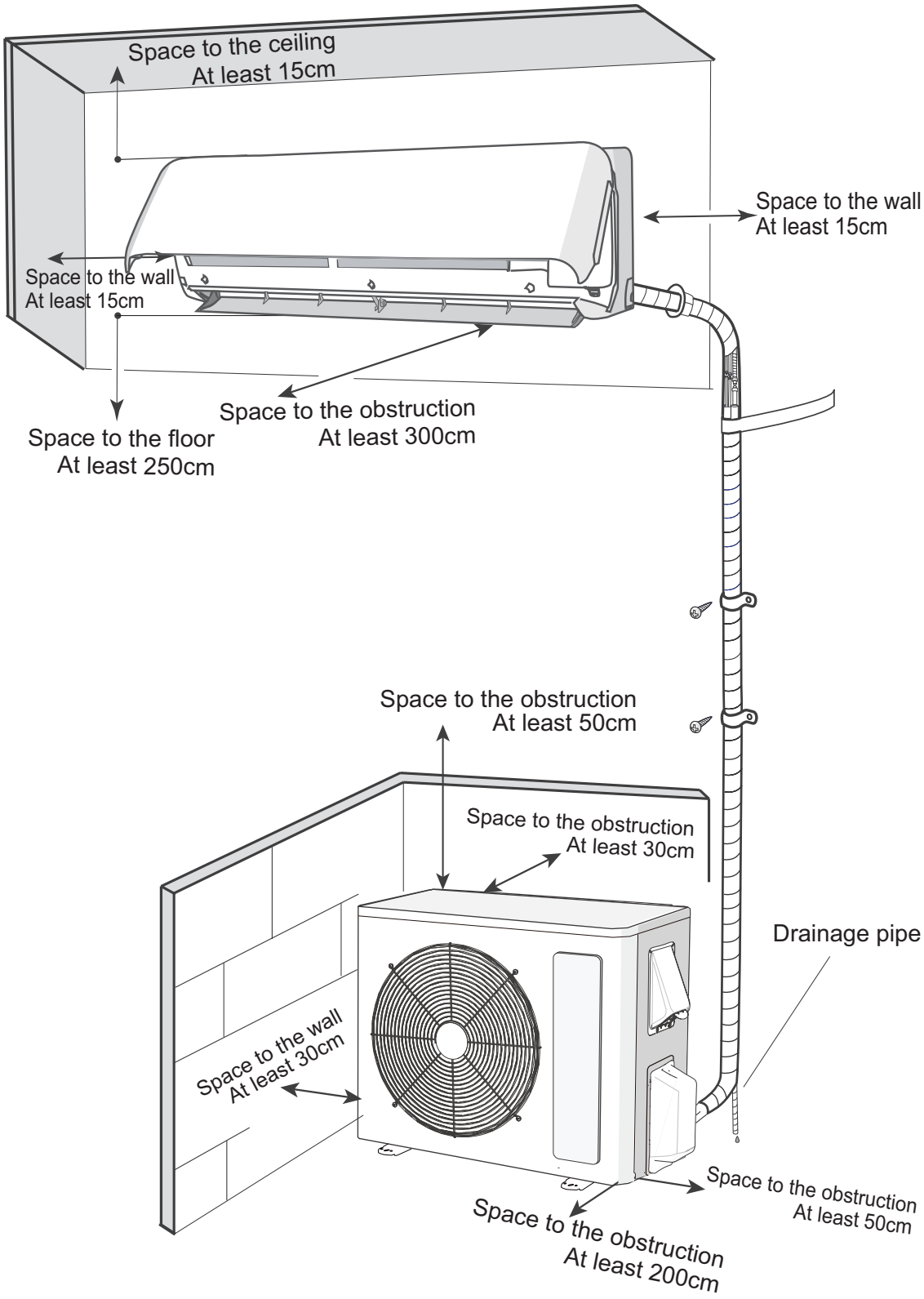
Scan the QR code or search "Ewpe Smart" in the application market to download and install it. When "Ewpe Smart" App is installed, register the account and add the device to achieve long-distance control and LAN control of smart home appliances.

For more information, please refer to "Help" in App.

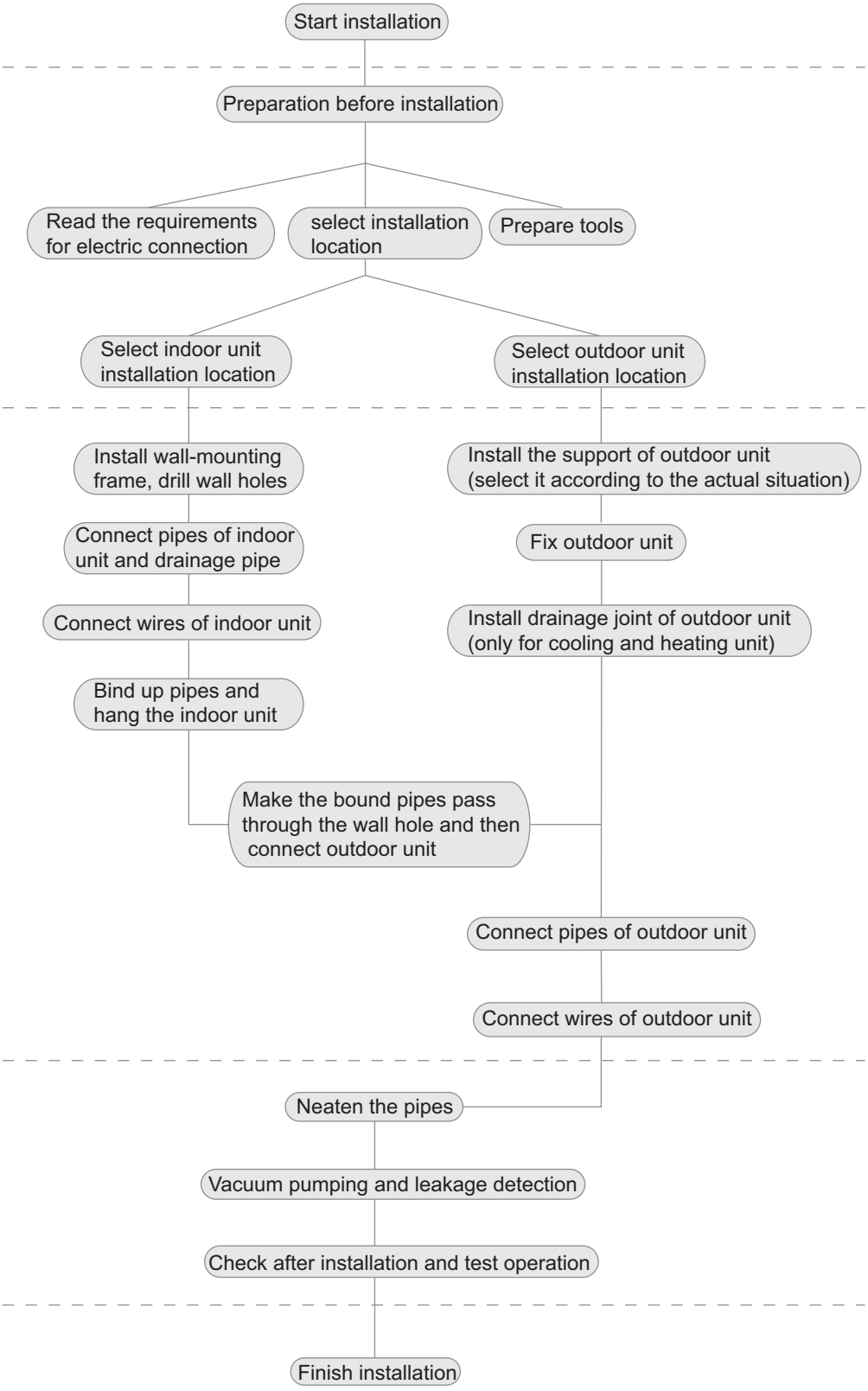
App Download Linkage

8. Installation

8.1 Installation Dimension Diagram



Installation Procedures



Note: this flow is only for reference; please find the more detailed installation steps in this section.

Main tools for installation and maintenance

Level meter

Measuring tape

Screw driver

Impact drill

Drill head

Electric drill

Electroprobe

Universal meter

Torque wrench

Open-end wrench

Inner hexagon spanner

Electronic leakage detector

Vacuum pump

Pressure meter

Pipe pliers

Pipe pliers

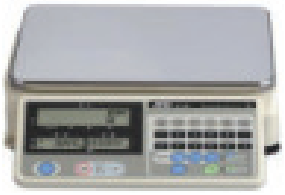
Pipe cutter

Pipe expander

Pipe bender

Soldering appliance

Refrigerant container



Electronic scale

8.2 Installation Parts-checking

No.	Name	No.	Name
1	Indoor unit	8	Sealing gum
2	Outdoor unit	9	Wrapping tape
3	Connection pipe	10	Support of outdoor unit
4	Drainage pipe	11	Fixing screw
5	Wall-mounting frame	12	Drainage plug (Heat pump model)
6	Connecting cable (Power Cord)	13	Owners manual
7	Wall pipe	14	Remote controller

⚠ **NOTE:**

1. Please contact the local agent for installation.
2. Don't use unqualified power cord.

8.3 Selection of Installation Location

1. Basic Requirement

Installing the unit in the following places may cause malfunction. If it is unavoidable, please consult the local dealer:

(1) The place with strong heat sources, vapors, flammable or explosive gas, or volatile objects spread in the air.

(2) The place with high-frequency devices (such as welding machine, medical equipment).

(3) The place near coast area.

(4) The place with oil or fumes in the air.

(5) The place with sulfureted gas.

(6) Other places with special circumstances.

(7) The appliance shall nost be installed in the laundry.

(8) It's not allowed to be installed on the unstable or motive base structure (such as truck) or in the corrosive environment (such as chemical factory).

2. Indoor unit

(1) There should be no obstruction near air inlet and air outlet.

(2) Select a location where the condensation water can be dispersed easily and won't affect other people.

(3) Select a location which is convenient to connect the outdoor unit and near the power socket.

(4) Select a location which is out of reach for children.

(5) The location should be able to withstand the weight of indoor unit and won't increase noise and vibration.

(6) The appliance must be installed 2.5m above floor.

(7) Don't install the indoor unit right above the electric appliance.

(8) Please try your best to keep away from fluorescent lamp.

3. Outdoor Unit

(1) Select a location where the noise and outflow air emitted by the outdoor unit will not affect neighborhood.

(2) The location should be well ventilated and dry, in which the outdoor unit won't be exposed directly to sunlight or strong wind.

(3) The location should be able to withstand the weight of outdoor unit.

(4) Make sure that the installation follows the requirement of installation dimension diagram.

(5) Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add fence for safety purpose.

8.4 Electric Connection Requirement

1. Safety Precaution

(1) Must follow the electric safety regulations when installing the unit.

(2) According to the local safety regulations, use qualified power supply circuit and air switch.

(3) Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock, fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.

(4) Properly connect the live wire, neutral wire and grounding wire of power socket.

(5) Be sure to cut off the power supply before proceeding any work related to electricity and safety.

(6) Do not put through the power before finishing installation.

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

(8) The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

(9) The appliance shall be installed in accordance with national wiring regulations.

(10) Appliance shall be installed, operated and stored in a room with a floor area larger than Xm^2(Please refer to table "a" in section of "Safety Operation of Inflammable Refrigerant" for Space X.)

Please notice that the unit is filled with flammable gas R32. Inappropriate treatment of the unit involves the risk of severe damages of people and material. Details to this refrigerant are found in chapter “refrigerant”.

2. Grounding Requirement

(1) The air conditioner is the first class electric appliance.It must be properly

grounding with specialized grounding device by a professional.

Please make sure it is always grounded effectively,otherwise it may cause electric shock.

(2) The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.

(3) The grounding resistance should comply with national electric safety regulations.

(4) An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

(5) Including an air switch with suitable capacity, please note the following nameplate. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload. (Caution: please do not use the fuse only for protect the circuit).

8.5 Installation of Indoor Unit

1. Choosing Installation Location

Recommend the installation location to the client and then confirm it with the client.

2. Install wall-mounting frame

(1) Hang the wall-mounting frame on the wall; adjust it to a horizontal position using a level meter, and then mark the screw fixing holes on the wall.

(2) Drill the screw fixing holes on the wall using an impact drill (the drill bit size should match the plastic expansion anchor), and then insert the plastic expansion anchors into the holes.

(3) Secure the wall-mounting frame to the wall using tapping screws, and then check if the frame is firmly installed by pulling on it. If the plastic expansion anchor is loose, drill another fixing hole nearby.

3. Drill Piping Hole

(1) Choose the position of the piping hole according to the direction of the outlet pipe. The position of the piping hole should be slightly lower than the wall-mounted frame. (As shown in Fig. 1)

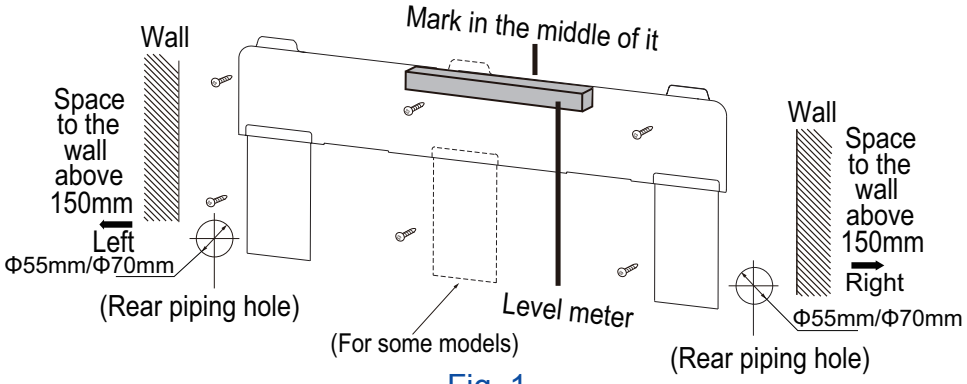


Fig. 1

(2) When installation is finished, pull the mounting plate by hand to confirm whether it is fixed tightly. The force distribution among all screws should be uniform.

(3) Drill a piping hole with a diameter of Φ55mm or Φ70mm at the selected outlet pipe position. To ensure smooth drainage, slant the piping hole on the wall slightly downward toward the outdoor side with a gradient of 5-10°. (As shown in Fig. 2)

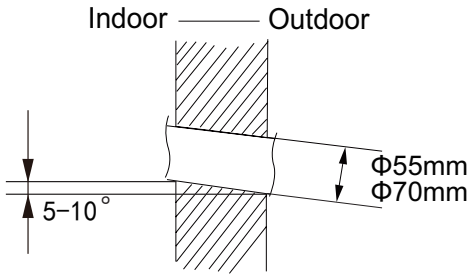


Fig. 2

NOTE:

Pay attention to dust prevention and take relevant safety measures when drilling the hole.

4. Outlet Pipe

(1) The pipe can be led out in the direction of right, rear right, left, or rear left. (As shown in Fig. 3)

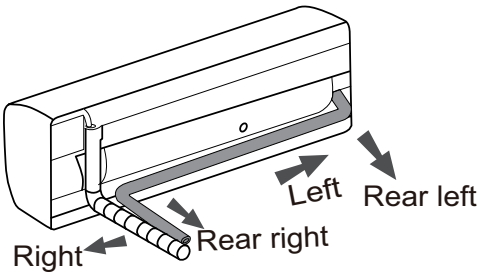


Fig. 3

(2) When selecting to lead out the pipe from the left or right, please cut the corresponding hole in the bottom case. (As shown in Fig. 4)

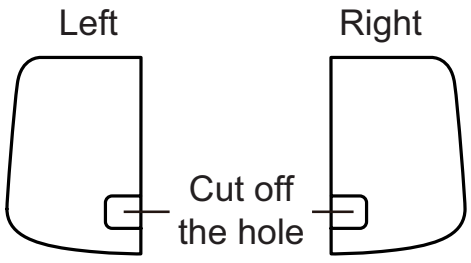


Fig. 4

5. Connect the Pipe of Indoor Unit

(1) Aim the pipe joint at the corresponding bellmouth. (As shown in Fig. 5)

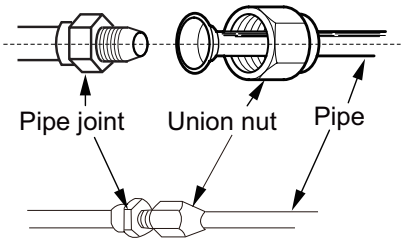


Fig. 5

(2) Pretighten the union nut by hand.

(3) Adjust the torque force by referring to the following sheet. Place the open-end wrench on the pipe joint and the torque wrench on the union nut. Tighten the union nut with the torque wrench. (As shown in Fig. 6)

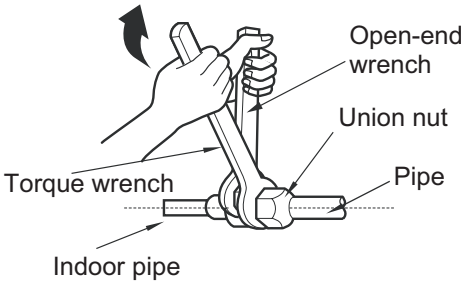


Fig. 6

(4) Wrap the indoor pipe and the joint of the connection pipe with insulating pipe, and then wrap it with tape. (As shown in Fig. 7)

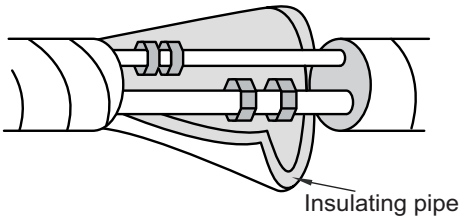


Fig. 7

Refer to the following table for wrench moment of force:

Piping size (inch)	Tightening torque (N·m)
1/4	15~20
3/8	30~40
1/2	45~55
5/8	60~65
3/4	70~75

6. Install Drain Hose

(1) Connect the drain hose to the outlet pipe of the indoor unit. (As shown in Fig. 8

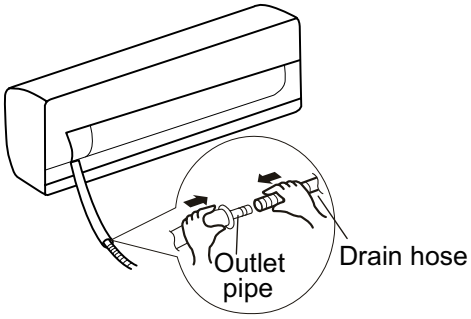


Fig. 8

(2) Bind the joint with tape. (As shown in Fig. 9)

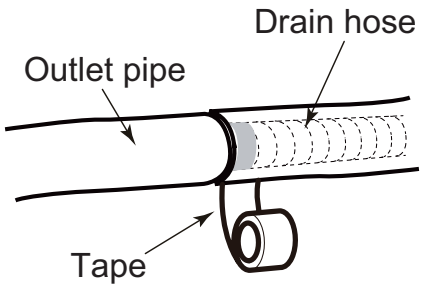


Fig. 9

(3) Add insulating pipe to the indoor drain hose to prevent condensation. (As shown in Fig. 10)

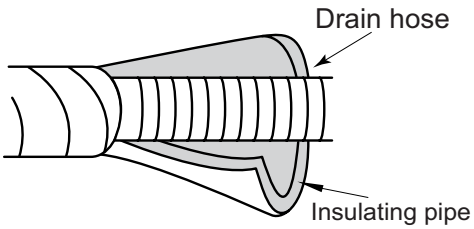


Fig.10

NOTE:

- The plastic expansion bolts are not provided.

7. Connect Wire of Indoor Unit

NOTICE:

- All wires of the indoor unit and the outdoor unit should be connected by a professional.
- If the length of the power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire yourself.
- For the air conditioner with a plug, the plug should be reachable after installation.
- For the air conditioner without a plug, an air switch must be installed in the line. The air switch should be all-pole parting, and the contact parting distance should be more than 3mm.

(1) Open the panel, remove the screw on the wiring cover, and then take down the cover.
(As shown in Fig. 11)

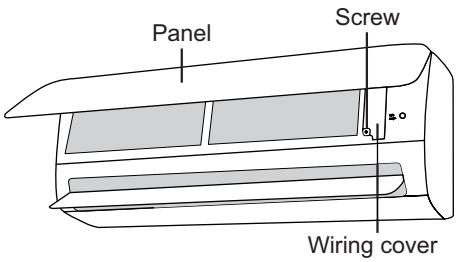


Fig. 11

(2) Fix the connection wire sleeve on wire crossing board of the bottom case; the power connection wire passes through the wire crossing hole at the back of indoor unit shell after passing through the connection wire sleeve, and then pulls it out from the front. (As show in Fig.12)

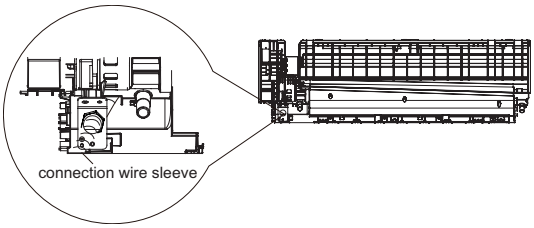


Fig. 12

(3) Remove the wire clip; connect the power connection wire and the signal control wire (only for cooling and heating units) to the wiring terminal according to the color; tighten the screw, and then fix the power connection wire with the wire clip. (As shown in Fig. 13)

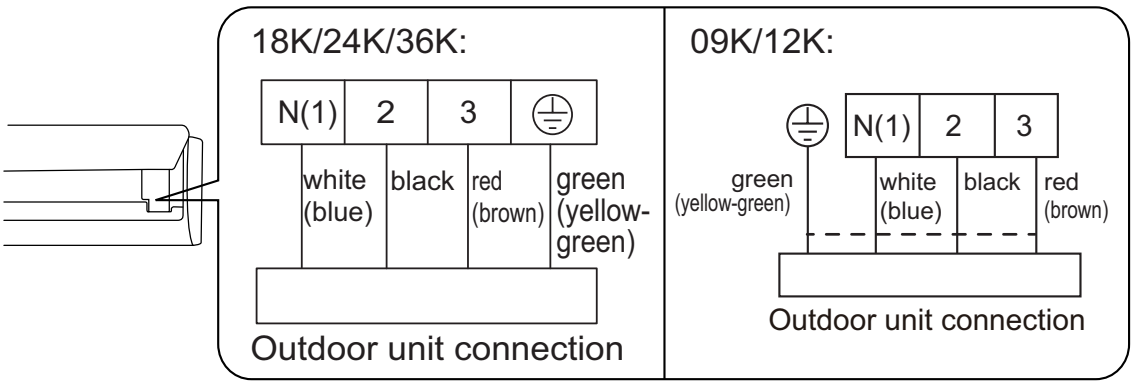


Fig. 13

Model	power connection wire
09~36K	4x AWG18

(4) Put the wiring cover back and then tighten the screw.

(5) Close the panel.

NOTICE:

The wiring board is for reference only. Please refer to the actual one.

⚠ WARNING

(1) All wires of indoor unit and outdoor unit should be connected by a professional.

(2) If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.

8. Bind up Pipe

(1) Bind up the connection pipe, power cord, and drain hose with the band. (As shown in Fig. 14)

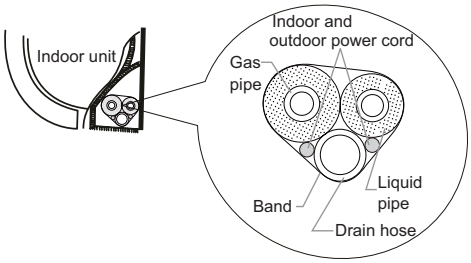


Fig. 14

(2) Reserve a certain length of drain hose and power cord for installation when binding them. When binding to a certain degree, separate the indoor power and then separate the drain hose. (As shown in Fig. 15)

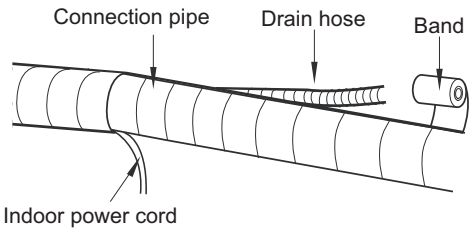


Fig. 15

(3) Bind them evenly.

(4) The liquid pipe and gas pipe should be bound separately at the end.

NOTE:

- The power cord and control wire cannot be crossed or wound.
- The drain hose should be bound at the bottom.

9. Hang the Indoor Unit

(1) Put the bound pipes in the wall pipe and then pass them through the wall hole.

(2) Hang the indoor unit on the wall-mounting frame.

(3) Stuff the gap between the pipes and the wall hole with sealing gum.

(4) Fix the wall pipe.
(As shown in Fig. 16)

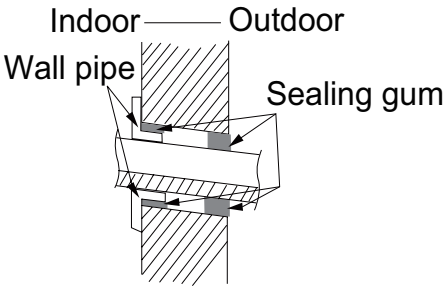


Fig. 16

(5) Check if the indoor unit is installed firmly and close to the wall. (As shown in Fig. 17)

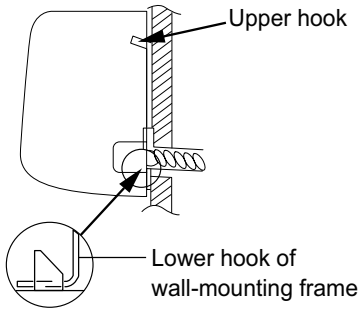


Fig. 17

NOTE:

Do not bend the drain hose excessively to prevent blocking.

8.6 Installation of Outdoor Unit

1. Fix the Support of Outdoor Unit (Select it according to the actual installation situation)

(1) Select installation location according to the house structure.

(2) Fix the support of outdoor unit on the selected location with expansion screws.

NOTICE:

- Take sufficient protective measures when installing the outdoor unit.
- Make sure the support can withstand at least four times the unit weight.
- The outdoor unit should be installed at least 3cm above the floor in order to install drain joint.(As shown in Fig.18)

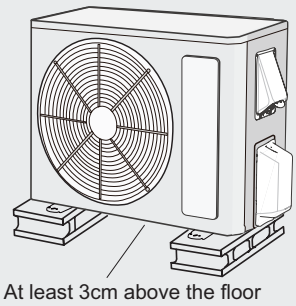


Fig.18

- For the unit with cooling capacity of 2300W~5000W, 6 expansion screws are needed; for the unit with cooling capacity of 6000W~8000W, 8 expansion screws are needed; for the unit with cooling capacity of 10000W~16000W, 10 expansion screws are needed.

2. Install Drain Joint (Only for heat pump models)

(1) Connect the outdoor drain joint into the hole on the chassis.

(2) Connect the drain hose into the drain vent. (As shown in Fig.19)

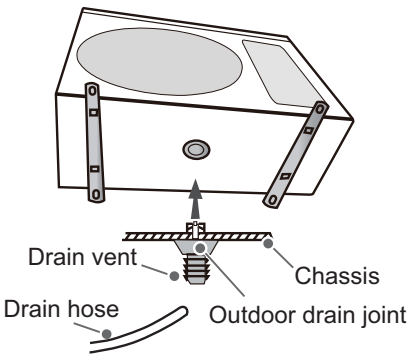


Fig.19

3. Fix Outdoor Unit

(1) Place the outdoor unit on the support.

(2) Fix the foot holes of outdoor unit with bolts. (As shown in Fig.20)

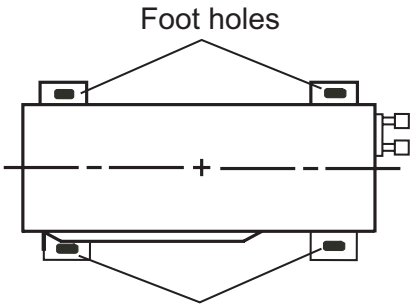


Fig.20

4. Connect Indoor and Outdoor Pipes

(1) Remove the screw on the valve cover of outdoor unit and then remove the valve cover. (As shown in Fig.21)

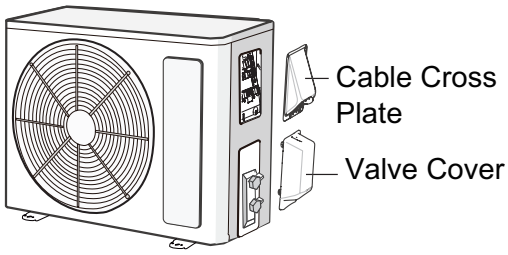


Fig.21

(2) Remove the screw cap of valve and aim the pipe joint at the bellmouth of pipe. (As shown in Fig.22)

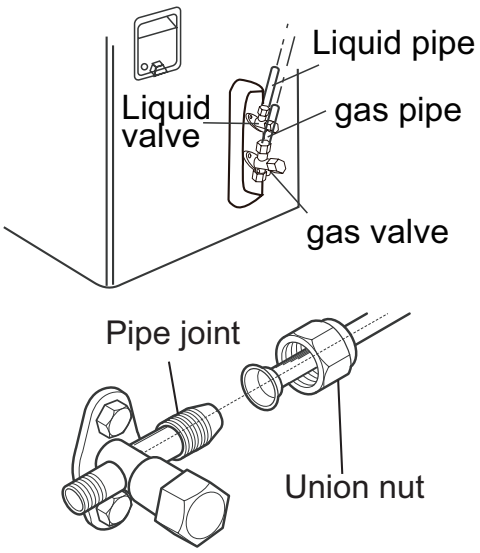


Fig.22

(3) Pretightening the union nut with hand.

(4) Tighten the union nut with torque wrench.

Refer to the following table for wrench moment of force:

Piping size (inch)	Tightening torque (N·m)
1/4	15~20
3/8	30~40
1/2	45~55
5/8	60~65
3/4	70~75

5. Connect Outdoor Electric Wire

(1) Remove the screw on the cable cross plate, then remove it.

(2) Let the connection wire sleeve go through the two holes of baffle; tighten the connection joint of sleeve and cable cross plate; remove the wire clip; connect the power connection wire and power supply cord to the wiring terminal according to the color; fix them with screws.(As show in Fig.23)

(3) Fix the power connection wire and power supply cord with wire clip.

(4) Fix the cable cross plate on right side plate with screw.

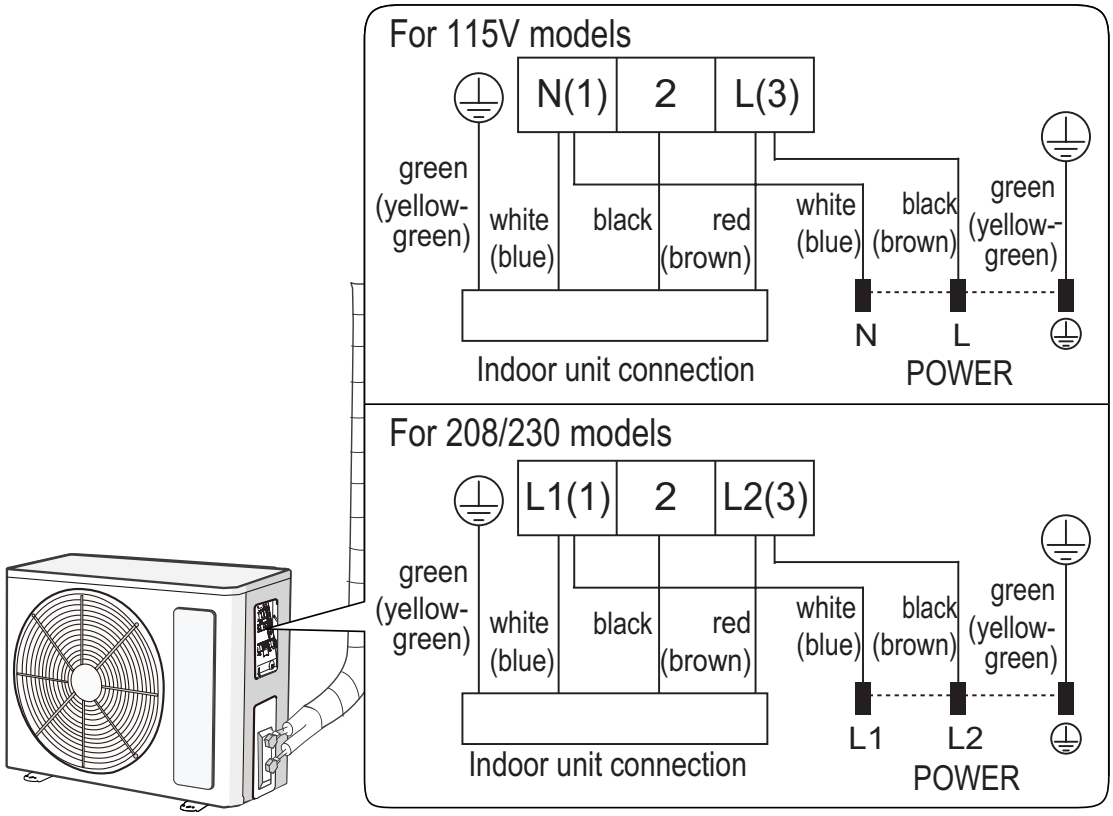


Fig.23

NOTICE:

the wiring connect is for reference only, please refer to the actual one.

⚠ CAUTION

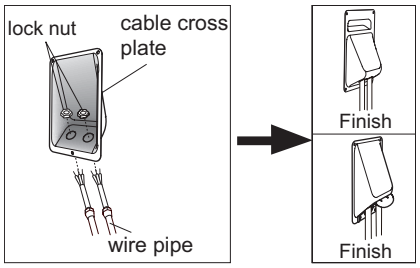
(1) After tightening the screw, pull the power supply cord slightly to check if it is firm.

(2) Never cut the power connection wire to prolong or shorten the distance.

(3) The power connection wire and connection pipe can't touch each other.

(4) Top cover of outdoor unit and electric box assembly should be fixed by the screw. Otherwise, it can cause a fire,or short circuit caused by water or dust.

(5) For the air conditioner without plug, an air switch must be installed in the line. The air switch should be all-pole parting and the contact parting distance should be more than 3mm.



6. Neaten the Pipes

(1) The pipes should be placed along the wall, bent reasonably and hidden possibly. Min. semidiameter of bending the pipe is 10cm.

(2) If the outdoor unit is higher than the wall hole, you must set a U-shaped curve in the pipe before pipe goes into the room, in order to prevent rain from getting into the room. (As shown in Fig.24)

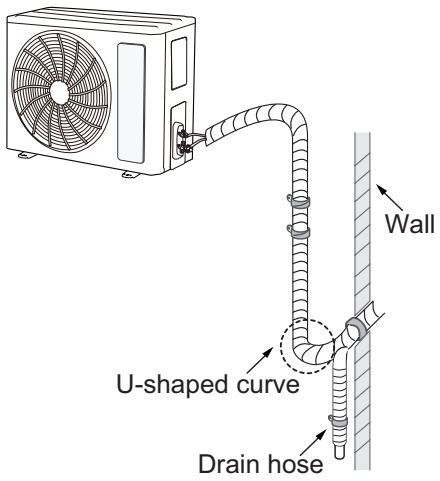


Fig.24

NOTICE:

- The through-wall height of drain hose shouldnt be higher than the outlet pipe hole of indoor unit.(As shown in Fig.25)

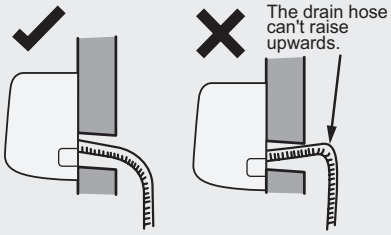


Fig.25

- Slant the drain hose slightly downwards. The drain hose cant be curved, raised and fluctuant, etc.(As shown in Fig.26)

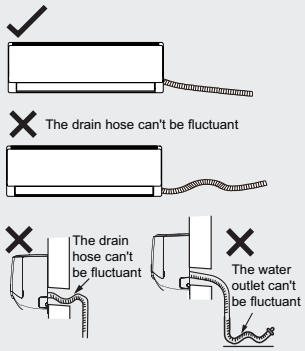


Fig.26

- The water outlet cant be placed in water in order to drain smoothly. (As shown in Fig.27)

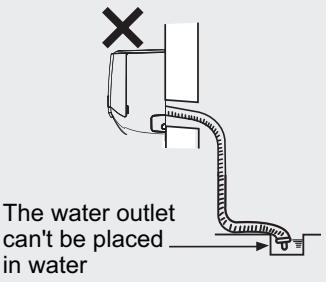


Fig.27

8.7 Vacuum Pumping and Leak Detection

1. Use Vacuum Pump

(1) Remove the valve caps on the liquid valve and gas valve and the nut of refrigerant charging vent.

(2) Connect the charging hose of piezometer to the refrigerant charging vent of gas valve and then connect the other charging hose to the vacuum pump.

(3) Open the piezometer completely and operate for 10-15min to check if the pressure of piezometer remains in -0.1MPa.

(4) Close the vacuum pump and maintain this status for 1-2min to check if the pressure of piezometer remains in -0.1MPa. If the pressure increases, there may be leakage.

(5) Remove the piezometer, open the valve core of liquid valve and gas valve completely with inner hexagon spanner.

(6) Tighten the screw caps of valves and refrigerant charging vent.(As shown in Fig.28)

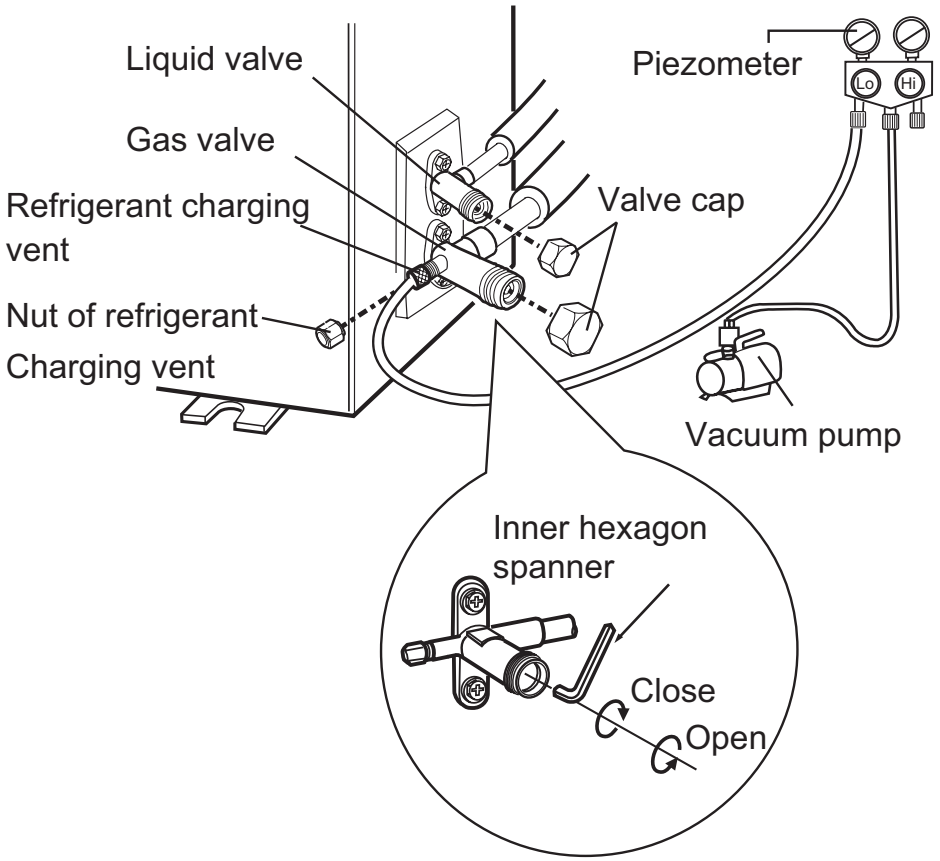


Fig.28

2. Leakage Detection

(1) With leakage detector:

Check if there is leakage with leakage detector.

(2) With soap water:

If leakage detector is not available, please use soap water for leakage detection. Apply soap water at the suspected position and keep the soap water for more than 3min. If there are air bubbles coming out of this position, There's a leakage.

8.8 Check after Installation and Test Operation

1. Check after Installation

Check according to the following requirement after finishing installation.

NO.	Items to be checked	Possible malfunction
1	Has the unit been installed firmly?	The unit may drop, shake or emit noise.
2	Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
3	Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
4	Is water drained well?	It may cause condensation and water dripping.
5	Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damage the parts.
6	Is electric wiring and pipeline installed correctly?	It may cause malfunction or damage the parts.
7	Is the unit grounded securely?	It may cause electric leakage.
8	Does the power cord follow the specification?	It may cause malfunction or damage the parts.
9	Is there any obstruction in air inlet and air outlet?	It may cause insufficient cooling (heating) capacity.
10	The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
11	The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.
12	Is the inlet and outlet of piping hole been covered?	It may cause insufficient cooling(heating) capacity or waster eletricity.

2. Test Operation

(1) Preparation of test operation

- The client approves the air conditioner installation.
- Specify the important notes for air conditioner to the client.

(2) Method of test operation

- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
- If the ambient temperature is lower than 16°C, the air conditioner can't start cooling.

9. Maintenance

9.1 Error Code List

Error code	Malfunction name	Possible causes
E6	**Communication error between IDU with ODU**	Please refer to "Communication Error".
H5	**IPM protection**	Please refer to "IPM Protection".
L3 LA	**Outdoor fan error**	1. Motor or motor wire is damaged; 2. Main board of ODU is damaged; 3. The fan blade is clogged or loose.
H6	**Operating error of IDU motor**	1. Motor terminal is not well connected; 2. The motor is damaged; 3. Main board of IDU is damaged.
HC	**PFC protection**	1. Main board of ODU is damaged; 2. Poor power grid quality, with oscillation or significant fluctuations in AC input voltage; 3. Unreliable connections of the air conditioner's power plug, terminal board, or reactor, leading to arcing; 4. Excessive dirt on indoor and outdoor heat exchangers or blockage of air outlets.

Error code	Malfunction name	Possible causes
H7	**Compressor out of step**	1. Abnormal power supply voltage; 2. Condenser or evaporator is dirty or clogged; 3. Inlet and outlet air of indoor unit or outdoor unit is not smooth; 4. System piping blockage, valves are not open; 5. Excessive refrigerant causing excessive system pressure; 6. Poor wiring contact; 7. Main board is damaged; 8. Compressor is damaged; Please refer to "Compressor out of step".
F0	**Refrigerant lack protection, refrigerant circulation stop protection**	1. The connection pipe between the IDU and ODU is damaged or the connection point is aged and loose, leading to refrigerant leakage; 2. The liquid valve / air valve is aged and damaged, causing abnormal opening and closing control, which leads to pipeline blockage; 3. The temperature sensor is damaged or aged, resulting in inaccurate temperature sampling and false error reporting.
PH	**High DC bus voltage**	1. The AC supply voltage is too high, for example, the AC supply voltage exceeds 300V; 2. Poor power quality, with abnormal oscillation in the AC supply voltage; 3. The main board is damaged.
PL	**Low DC bus voltage**	1. AC power supply voltage is too low, for example, the AC power supply voltage is less than 90V; 2. Abnormal unit wiring, such as loose connection wires; 3. Main board of outdoor unit is damaged;

Error code	Malfunction name	Possible causes
E8	**High-temperature protection**	Cooling: 1. The condenser of the outdoor unit is dirty or clogged, leading to poor heat exchange; 2. Insufficient space or obstacles at the air inlet and outlet of the outdoor unit cause poor air circulation; 3. The fan blade of the outdoor unit is broken, falling off or the motor is damaged; 4. The temperature sensor of the outdoor unit condenser is damaged, or the main board is damaged, leading to inaccurate temperature sampling. Heating: 1. The indoor unit evaporator is dirty or clogged, leading to poor heat exchange; 2. Insufficient space or obstructions at the air outlets of the indoor unit cause poor air intake and exhaust; 3. The fan blade of the outdoor unit is broken, falling off; 4. The temperature sensor of the indoor unit evaporator is damaged, or the main board is damaged, leading to inaccurate temperature sampling.
C5	**Jumper cap error**	1. The jumper cap of indoor unit is not installed, or the jumper cap is not properly installed; 2. The jumper cap has poor contact and is not properly installed.
C4	**Jumper cap of ODU**	The jumper cap of outdoor unit is not installed, or the jumper cap is not properly installed.
F1	**Open/short circuit of indoor temperature sensor**	1. Temperature sensor is damaged (refer to attachment "Table 1"); 2. Temperature sensor is not connected or in poor contact.

Error code	Malfunction name	Possible causes
F2	**Open/short circuit of temperature sensor of indoor evaporator**	1. Temperature sensor is damaged (refer to attachment "Table 2"); 2. Temperature sensor is not connected or in poor contact.
F3	**Open/short circuit of outdoor temperature sensor**	1. Temperature sensor is not connected or is damaged; (refer to attachment "Table 1"); 2. Temperature sensor wire is damaged, or is short-circuited to the copper tube or outer case; 3. The main board of ODU is damaged.
F4	**Open/short circuit of temperature sensor of outdoor condenser**	1. Temperature sensor is not connected or is damaged; (refer to attachment "Table 2"); 2. Temperature sensor wire is damaged, or is short-circuited to the copper tube or outer case; 3. The main board of ODU is damaged.
F5	**Open/short circuit of temperature sensor**	1. Temperature sensor is not connected or is damaged; (refer to attachment "Table 3"); 2. Temperature sensor wire is damaged, or is short-circuited to the copper tube or outer case; 3. The main board of ODU is damaged.
U8	**Indoor unit zero-crossing signal error**	1. The power supply is abnormal; 2. Main board of IDU is damaged.

Error code	Malfunction name	Possible causes
E5	**Overcurrent protection**	1. Unstable power supply voltage; 2. Power supply voltage is too low; 3. Condenser or evaporator is dirty or clogged; 4. Inlet and outlet air of IDU or ODU is not smooth; 5. System pipeline is blocked, valves are not open; 6. Excessive refrigerant leads to excessive system pressure; 7. Main board is damaged; 8. Compressor is damaged; Please refer to "Overcurrent protection".
H3	**Compressor overload protection**	1. The connection between the overload connection wire and the main board or the overload protector is unreliable, and the terminal is loose; 2. The overload protector is damaged, under normal circumstances, the impedance at both ends of the test overload protector should be less than 1Ω; 3. The overload connection wire is damaged, resulting in the short circuit of wire; 4. Refrigerant leakage or system blockage; 5. The main board is damaged.
EA	**Refrigerant leak alarm**	There may be refrigerant leakage in the unit.
FE	**Refrigerant sensor error**	Service life of refrigerant expires or is damaged.
b7	**Open/short circuit of temperature sensor of air valve**	1. Temperature sensor is not connected or is damaged; (refer to attachment "Table 2"); 2. Temperature sensor wire is damaged, or is short-circuited to the copper tube or outer case; 3. The main board of ODU is damaged.

Error code	Malfunction name	Possible causes
b5	**Open/short circuit of temperature sensor of liquid valve**	1. Temperature sensor is not connected or is damaged; (refer to attachment "Table 2"); 2. Temperature sensor wire is damaged, or is short-circuited to the copper tube or outer case; 3. The main board of ODU is damaged.
E1	**System high pressure protection**	1. The connection between the wiring and the main board or high-pressure protection switch is unreliable, with loose terminals; 2. The high-pressure protection switch is damaged; under normal circumstances, the impedance between the two ends of the high-pressure protection switch should be less than 1Ω; 3. Abnormalities such as dirt blockage in the condenser or evaporator, poor air circulation, excessive refrigerant, or blockages in the system piping can lead to excessively high system pressure; 4. The main board is damaged.
E3	**Low pressure protection/system low pressure protection/ compressor low pressure protection**	1. Low pressure switch is damaged; 2. System refrigerant leakage.
E4	**High exhaust temperature protection of compressor**	Please refer to "Compressor overload protection, high exhaust temperature protection of compressor".
E7	**Mode conflict**	When the free match system is faulted, some indoor units will conduct heating mode, while others will conduct cooling, dry mode or air supply mode, causing a mode conflict.
EE	**Read EEPROM error**	Main board of ODU is damaged.

Error code	Malfunction name	Possible causes
Fo	**Refrigerant recovery mode**	Recovery of refrigerant. The mode is conducted during maintenance.
H4	**System error**	Please refer to "High temperature, overload, high power, system error".
HE	**Compressor demagnetization protection**	1. Main board of ODU is damaged; 2. Compressor is damaged.
L9	**High power protection**	Please refer to "High temperature, overload, high power, system error".
Lc	**Startup failure**	Please refer to "Startup failure".
Ld	**Compressor phase-loss protection**	1. Poor wiring contact of compressor; 2. Main board of ODU is damaged; 3. Compressor is damaged.
P5	**There is an error causing stop of ODU**	1. Compressor startup failure; 2. Compressor overload protection; 3. IDU requires to stop.
oE	**Undefined ODU error**	Please refer to "Undefined ODU error".
P6	**Communication error between drive board and main control**	1. Poor connection between drive board and main board; 2. Drive board is damaged; 3. Main board of ODU is damaged.
P7	**Circuit error of module temperature sensor**	Main board of ODU is damaged.

Error code	Malfunction name	Possible causes
P8	**High-temperature protection of module**	1. Air inlet/outlet of ODU is dirty and clogged; 2. IPM screw of main board is not well installed or the radiator is not well installed, or the main board is damaged.
PF	**Error of ambient temperature sensor on drive board**	1. Poor contact of ambient temperature sensor of driver board; 2. Error of ambient temperature sensor on drive board.
PU	**Capacitor charging error**	1. Main board of ODU is damaged; 2. Wiring error of ODU or low power supply voltage.
rF	**RF module error**	1. Poor contact of the RF module connection wire; 2. RF module error; 3. Abnormality in the RF module interface circuit of main board.
U1	**Compressor phase current detection circuit error**	Main board of ODU is damaged.
U2	**Compressor phase-loss Protection**	1. Poor wiring contact of compressor; 2. Main board of ODU is damaged; 3. Compressor is damaged.
U3	**DC bus voltage drop error**	Unstable power voltage with large fluctuation.
U5	**Current detection error of whole unit**	1. The whole unit lacks refrigerant; 2. The circuit on the control board of ODU has failed, the control board shall be replaced.

Error code	Malfunction name	Possible causes
U7	**4-way valve switchover error**	1. Power voltage is below AC175V; 2. Loose or broken wires at the four-way valve terminal; 3. Four-way valve is damaged, please replace the four-way valve.
U9	**ODU zero-crossing error**	Main board of ODU is damaged.
E2	**Evaporator anti-freeze protection**	It's not an error code, it belongs to the status code during the cooling process.
E9	**Anti-cold wind protection**	It's not an error code, it belongs to the status code during the heating process.
LP	**IDU and ODU do not match**	Capacity of IDU and ODU do not match.
FC	**Micro-switch error**	1. The control motor of sliding door is abnormally connected to the main board; 2. The sliding door is jammed; 3. The photoelectric detection plate of sliding door is faulted.
JF	**Communication error between IDU and detective board"**	1. Poor connection between the indoor unit and the detection plate; 2. Main board of IDU is damaged; 3. Detection plate is damaged.
L1	**Humidity sensor error**	1. Check if the WIFI communication is normal, please refer to JF troubleshooting; 2. The sensor is damaged; 3. The display board is damaged.
	Defrosting	It's not an error code, it belongs to the status code during the heating process.

9.2 Procedure of Troubleshooting

E6: Communication Error Between IDU with ODU

1. Communication Error between IDU with ODU

(1) Cooling/dehumidification: Compressor and outdoor fan stop running;

(2) Heating: All loads stop running;

(3) Principle: The indoor and outdoor units cannot establish communication or the established communication data is abnormal.

2. Possible causes

(1) Electric circuit of main board is damaged;

(2) Wire connection between IDU and ODU is abnormal, or wire connection between terminal board and main board is abnormal;

(3) The neutral and live wires are connected in reverse;

(4) The powr grid is abnormal.

3. Troubleshooting

(1) Check whether the connection wire of the indoor and outdoor units is damaged;

(2) Check whether the power cord and communication wire of main board of the indoor and outdoor unit are damaged;

(3) Check whether the wiring sequence is correct, whether the neutral and live wires are connected in reverse, and whether the power cord and communication wire are not connected properly;

(4) Check whether the LED indicator on the main board of ODU flashes according to the normal rules;

(5) Check whether the coil of ODU is corroded and short-circuited, causing damage to the main board.

4. Specific troubleshooting steps:

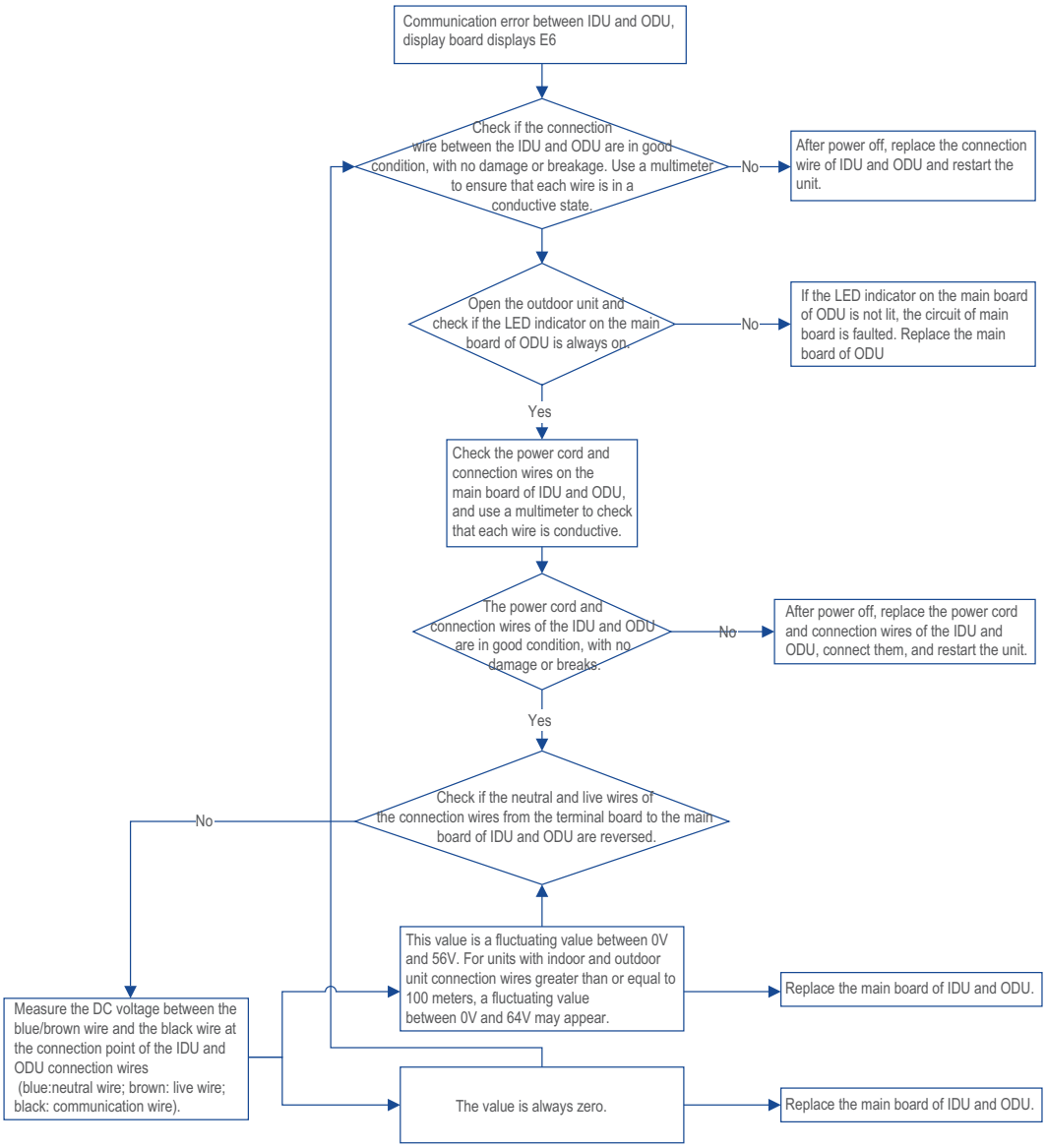
1. Using the after-sales tester GT2A3Ad can identify faults more conveniently and quickly;

   (1) If it replaces the IDU to communicate with the ODU, and the E6 error occurs, it means the main board of ODU is abnormal;

(2) If it replaces the ODU to communicate with the IDU, and the E6 error occurs, it means the main board of IDU is abnormal;

(3) If no E6 error occurs, it means that the connection line between the indoor unit and the outdoor unit is abnormal.

2. Manual Detection



NOTE:

The method for detecting the communication circuit of ODU of the inverter split type unit and the floor standing type unit: disconnect the indoor and outdoor communication wire, and measure the voltage between COM and N on the control board of the ODU (DC gear, about 56V is normal).

H5: IPM Protection

1. Error description

When the compressor is running, detect the current flowing through the compressor control module (IPM). If the current exceeds the set value (the set value varies for different models), an H5 IPM current protection error is reported.

2. Possible causes

(1) Abnormal power supply voltage;

(2) Condenser or evaporator is dirty or clogged;

(3) Inlet and outlet air of IDU or ODU is not smooth;

(4) System pipe is blocked, valves are not open;

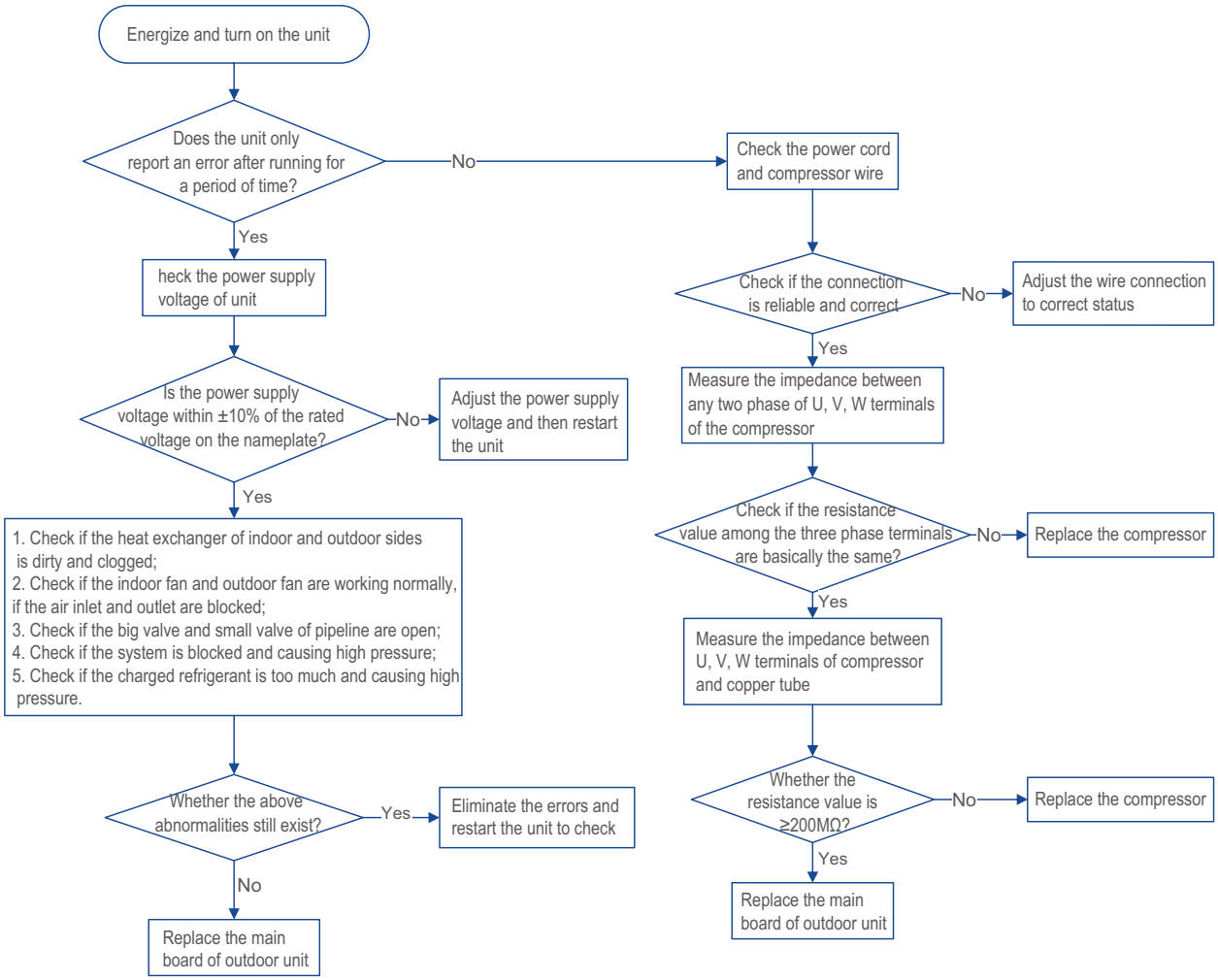
(5) Excessive refrigerant causing excessive system pressure;

(6) Poor wire contact;

(7) Main board is damaged;

(8) Compressor is damaged.

3. Troubleshooting



L3: Outdoor Fan Error

1. Outdoor Fan Error

(1) Cooling/dehumidification: All loads stop running except the indoor fan;

(2) Heating: All loads stop running;

(3) Principle: The fan reports a major error every 6 minor errors (such as fan out of step, fan blockage, fan overload, etc.). The unit stops operation and then it will resume operation after 3min. After reporting 6 major errors, L3 will be displayed and the unit can't resume operation;

2. Possible causes

(1) The wire connection between the fan and the main board is unreliable, with loose terminals;

(2) The fan wiring is damaged, causing an open circuit;

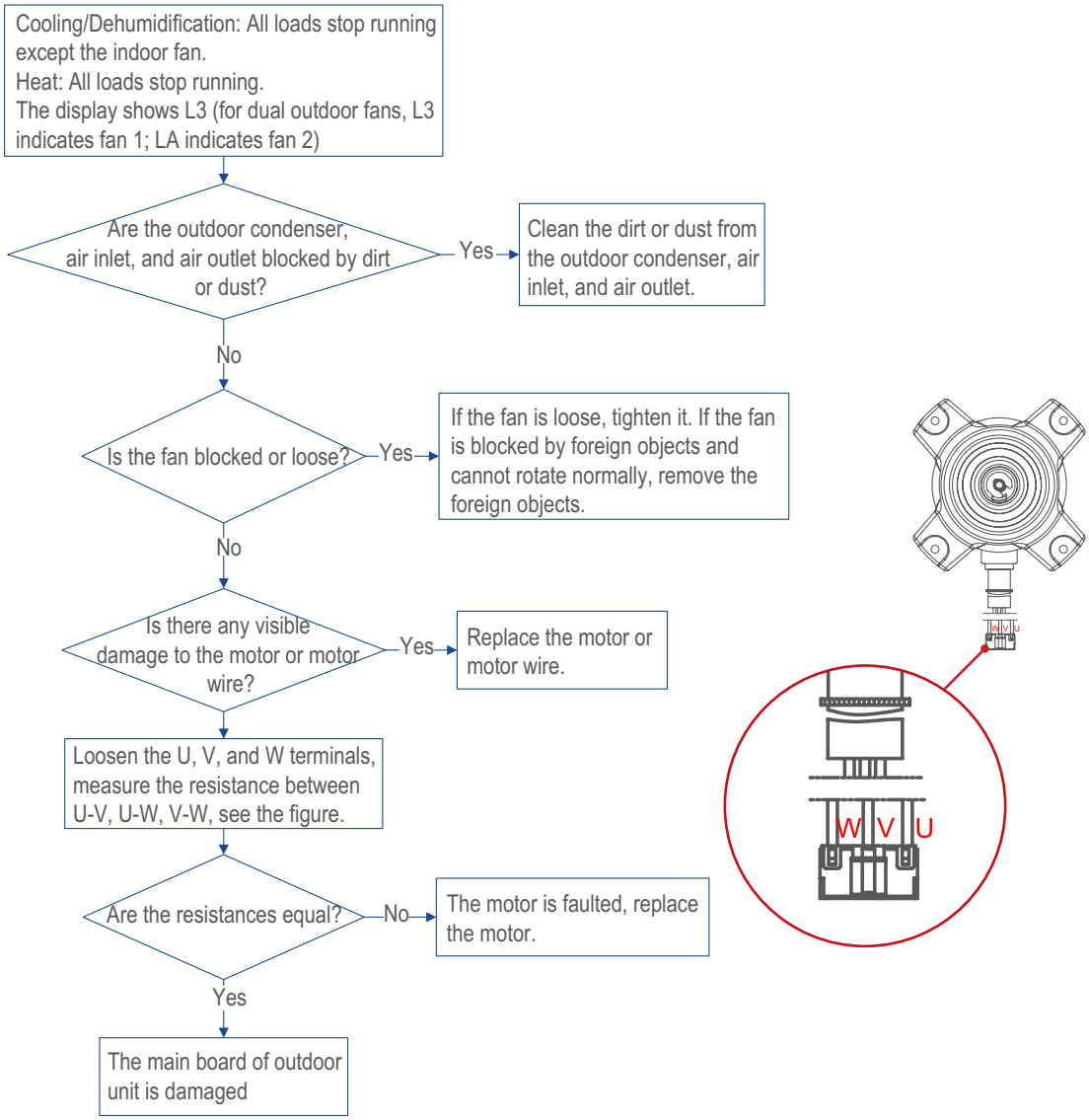
(3) The main board is damaged;

(4) The fan is damaged;

(5) The fan is blocked or the blades are loose due to external factors.

3. Solutions

Check if the wiring is damaged and if the connection is reliable; check if the fan is damaged; check if the fan is blocked or the blades are loose.


Cooling/Dehumidification: All loads stop running except the indoor fan.
Heat: All loads stop running.
The display shows L3 (for dual outdoor fans, L3 indicates fan 1; LA indicates fan 2)
Are the outdoor condenser, air inlet, and air outlet blocked by dirt or dust?
Yes
Clean the dirt or dust from the outdoor condenser, air inlet, and air outlet.
No
Is the fan blocked or loose?
Yes
If the fan is loose, tighten it. If the fan is blocked by foreign objects and cannot rotate normally, remove the foreign objects.
No
Is there any visible damage to the motor or motor wire?
Yes
Replace the motor or motor wire.
Loosen the U, V, and W terminals, measure the resistance between U-V, U-W, V-W, see the figure.
Are the resistances equal?
No
The motor is faulted, replace the motor.
Yes
The main board of outdoor unit is damaged
W
V
U

H6: Operating Error of Outdoor Unit Motor

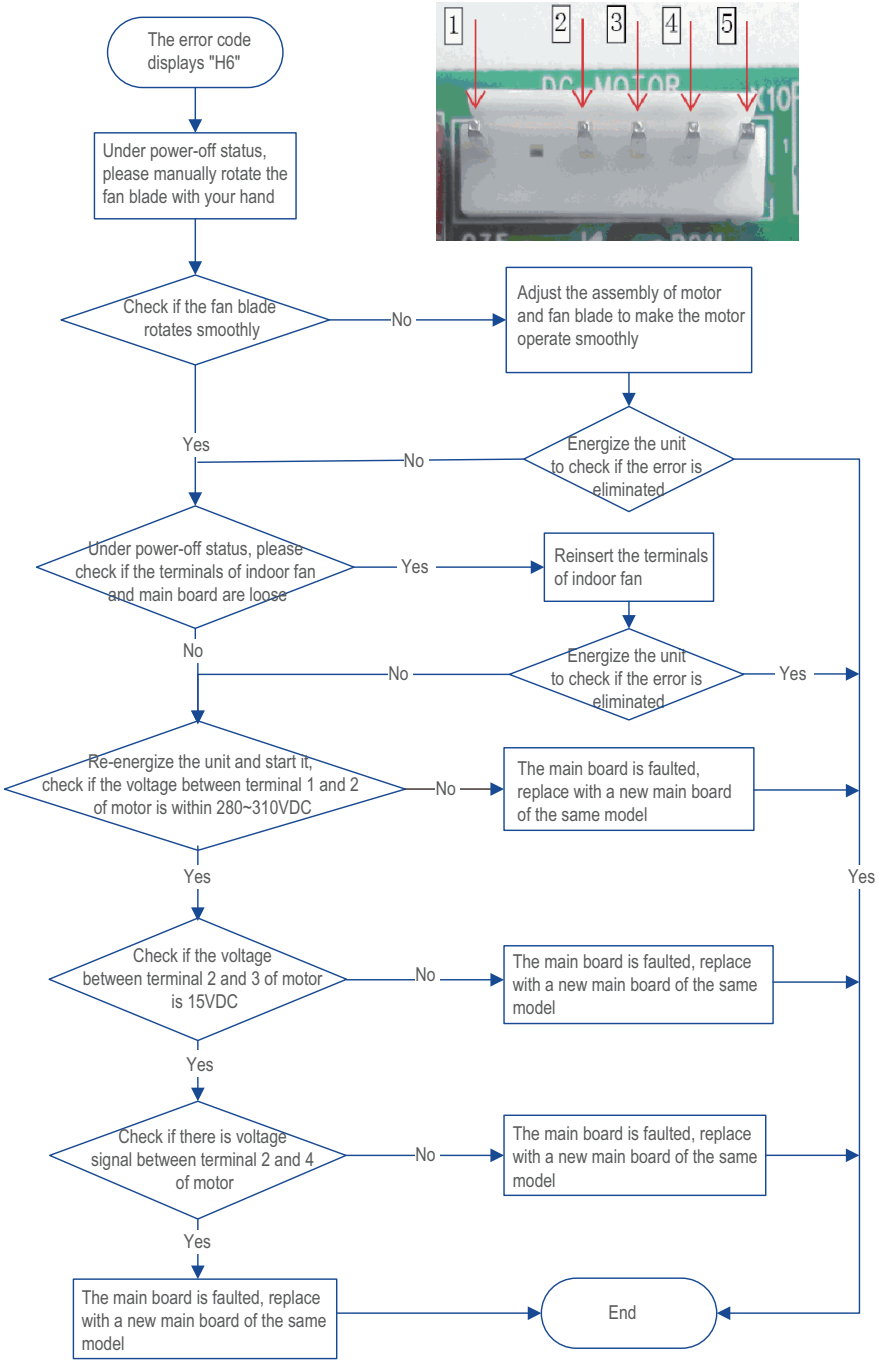
Possible causes:

(1) Motor terminal or feedback terminal is not properly connected;

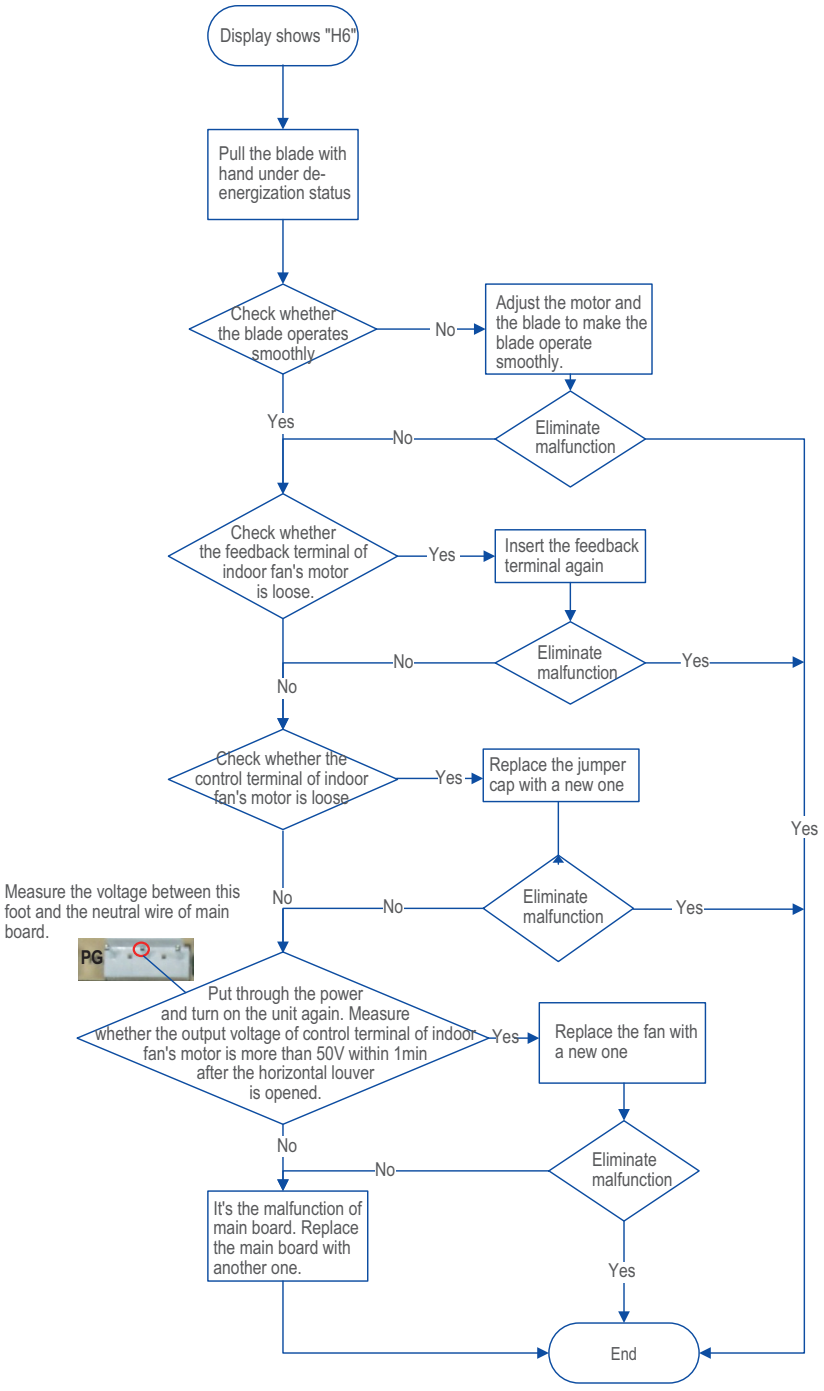
(2) Motor is damaged;

(3) Main board of IDU is damaged.

1. DC motor



2. PG motor


Display shows "H6"
Pull the blade with hand under de-energization status
Check whether the blade operates smoothly
No
Adjust the motor and the blade to make the blade operate smoothly.
Yes
No
Eliminate malfunction
Check whether the feedback terminal of indoor fan's motor is loose.
Yes
Insert the feedback terminal again
No
Eliminate malfunction
Yes
No
Check whether the control terminal of indoor fan's motor is loose
Yes
Replace the jumper cap with a new one
Yes
Measure the voltage between this foot and the neutral wire of main board.
PG
No
No
Eliminate malfunction
Yes
Put through the power and turn on the unit again. Measure whether the output voltage of control terminal of indoor fan's motor is more than 50V within 1min after the horizontal louver is opened.
Yes
Replace the fan with a new one
No
No
Eliminate malfunction
It's the malfunction of main board. Replace the main board with another one.
Yes
End

HC: PFC Protection

1. Error description

(1) Cooling/dehumidification: Compressor and outdoor fan stop running;

(2) Heating: All loads stop running;

(3) Principle: The main program detects that the instantaneous input current of the PFC circuit is too high.

2. Possible causes

(1) The main board of the outdoor unit is damaged;

(2) The power supply used is an inferior power supply, and the input voltage fluctuates and the current is too large;

(3) The power cord is not well connected;

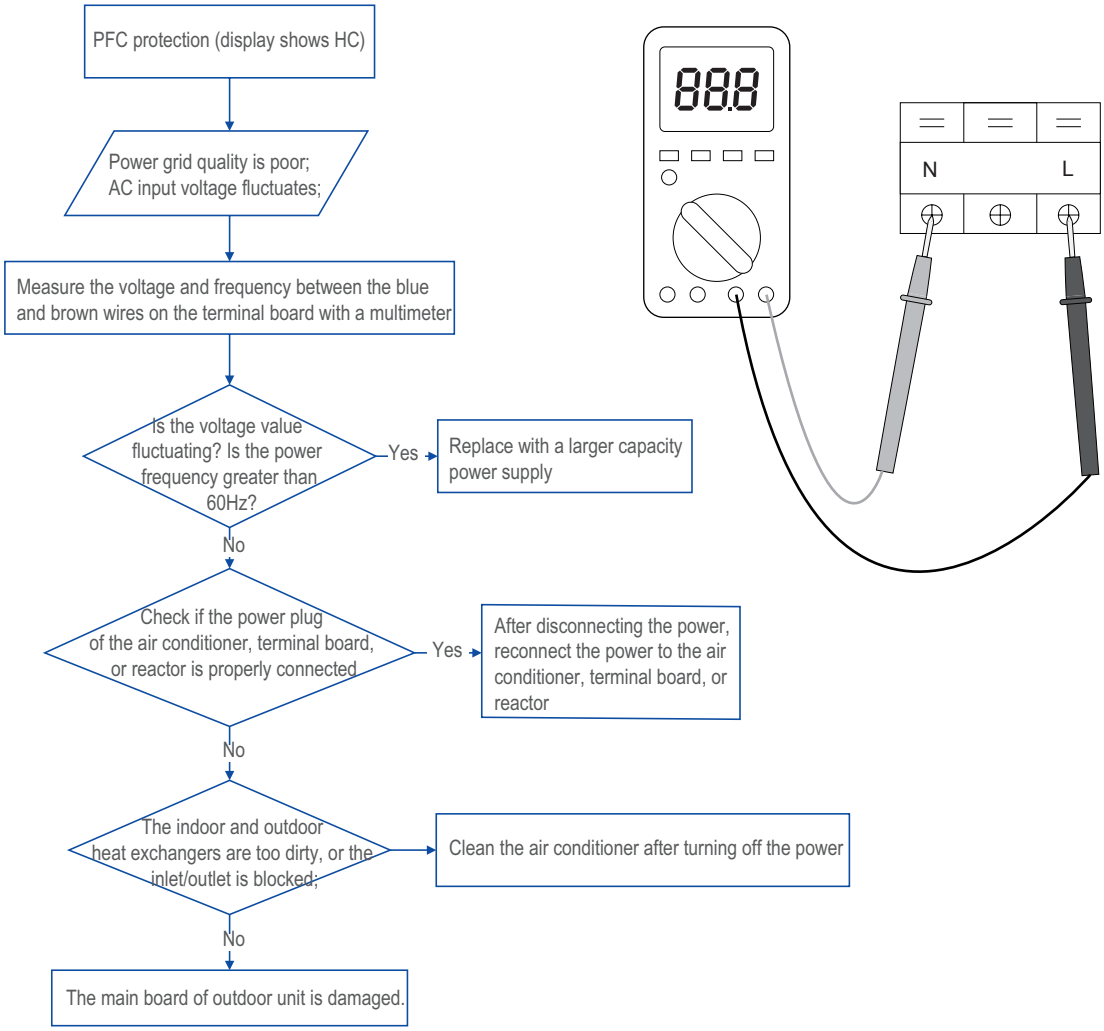
(4) The air inlet of the unit is blocked.

3. Troubleshooting

(1) Use a multimeter to measure the voltage of the power supply;

(2) Check whether the connection wire is well connected;

(3) Check whether the air inlet of the unit is blocked.


PFC protection (display shows HC)
Power grid quality is poor;
AC input voltage fluctuates;
Measure the voltage and frequency between the blue and brown wires on the terminal board with a multimeter
Is the voltage value fluctuating? Is the power frequency greater than 60Hz?
Yes
Replace with a larger capacity power supply
No
Check if the power plug of the air conditioner, terminal board, or reactor is properly connected
Yes
After disconnecting the power, reconnect the power to the air conditioner, terminal board, or reactor
No
The indoor and outdoor heat exchangers are too dirty, or the inlet/outlet is blocked;
Clean the air conditioner after turning off the power
No
The main board of outdoor unit is damaged.
N
L

H7: Compressor Out of Step

1. Error description

When the compressor is running, the difference between the actual operating speed and the set speed is detected to exceed the set value (the set value is different for different models), and the H7 compressor out-of-step protection is reported.

2. Possible causes

(1) The power supply voltage is abnormal;

(2) The condenser or evaporator is dirty and blocked;

(3) The air inlet and outlet of the indoor unit or outdoor unit are not smooth;

(4) The system pipeline is blocked and the valve is not opened;

(5) Too much refrigerant leads to excessive system pressure;

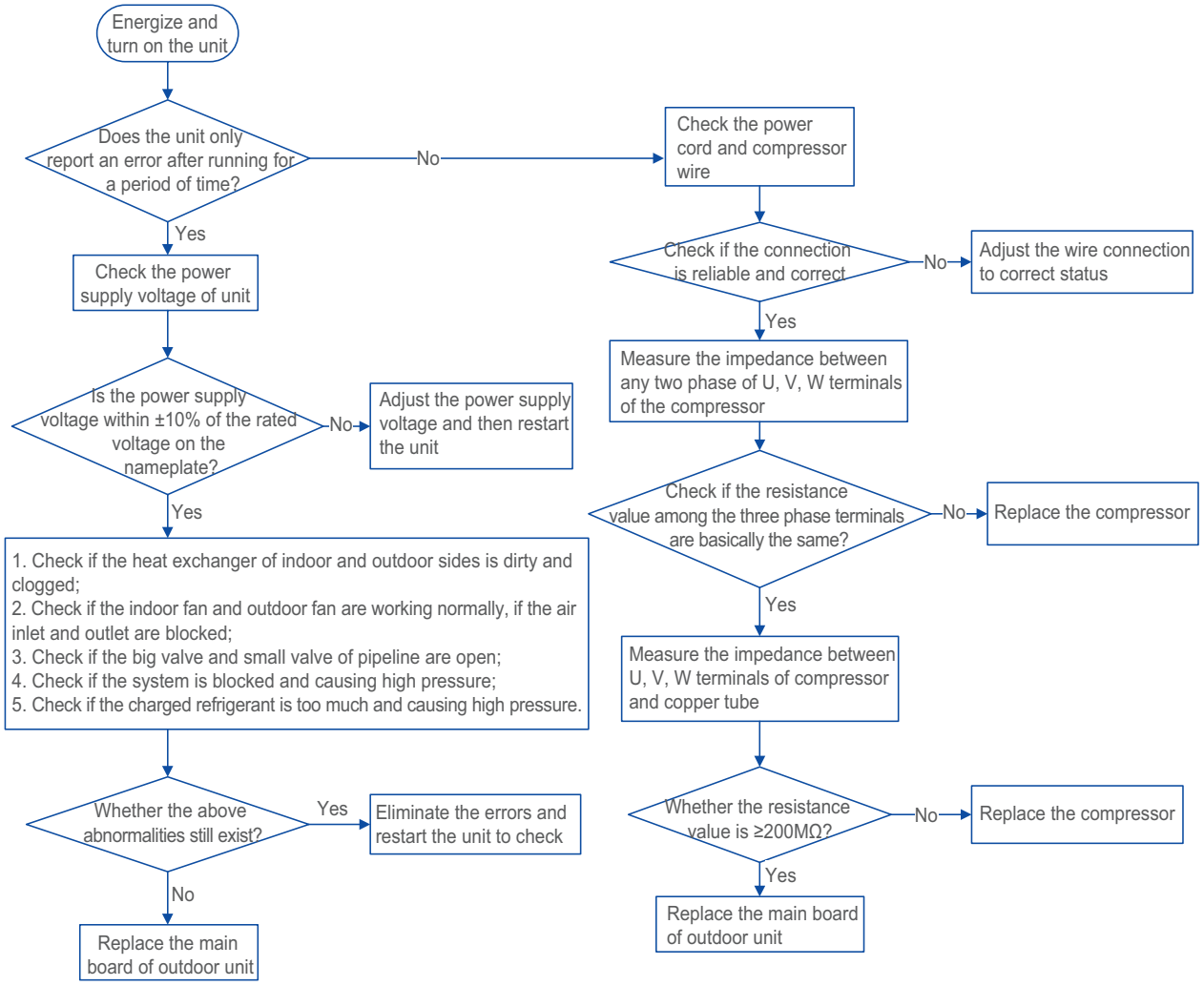
(6) Poor wire contact;

(7) The main board is damaged;

(8) The compressor is damaged.

3. Troubleshooting

Troubleshoot according to the flow chart.


Energize and turn on the unit
Does the unit only report an error after running for a period of time?
No
Check the power cord and compressor wire
Yes
Check the power supply voltage of unit
Check if the connection is reliable and correct
No
Adjust the wire connection to correct status
Yes
Measure the impedance between any two phase of U, V, W terminals of the compressor
Is the power supply voltage within ±10% of the rated voltage on the nameplate?
No
Adjust the power supply voltage and then restart the unit
Check if the resistance value among the three phase terminals are basically the same?
No
Replace the compressor
Yes
1. Check if the heat exchanger of indoor and outdoor sides is dirty and clogged;
2. Check if the indoor fan and outdoor fan are working normally, if the air inlet and outlet are blocked;
3. Check if the big valve and small valve of pipeline are open;
4. Check if the system is blocked and causing high pressure;
5. Check if the charged refrigerant is too much and causing high pressure.
Measure the impedance between U, V, W terminals of compressor and copper tube
Whether the above abnormalities still exist?
Yes
Eliminate the errors and restart the unit to check
Whether the resistance value is ≥200MΩ?
No
Replace the compressor
No
Yes
Replace the main board of outdoor unit
Replace the main board of outdoor unit

F0: Refrigerant Lack Protection, Refrigerant Circulation Stop Protection

1. Error description

This error code will be displayed when the main board of the indoor unit detects that the temperature difference between the inner tube and the inner ring is too small for a period of time.

2. Possible causes

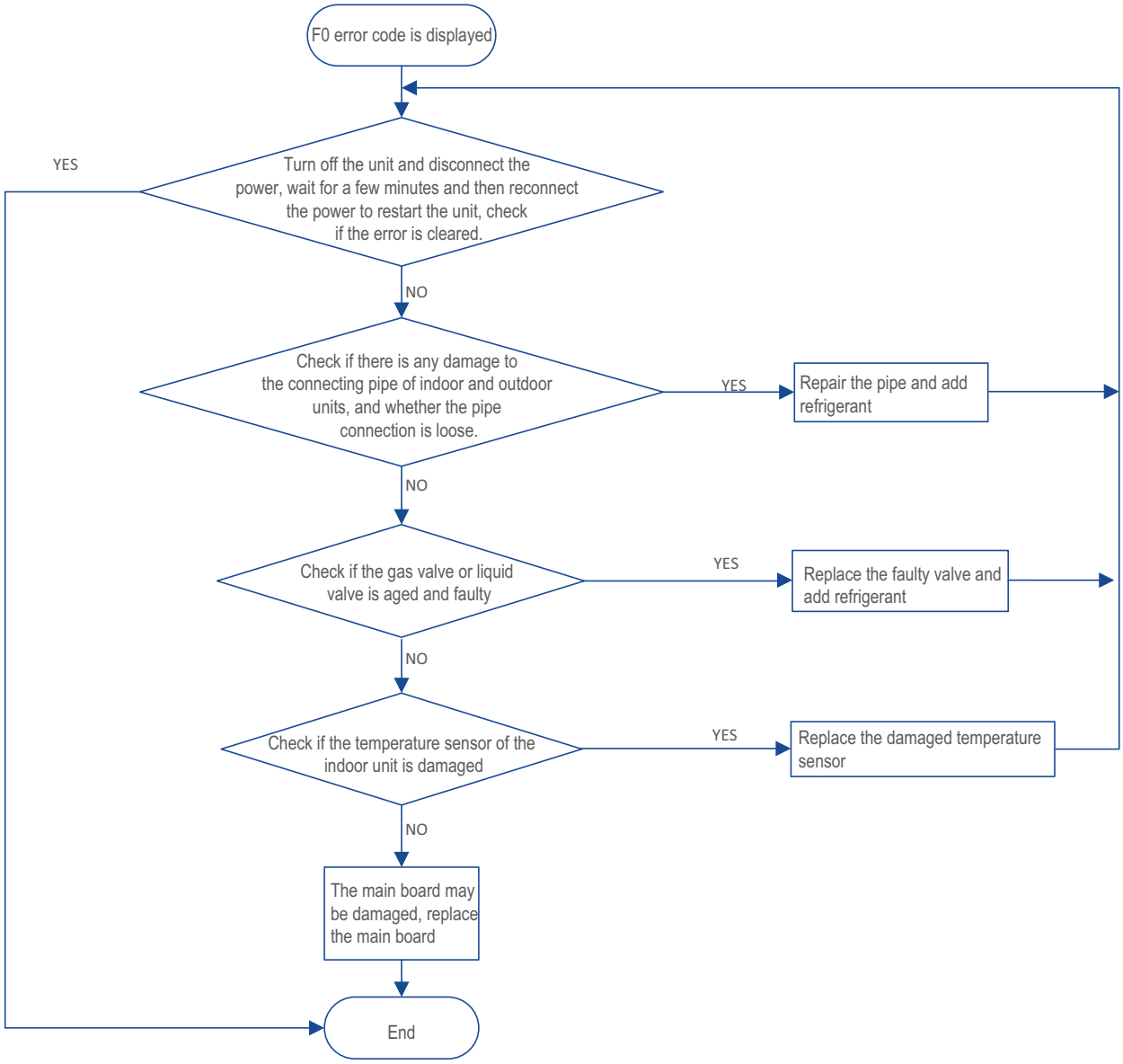
(1) The connecting pipe of the IDU and ODU is damaged or the connection is aging and loose, resulting in the leakage of refrigerant;

(2) The liquid valve/air valve is aging and damaged, resulting in abnormal opening and closing control and pipeline blockage;

(3) The temperature sensor is inaccurate and false alarm due to the damage and aging of the temperature sensor.

3. Troubleshooting

Check whether the temperature sensor and pipeline are damaged, and add refrigerant.


F0 error code is displayed
Turn off the unit and disconnect the power, wait for a few minutes and then reconnect the power to restart the unit, check if the error is cleared.
YES
NO
Check if there is any damage to the connecting pipe of indoor and outdoor units, and whether the pipe connection is loose.
YES
Repair the pipe and add refrigerant
NO
Check if the gas valve or liquid valve is aged and faulty
YES
Replace the faulty valve and add refrigerant
NO
Check if the temperature sensor of the indoor unit is damaged
YES
Replace the damaged temperature sensor
NO
The main board may be damaged, replace the main board
End

PH: High DC Bus Voltage

1. Error description

When the compressor is running, the DC bus voltage of the main board is detected, if the voltage value is higher than a certain value (such as 425-445V, the value is different due to different models), and it will report the high DC bus voltage protection.

2. Possible causes

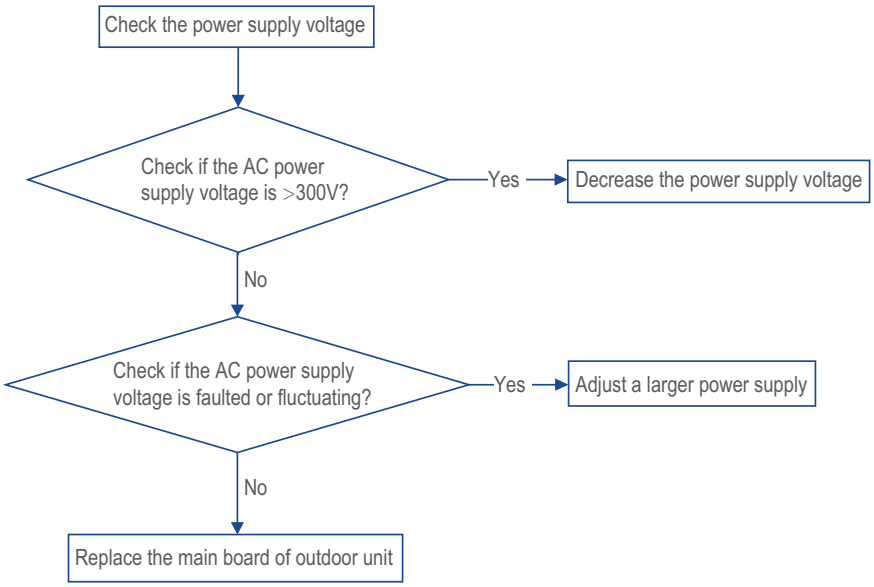
(1) The AC power supply voltage is too high, such as the AC power supply voltage is greater than 300V;

(2) The power supply quality is poor, and the AC power supply voltage has abnormal fluctuation;

(3) The main board is damaged.

3. Troubleshooting

Troubleshoot according to the flow chart.



PL: Low DC Bus Voltage

1. Error description

When the compressor is running, the DC bus voltage is detected, if the voltage value is lower than a certain value (such as 120V~170V, different models), it will report low DC bus voltage protection.

2. Possible causes

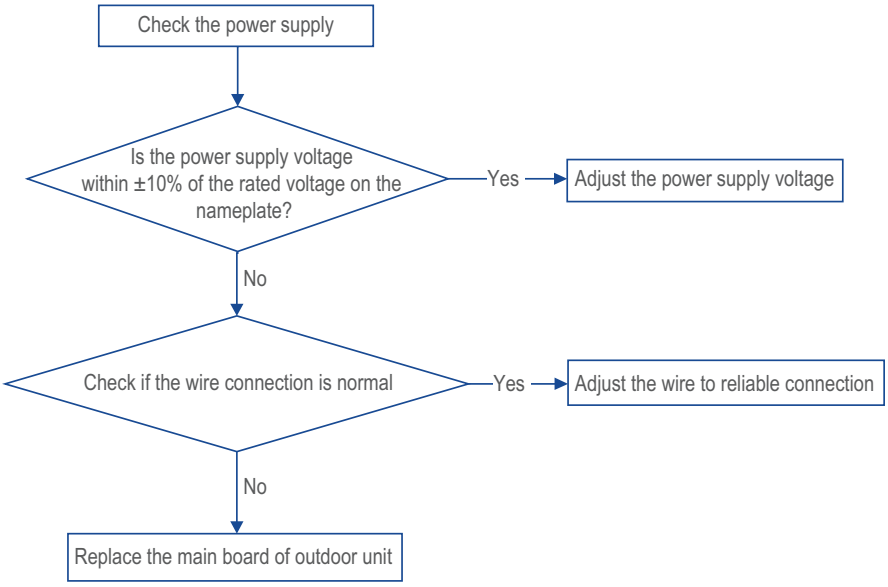
(1) The AC power supply voltage is too low, such as the AC power supply voltage is less than 90V;

(2) The wiring of the unit is abnormal and the connecting wire is loose;

(3) The main board of outdoor unit is damaged.

3. Troubleshooting

Troubleshoot according to the flow chart.



E8: High-Temperature Protection

1. Error description

If the main board detects that the temperature of the evaporator of indoor unit or the condenser of outdoor unit is too high, it will report an E8 high-temperature protection.

2. Possible causes

Cooling:

(1) The condenser of the outdoor unit is dirty or clogged, leading to poor heat exchange;

(2) Insufficient space or obstacles at the air inlet and outlet of the outdoor unit cause poor air circulation;

(3) The fan blade of the outdoor unit is broken or falling off, or the motor is damaged;

(4) The temperature sensor of condenser of the outdoor unit is damaged, or the main board is damaged, leading to inaccurate temperature sampling.

Heating:

(1) The evaporator of the indoor unit is dirty or clogged, leading to poor heat exchange;

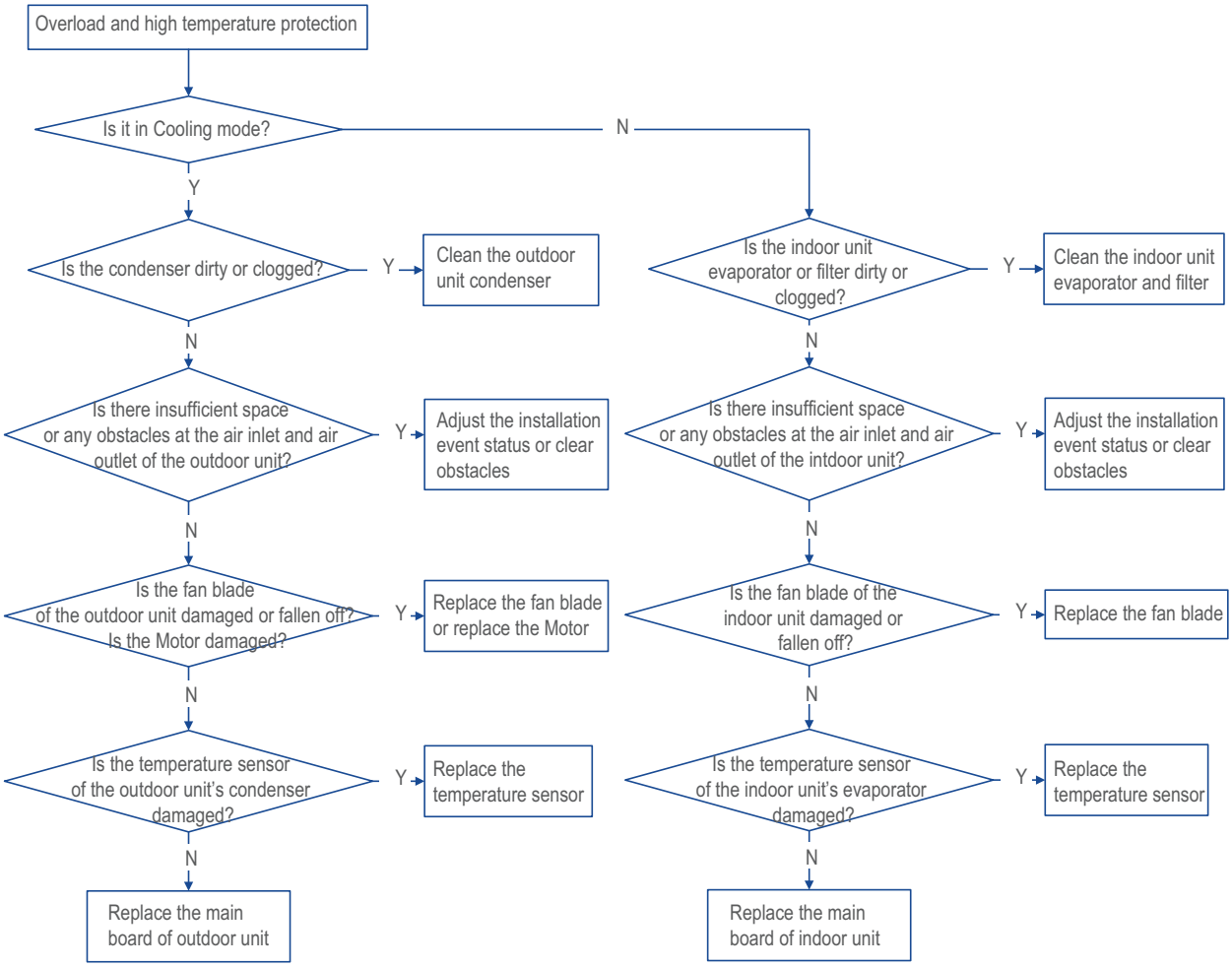
(2) Insufficient space or obstacles at the air inlet and outlet of the indoor unit cause poor air circulation;

(3) The fan blade of the indoor unit is broken or falling off;

(4) The temperature sensor of evaporator of the indoor unit is damaged, or the main board is damaged, leading to inaccurate temperature sampling.

3. Troubleshooting

Troubleshoot according to the flow chart.


Overload and high temperature protection
Is it in Cooling mode?
N
Y
Is the condenser dirty or clogged?
Y
Clean the outdoor unit condenser
N
Is there insufficient space or any obstacles at the air inlet and air outlet of the outdoor unit?
Y
Adjust the installation event status or clear obstacles
N
Is the fan blade of the outdoor unit damaged or fallen off? Is the Motor damaged?
Y
Replace the fan blade or replace the Motor
N
Is the temperature sensor of the outdoor unit's condenser damaged?
Y
Replace the temperature sensor
N
Replace the main board of outdoor unit
Is the indoor unit evaporator or filter dirty or clogged?
Y
Clean the indoor unit evaporator and filter
N
Is there insufficient space or any obstacles at the air inlet and air outlet of the intdoor unit?
Y
Adjust the installation event status or clear obstacles
N
Is the fan blade of the indoor unit damaged or fallen off?
Y
Replace the fan blade
N
Is the temperature sensor of the indoor unit's evaporator damaged?
Y
Replace the temperature sensor
N
Replace the main board of indoor unit

C4, C5: Jumper Cap Error

1. Error description

If the jumper cap cannot be detected when the main board is powered on, the jumper cap error will be reported.

Principle: The jumper cap determines some of the operating parameters of the model, and if the jumper cap is not detected, the air conditioner cannot run.

2. Possible causes

(1) The main board is not equipped with a jumper cap;

(2) The jumper cap is not inserted properly.

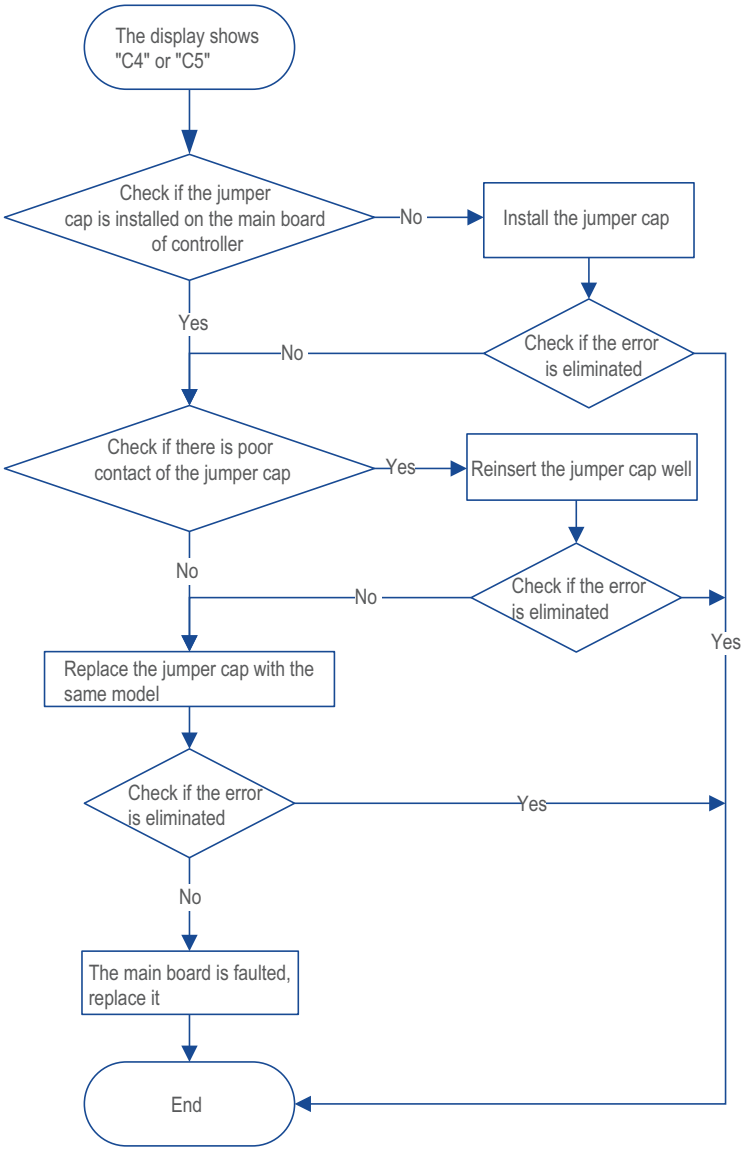
3. Troubleshooting

(1) Check whether the main board has installed the jumper cap;

(2) Check whether the jumper cap of the main board is well inserted.

NOTE:

C4 refers to outdoor unit; C5 refers to indoor unit.


The display shows "C4" or "C5"
Check if the jumper cap is installed on the main board of controller
No
Install the jumper cap
Yes
No
Check if the error is eliminated
Check if there is poor contact of the jumper cap
Yes
Reinsert the jumper cap well
No
No
Check if the error is eliminated
Yes
Replace the jumper cap with the same model
Check if the error is eliminated
Yes
No
The main board is faulted, replace it
End

F1, F2: Temperature Sensor Error

1. Error description

(1) Cooling/dehumidification: All loads stop operation;

(2) Heating: All loads stop running.

2. Possible causes

(1) The temperature sensor is damaged;

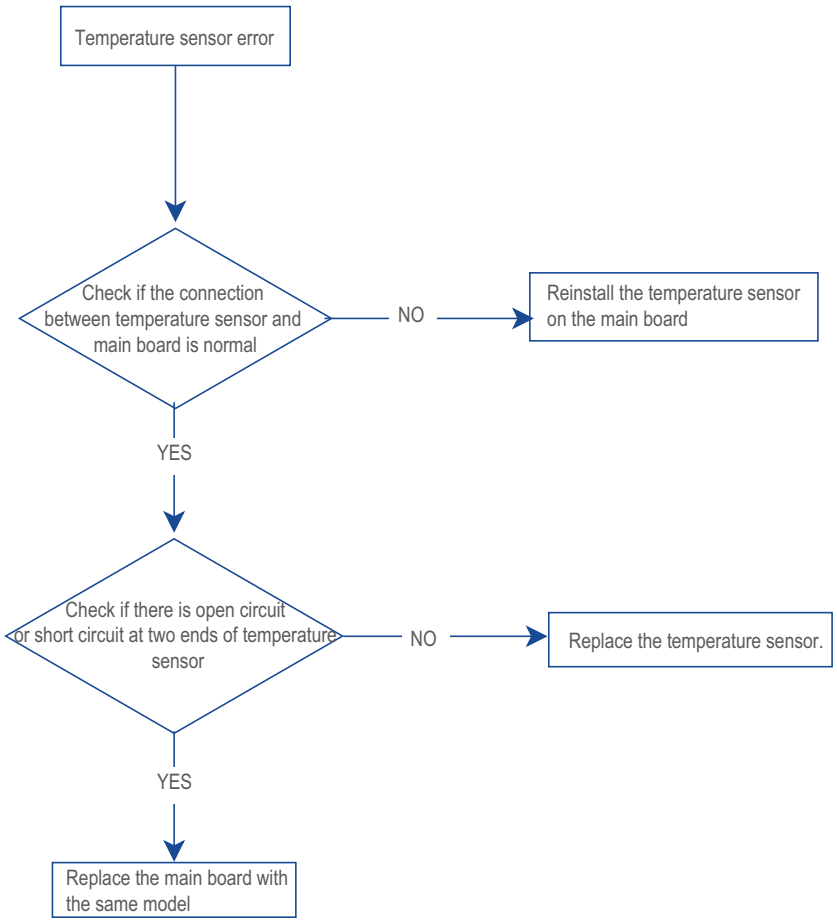
(2) The temperature sensor is not connected or has poor contact.

3. Troubleshooting

(1) Check whether the connection between the temperature sensor and the main board is normal;

(2) Check whether there is an open circuit or a short circuit at both ends of the temperature sensor;

(3) If there is an abnormality in the circuit of the main board, replace the main board of the same model.



U8: Indoor Unit Zero-crossing Signal Error

1. Error description

After the unit is turned on, if the main board of the indoor unit fails to detect the normal zero-crossing signal continuously within a certain period of time, the zero-crossing error will be reported.

Principle: The main board fails to detect the zero-crossing signal normally, and cannot meet the normal operation requirements of the AC motor.

2. Possible causes

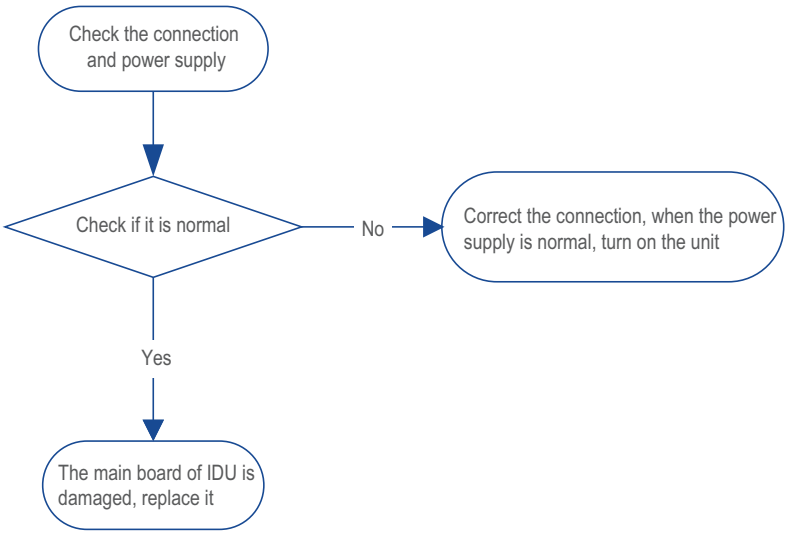
(1) The power grid is abnormal;

(2) The main board is damaged.

3. Troubleshooting

(1) Check whether the connection of the power cord is reliable;

(2) Check whether the main board is damaged.



E5: Overcurrent Protection

1. Error description

During the operation of the air conditioner, the AC input current of the whole unit is detected, and when the detected current exceeds the set value (the set value is different for different models), the E5 overcurrent protection of the whole unit will be reported.

2. Possible causes

(1) The power supply voltage is unstable;

(2) The power supply voltage is too low;

(3) The condenser or evaporator is dirty and clogged;

(4) The air inlet and outlet of the indoor unit or outdoor unit are not smooth;

(5) The system pipeline is blocked and the valve is not opened;

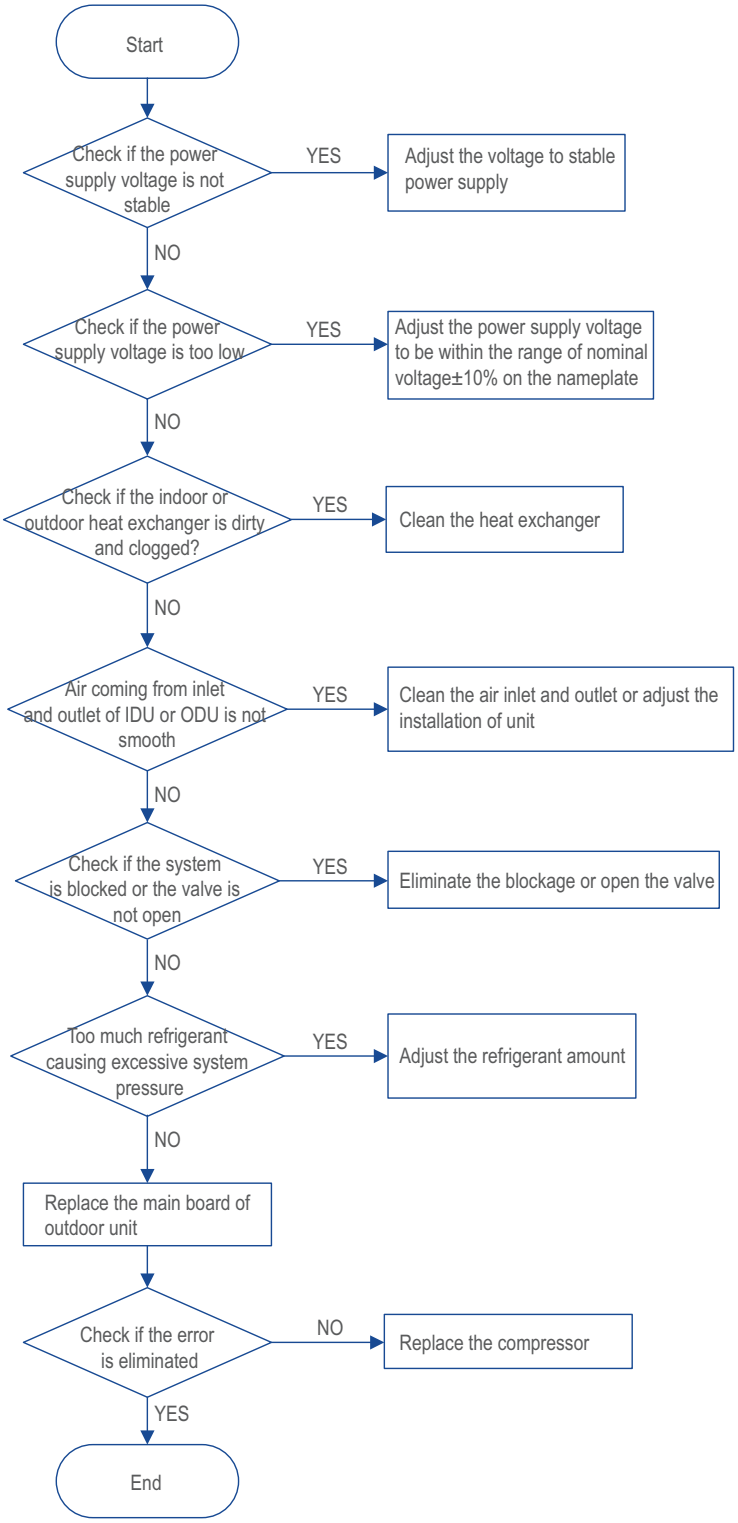
(6) Too much refrigerant leads to excessive system pressure;

(7) The main board is damaged;

(8) The compressor is damaged.

3. Troubleshooting

Troubleshoot according to the flow chart.


Start
Check if the power supply voltage is not stable
YES
Adjust the voltage to stable power supply
NO
Check if the power supply voltage is too low
YES
Adjust the power supply voltage to be within the range of nominal voltage±10% on the nameplate
NO
Check if the indoor or outdoor heat exchanger is dirty and clogged?
YES
Clean the heat exchanger
NO
Air coming from inlet and outlet of IDU or ODU is not smooth
YES
Clean the air inlet and outlet or adjust the installation of unit
NO
Check if the system is blocked or the valve is not open
YES
Eliminate the blockage or open the valve
NO
Too much refrigerant causing excessive system pressure
YES
Adjust the refrigerant amount
NO
Replace the main board of outdoor unit
Check if the error is eliminated
NO
Replace the compressor
YES
End

H3: Overload Protection of Compressor

1. Error description

When the main board detects that the compressor overload protection switch is disconnected, it will report the compressor overload protection.

Principle: The overload protection switch is in a short-circuit state at both ends under normal circumstances, and it will be disconnected when the temperature at the top of the compressor is too high.

2. Possible causes

(1) The connection between the overload connection wire and the main board or the overload protector is unreliable, and the terminal is loose;

(2) The overload protector is damaged, under normal circumstances, the impedance at both ends of the test overload protector should be less than 1Ω;

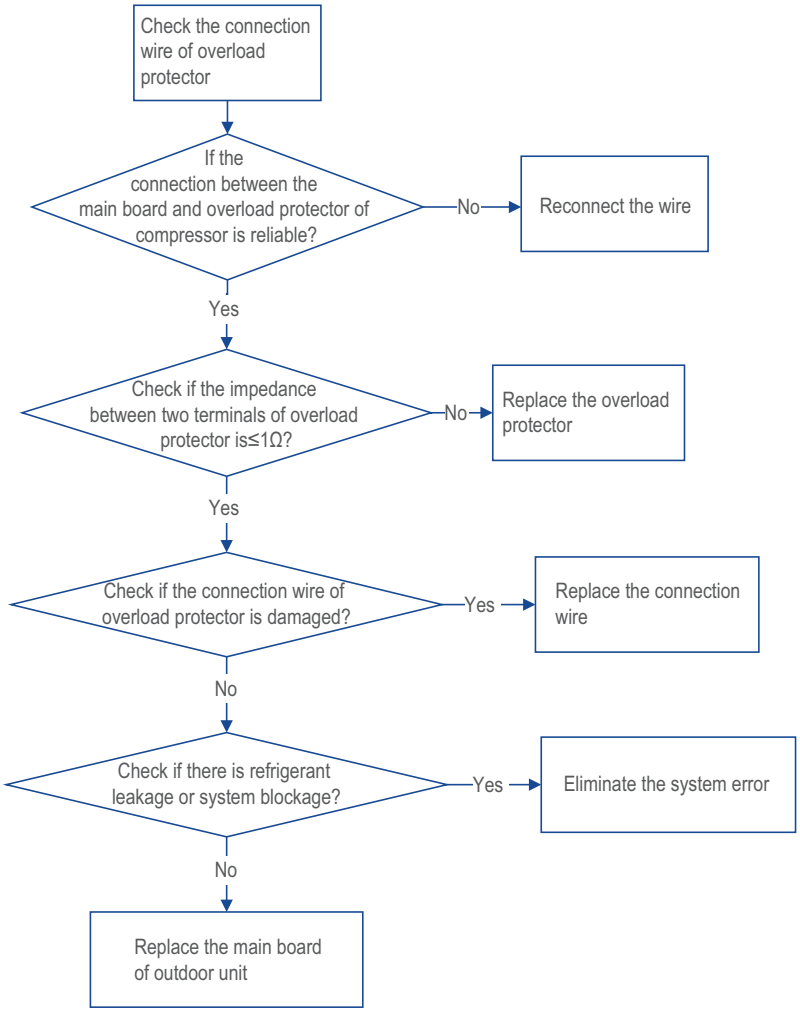
(3) The overload connection wire is damaged, resulting in the short circuit of wire;

(4) Refrigerant leakage or system blockage;

(5) The main board is damaged.

3. Troubleshooting

Troubleshoot according to the flow chart.


Check the connection wire of overload protector
If the connection between the main board and overload protector of compressor is reliable?
No
Reconnect the wire
Yes
Check if the impedance between two terminals of overload protector is≤1Ω?
No
Replace the overload protector
Yes
Check if the connection wire of overload protector is damaged?
Yes
Replace the connection wire
No
Check if there is refrigerant leakage or system blockage?
Yes
Eliminate the system error
No
Replace the main board of outdoor unit

EA: Refrigerant Leak Alarm

1. Error description

If the refrigerant sensor detects that the refrigerant concentration exceeds 10%LFL, the refrigerant leak alarm will be triggered, and the indoor unit will display the EA code, the buzzer will beep, the fan will run, and the outdoor unit will stop.

If the refrigerant concentration is lower than 10%LFL for 5min30s, the refrigerant leak alarm will be withdrawn and the unit will resume normal operation.

2. Possible causes

(1) Evaporator pipeline is damaged or the refrigerant leaks;

(2) There is a possibility that flammable gases, explosive gases, smoke, ethanol gases (such as perfumes, etc.), and smoke-producing items (such as cigarettes, etc.) may trigger refrigerant leak alarms;

(3) Electromagnetic interference, such as high-power electrical equipment may trigger sensor alarms.

3. Troubleshooting

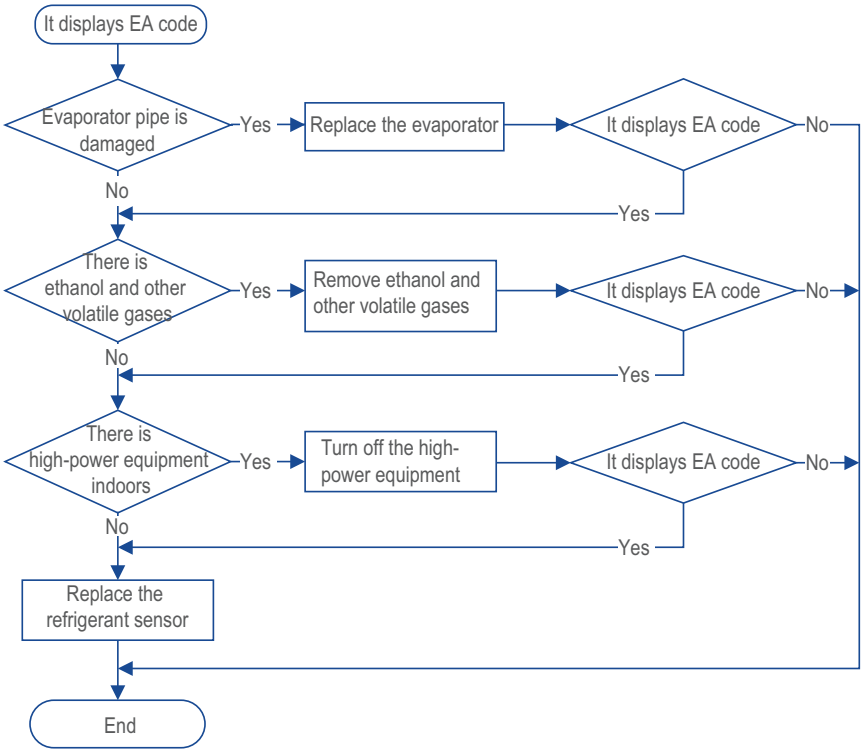
(1) Open the window for ventilation to reduce the indoor refrigerant concentration below the alarm threshold;

(2) Detect whether there is refrigerant leakage in the unit, detect the pressure of the refrigerant in the unit, and see whether the amount of refrigerant is within the normal range;

(3) Check the indoor air quality, if there is a gas that is easy to trigger the refrigerant leak alarm, please remove the gas;

(4) Check the electromagnetic interference situation on the indoor side, if there is high-power equipment interfering with the refrigerant sensor, keep the high-power equipment far away from the air conditioner or turn off the high-power equipment;

(5) Replace the refrigerant sensor.


It displays EA code
Evaporator pipe is damaged
Yes
Replace the evaporator
It displays EA code
No
No
Yes
There is ethanol and other volatile gases
Yes
Remove ethanol and other volatile gases
It displays EA code
No
No
Yes
There is high-power equipment indoors
Yes
Turn off the high-power equipment
It displays EA code
No
No
Yes
Replace the refrigerant sensor
End

FE: Refrigerant Sensor Error

1. Error description

If there is internal error of the refrigerant sensor module or the communication between the refrigerant sensor and the main board is abnormal, the refrigerant sensor alarm will be triggered, and the indoor unit will display the FE code, buzzer will beep, the fan will operate, and the outdoor unit will stop (only applicable to some models).

2. Possible causes

(1) The connection wire between refrigerant sensor and the main control is loose or in poor contact, and it can not communicate normally;

(2) The service life of the refrigerant sensor has expired or failed, and it cannot communicate with the main control normally;

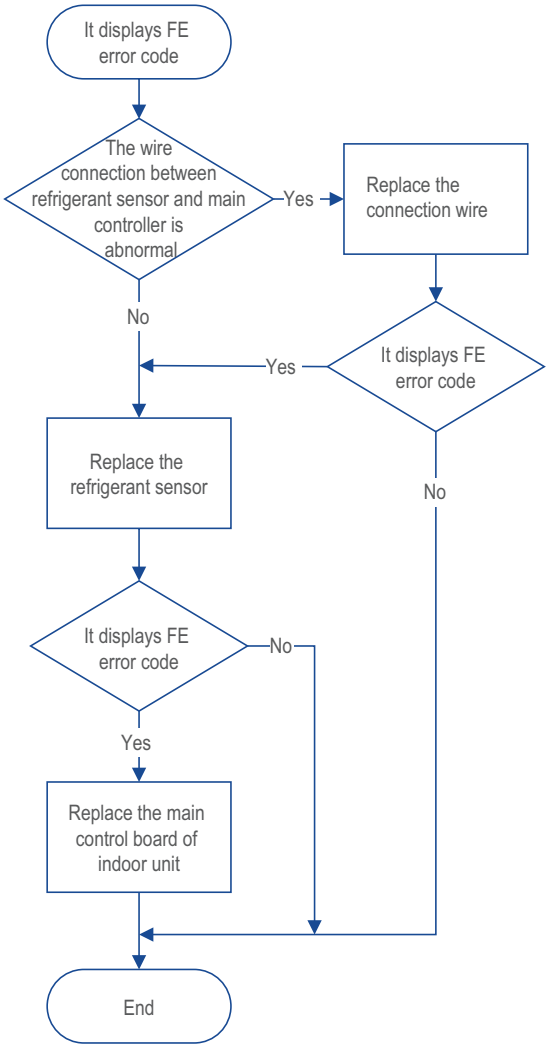
(3) The communication circuit of the main control and refrigerant sensor is abnormal and it cannot communicate with the sensor normally.

3. Troubleshooting

(1) Replace the connection wire between the refrigerant sensor and main control;

(2) Replace the refrigerant sensor;

(3) Replace the main board of the indoor unit.


It displays FE error code
The wire connection between refrigerant sensor and main controller is abnormal
Yes
Replace the connection wire
No
Yes
It displays FE error code
No
Replace the refrigerant sensor
It displays FE error code
No
Yes
Replace the main control board of indoor unit
End

E1: High Pressure Protection of System

1. Error description

When the main board detects that the system high pressure protection switch is disconnected, it will report system high pressure protection.

Principle: The system high pressure protection switch is in a short-circuit state at both ends under normal circumstances, and it will be disconnected when the system pressure exceeds the limit value.

2. Possible causes

(1) The connection between the connecting wire and the main board or the high pressure protection switch is unreliable, or the terminal is loose;

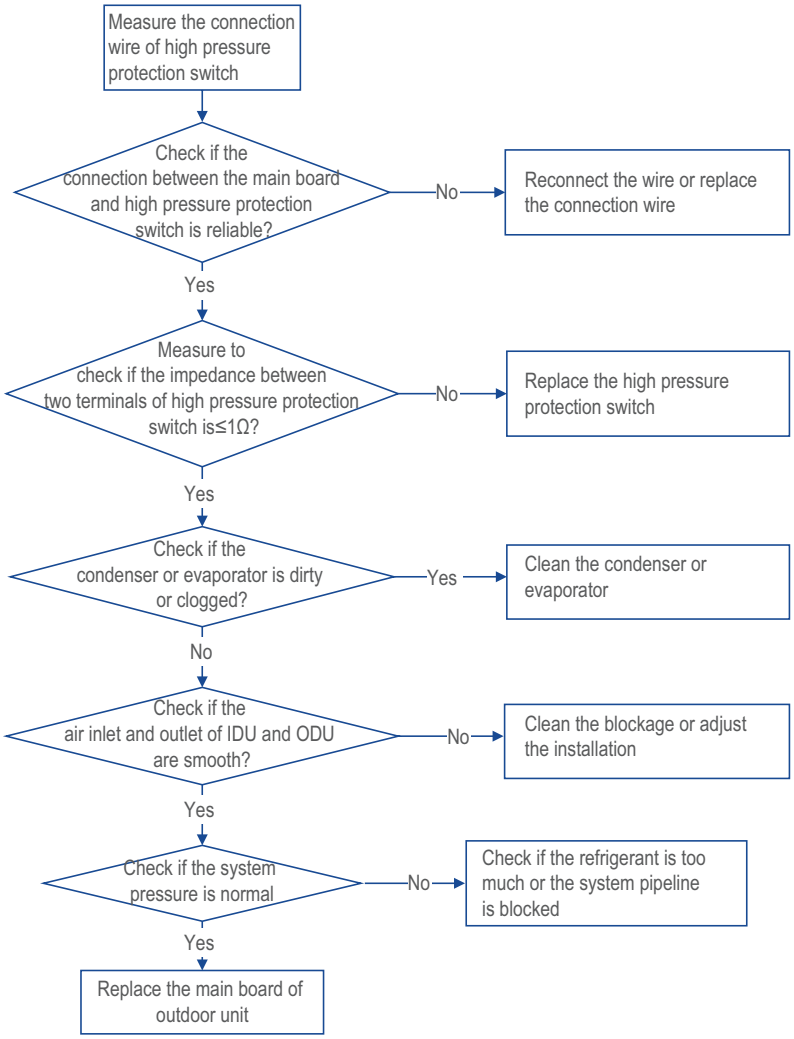
(2) The high pressure protection switch is damaged, under normal circumstances, the impedance of both ends of the high pressure protection switch should be less than 1Ω;

(3) The system pressure is too high due to abnormalities such as dirt blockage of the condenser or evaporator, unsmooth air inlet and outlet, excessive refrigerant, and blockage of system pipelines;

(4) The main board is damaged.

3. Troubleshooting

Troubleshoot according to the flow chart.


Measure the connection wire of high pressure protection switch
Check if the connection between the main board and high pressure protection switch is reliable?
No
Reconnect the wire or replace the connection wire
Yes
Measure to check if the impedance between two terminals of high pressure protection switch is≤1Ω?
No
Replace the high pressure protection switch
Yes
Check if the condenser or evaporator is dirty or clogged?
Yes
Clean the condenser or evaporator
No
Check if the air inlet and outlet of IDU and ODU are smooth?
No
Clean the blockage or adjust the installation
Yes
Check if the system pressure is normal
No
Check if the refrigerant is too much or the system pipeline is blocked
Yes
Replace the main board of outdoor unit

E3: Low Pressure Protection/System Low Pressure Protection/Compressor Low Pressure Protection

1. Error description

(1) Cooling/dehumidification: Compressor and outdoor fan stop running;

(2) Heating: All loads stop running.

(3) Principle: The low pressure protection switch is normal closed. When the compessor pressure is too low, the switch will open. The mainboard detects the open signal and reports low-pressure protection.

2. Possible causes

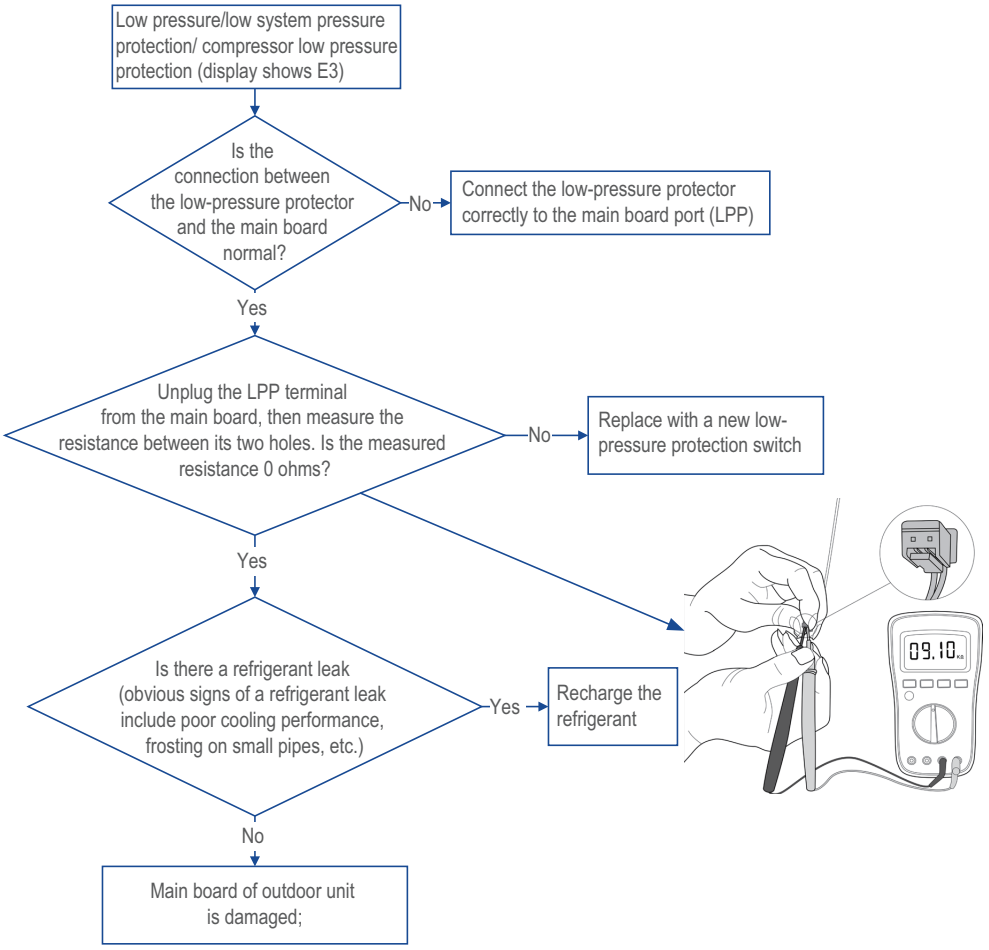
(1) Refrigerant leakage;

(2) The low pressure protector is damaged or poorly connected;

(3) The main board is damaged.

3. Troubleshooting

Check whether the connecting wire is damaged and whether it is reliably connected; check whether the low pressure protector is damaged; check whether there is a possibility of refrigerant leakage.


Low pressure/low system pressure protection/ compressor low pressure protection (display shows E3)
Is the connection between the low-pressure protector and the main board normal?
No
Connect the low-pressure protector correctly to the main board port (LPP)
Yes
Unplug the LPP terminal from the main board, then measure the resistance between its two holes. Is the measured resistance 0 ohms?
No
Replace with a new low-pressure protection switch
Yes
Is there a refrigerant leak (obvious signs of a refrigerant leak include poor cooling performance, frosting on small pipes, etc.)
Yes
Recharge the refrigerant
No
Main board of outdoor unit is damaged;

E7: Mode Conflict

1. Error description

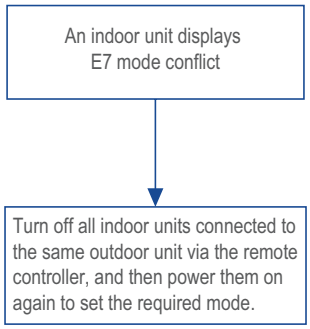
If an outdoor unit is connected to multiple indoor units, and the operation modes of each indoor unit do not match, an E7 mode conflict error will be reported.

2. Possible causes

In multiple indoor units, some indoor units have the heating mode on, and some of the indoor units have the cooling mode, dry mode or air supply mode on, resulting in a conflict between the modes.

3. Troubleshooting

Troubleshoot according to the flow chart.



EE: Read EEPROM Error

1. Error description

(1) Cooling/dehumidification: Compressor and outdoor fan stop running;

(2) Heating: All loads stop running;

(3) Principle: The memory chip or memory chip circuit fails, and it's unable to read the data from the memory chip.

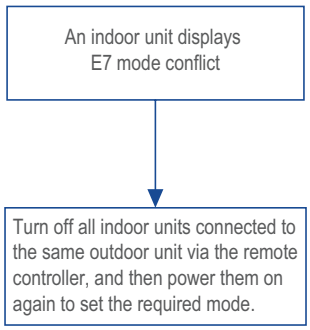
2. Possible causes

(1) The main board is damaged;

(2) It is caused by misuse.

3. Troubleshooting

Disconnect the power supply and restart and wait for 5 ~ 8 minutes before turning on the unit to view, if it is still not recovered, replace the main board of the outdoor unit.



Lc: Startup Failure

1. Error description

If the compressor cannot be started successfully within a certain period of time, it will report the Lc compressor startup failure.

2. Possible causes

(1) The power supply voltage is abnormal;

(2) The system pipeline is blocked and the valve is not opened;

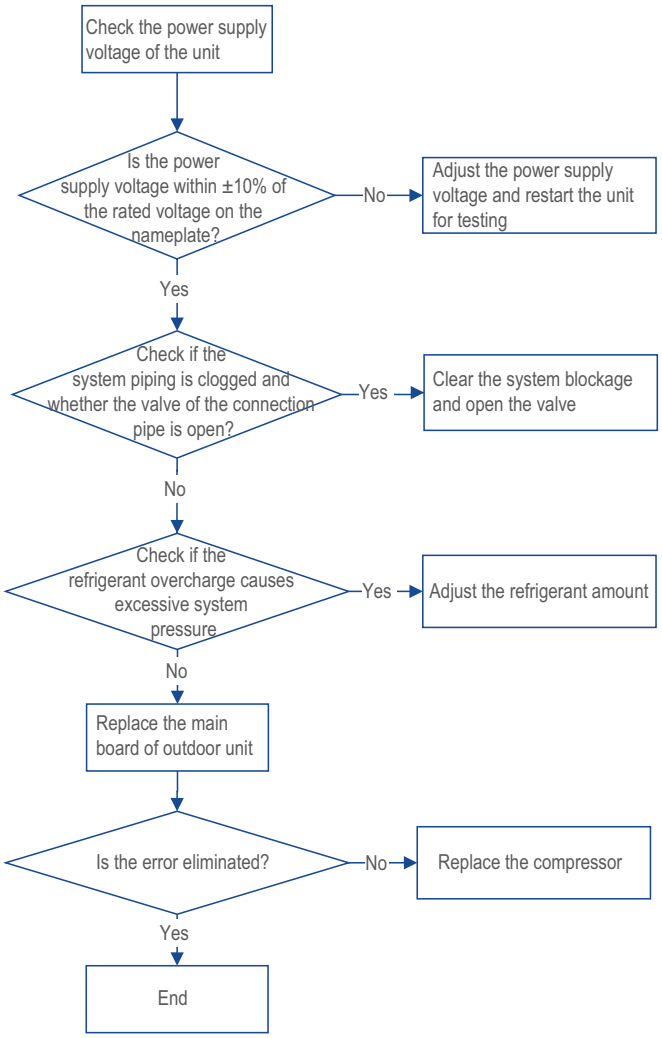
(3) Too much refrigerant leads to excessive system pressure;

(4) The main board is damaged;

(5) The compressor is damaged.

3. Troubleshooting

Troubleshoot according to the flow chart.



Ld: Phase-loss Protection of Compressor

1. Error description

During the operation of the air conditioner, the three-phase current of the compressor U, V and W is detected, and when a certain phase current loss is detected, the Ld compressor phase-loss protection will be reported.

2. Possible causes

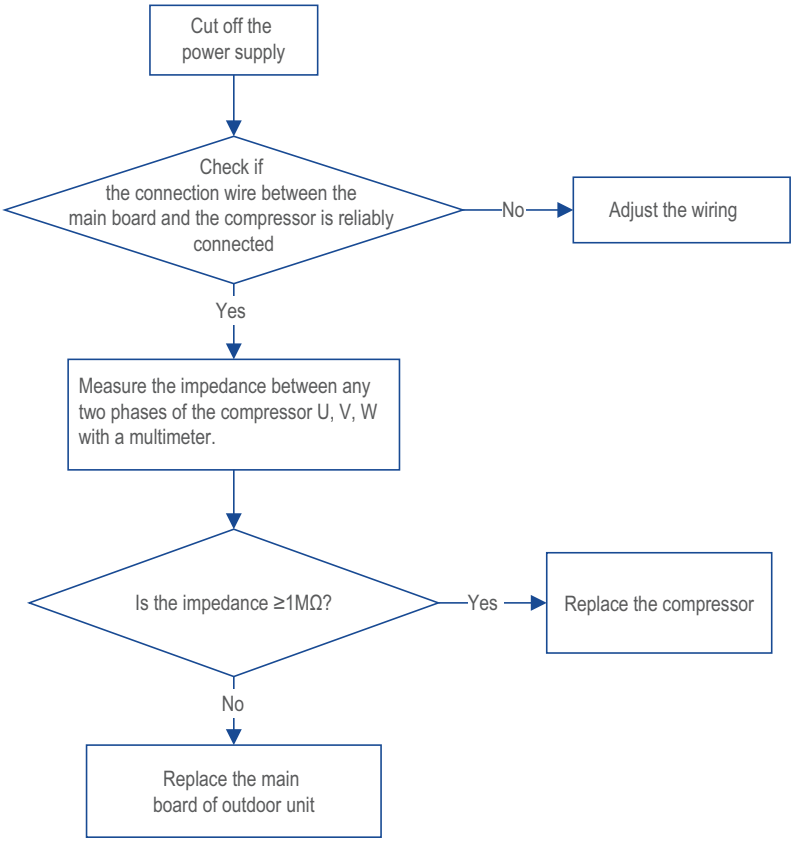
(1) The connection between the connecting wire and the main board or compressor is unreliable, and the terminal is loose;

(2) The main board is damaged;

(3) The compressor is damaged.

3. Troubleshooting

Troubleshoot according to the flow chart.



oE: Undefined Outdoor Unit Error

1. Error description

When the main board detects an error that causes the outdoor unit to shut down, this error code is displayed, usually accompanied by other error codes that cause the shutdown.

2. Possible causes

(1) Compressor startup failure;

(2) Compressor overload protection;

(3) The indoor unit requires to shut down.

3. Troubleshooting

This error indicator is a general indicator, usually accompanied by other specific shutdown error codes, and needs to be analyzed and processed in combination with other shutdown error codes.

P7: Circuit Error of Module Temperature Sensor

1. Error description

(1) Cooling/dehumidification: Compressor and outdoor fan stop running;

(2) Heating: All loads stop running;

(3) Principle: The main program detects that the temperature of the compressor IPM Module is abnormal,usually the compressor IPM Module or the detection circuit is damaged.

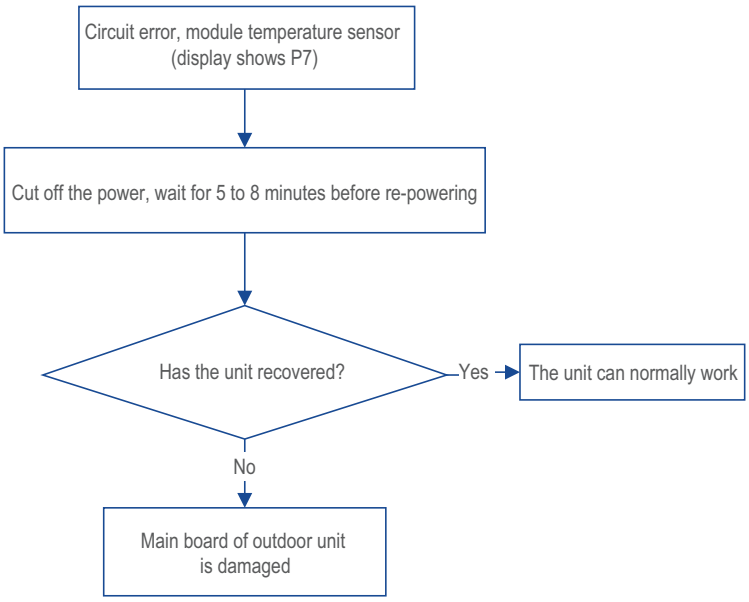
2. Possible causes

(1) Compressor IPM Module is damaged;

(2) The circuit of the main board of outdoor unit is damaged.

3. Troubleshooting

Disconnect the power supply and wait for 5 to 8 minutes before restarting the unit.



P8: High-temperature Protection of Module

1. Error description

(1) Cooling/dehumidification: Compressor and outdoor fan stop running;

(2) Heating: All loads stop running;

(3) Principle: The main program detects that the module temperature is too high and exceeds the protection value.

2. Possible causes

(1) The outdoor fan is blocked by foreign objects, resulting in poor heat dissipation;

(2) The outdoor condenser is blocked by foreign objects, resulting in poor heat dissipation;

(3) The screws between the IPM module and the radiator on the main board are not tightened, resulting in poor heat dissipation;

(4) There is not enough thermal paste on the IPM;

(5) The main board of outdoor unit is damaged.

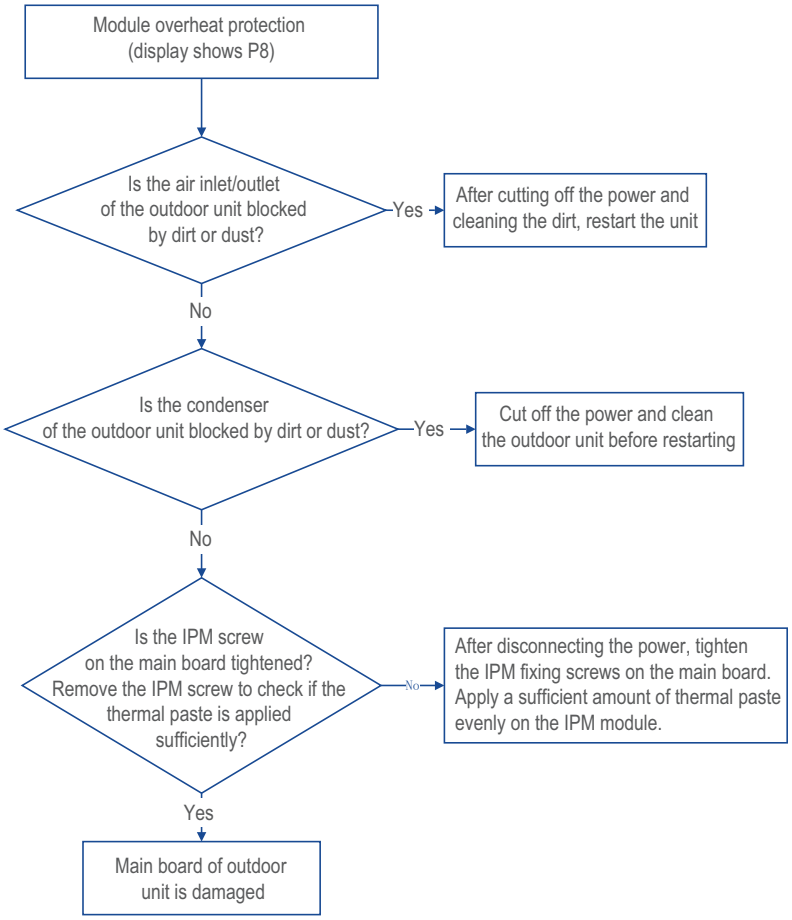
3. Troubleshooting

(1) Check whether the outdoor fan is blocked by foreign objects;

(2) Check whether the outdoor condenser is blocked by foreign objects;

(3) Check whether the screws between the IPM module and the radiator are tightened;

(4) Check whether there is enough thermal paste on the IPM module.


Module overheat protection
(display shows P8)
Is the air inlet/outlet
of the outdoor unit blocked
by dirt or dust?
Yes
After cutting off the power and
cleaning the dirt, restart the unit
No
Is the condenser
of the outdoor unit blocked by dirt or dust?
Yes
Cut off the power and clean
the outdoor unit before restarting
No
Is the IPM screw
on the main board tightened?
Remove the IPM screw to check if the
thermal paste is applied
sufficiently?
No
After disconnecting the power, tighten
the IPM fixing screws on the main board.
Apply a sufficient amount of thermal paste
evenly on the IPM module.
Yes
Main board of outdoor
unit is damaged

PU: Capacitor Charging Error

1. Error description

After energizing the unit, the voltage of the DC bus of the main board of outdoor unit has not reached 100V.

2. Possible causes

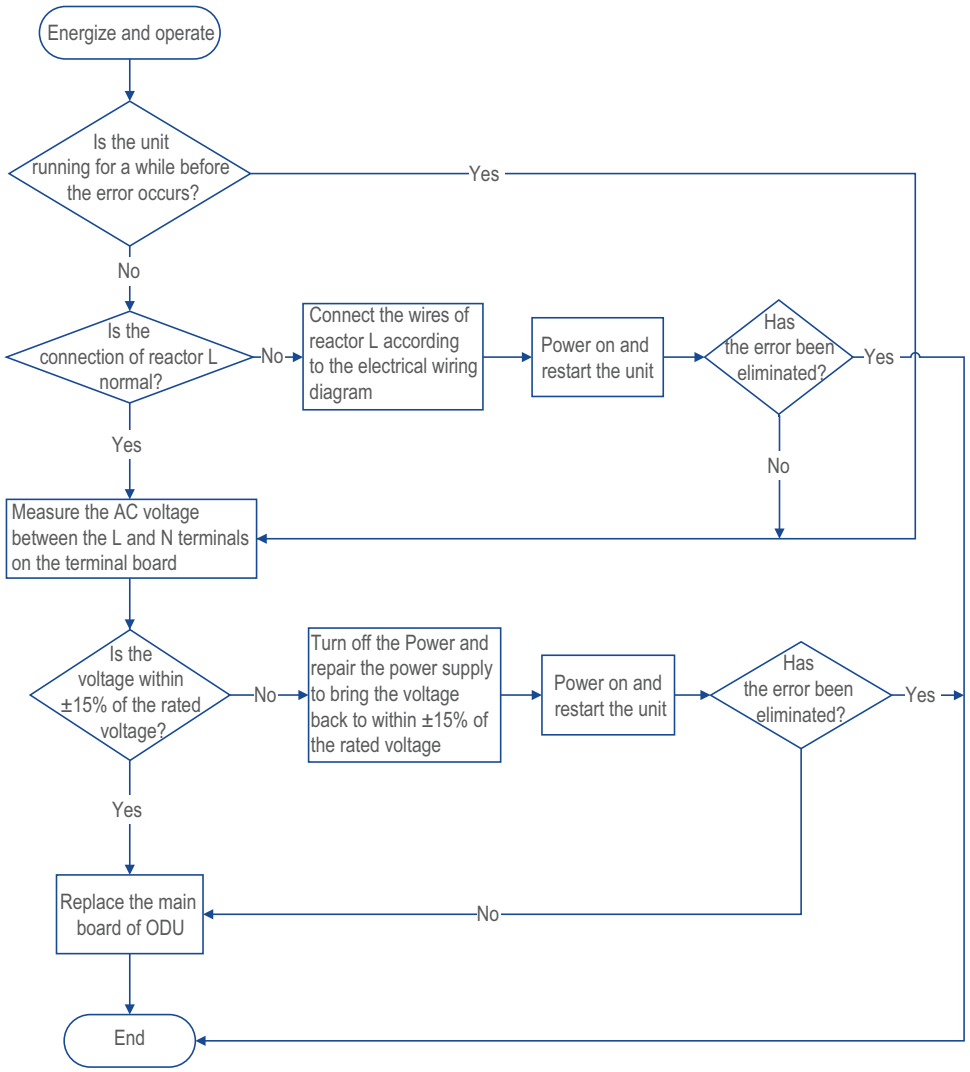
(1) The AC power supply voltage is too low;

(2) The reactor wiring is incorrect;

(3) The main board of outdoor unit is damaged.

3. Troubleshooting

Troubleshoot according to the flow chart.



rF: RF Module Error

1. Error description

(1) Cooling: The compressor and the outdoor fan stop running;

(2) Heating: The compressor and the outdoor fan stop running immediately, and the indoor fan stops running after 1 minute.

2. Possible causes

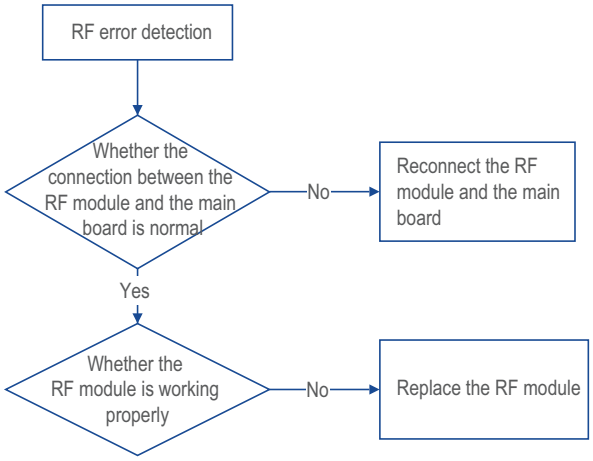
(1) The connection between the RF module and the main board is abnormal;

(2) The RF module is faulted.

3. Troubleshooting

(1) Adjust the connection between the RF module and the main board;

(2) Replace the RF module.



FC: Micro-switch Error

1. Error description

(1) Cooling/dehumidification: All loads stop running;

(2) Heating: All loads stop running.

2. Possible causes

(1) The connection between the sliding door motor and the main board is abnormal;

(2) The sliding door does not run smoothly;

(3) The pushing rods of left and right sliding door do not run consistently.

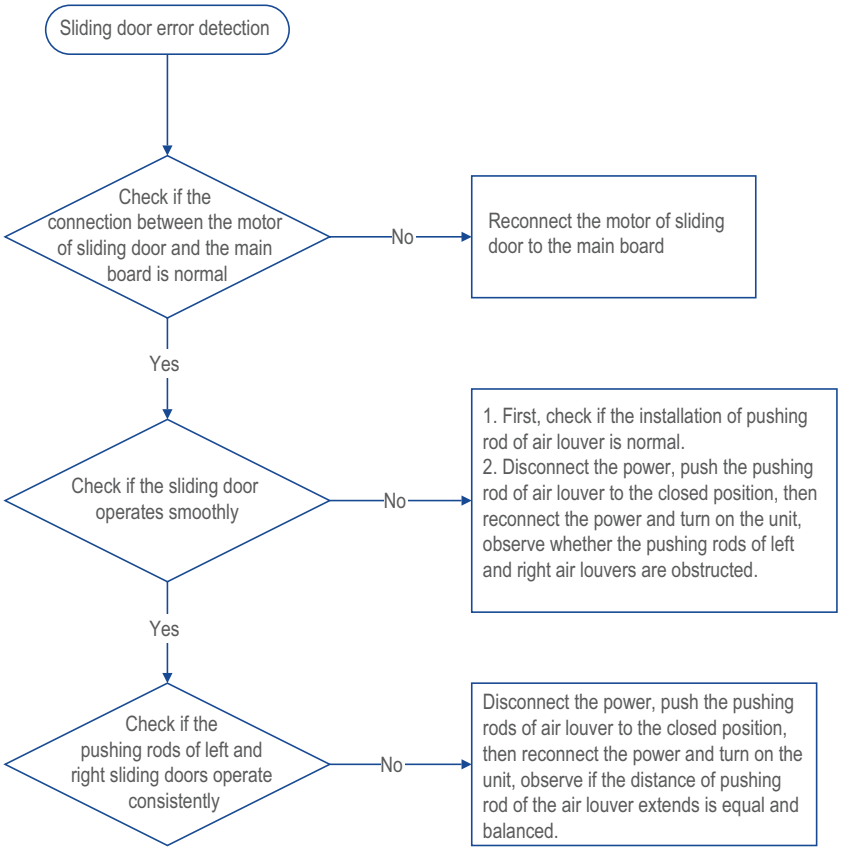
3. Troubleshooting

(1) Check the connection between the sliding door motor and the main board;

(2) Check whether the air louver and pushing rod are installed properly;

(3) Disconnect the power supply of the unit, push the air louver and pushing rod to the closed state, connect the power supply and restart the unit, and observe whether the operation of the left and right air louvers and pushing rods are blocked;

(4) Disconnect the power supply of the unit, push the air louver and pushing rod to the closed state, restart the power supply, and observe whether the push distance of the air louver and pushing rods are equal and balanced.


Sliding door error detection
Check if the connection between the motor of sliding door and the main board is normal
No
Reconnect the motor of sliding door to the main board
Yes
Check if the sliding door operates smoothly
No
1. First, check if the installation of pushing rod of air louver is normal.
2. Disconnect the power, push the pushing rod of air louver to the closed position, then reconnect the power and turn on the unit, observe whether the pushing rods of left and right air louvers are obstructed.
Yes
Check if the pushing rods of left and right sliding doors operate consistently
No
Disconnect the power, push the pushing rods of air louver to the closed position, then reconnect the power and turn on the unit, observe if the distance of pushing rod of the air louver extends is equal and balanced.

JF: Communication Error Between Indoor Unit and Detective Board

1. Error description

When the main board of indoor unit detects abnormal communication with the WIFI module, this error code will appear, but the error will not be displayed actively.

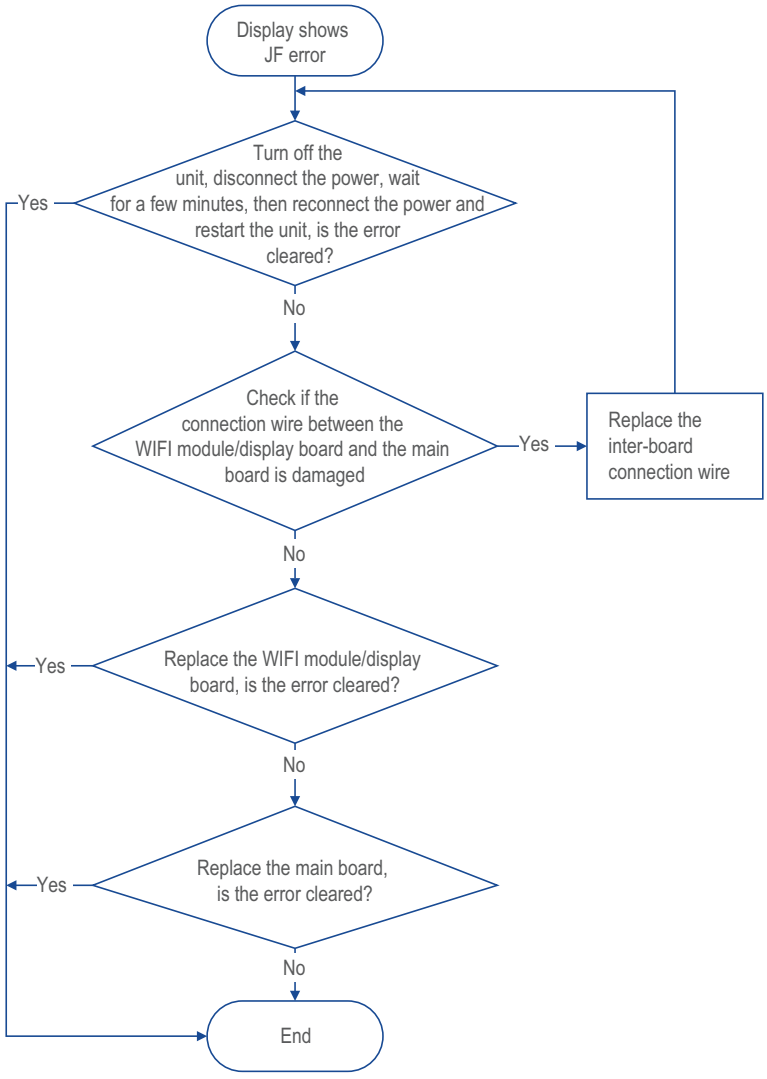
2. Possible causes

(1) The communication circuit of the main board of indoor unit or WIFI module is damaged;

(2) The inter-board wire connection may be damaged.

3. Troubleshooting

Replace the WIFI module/inter-board wire connection/main board.



Networking Error

1. Error description

The APP cannot control the indoor unit normally/cannot connect to the network.

2. Possible causes

(1) The APP version is not the latest;

(2) The APP is not compatible with the mobile phone system;

(3) The home network frequency band is not supported (not 2.4GHz);

(4) The communication circuit between the main board and the WIFI module is abnormal.

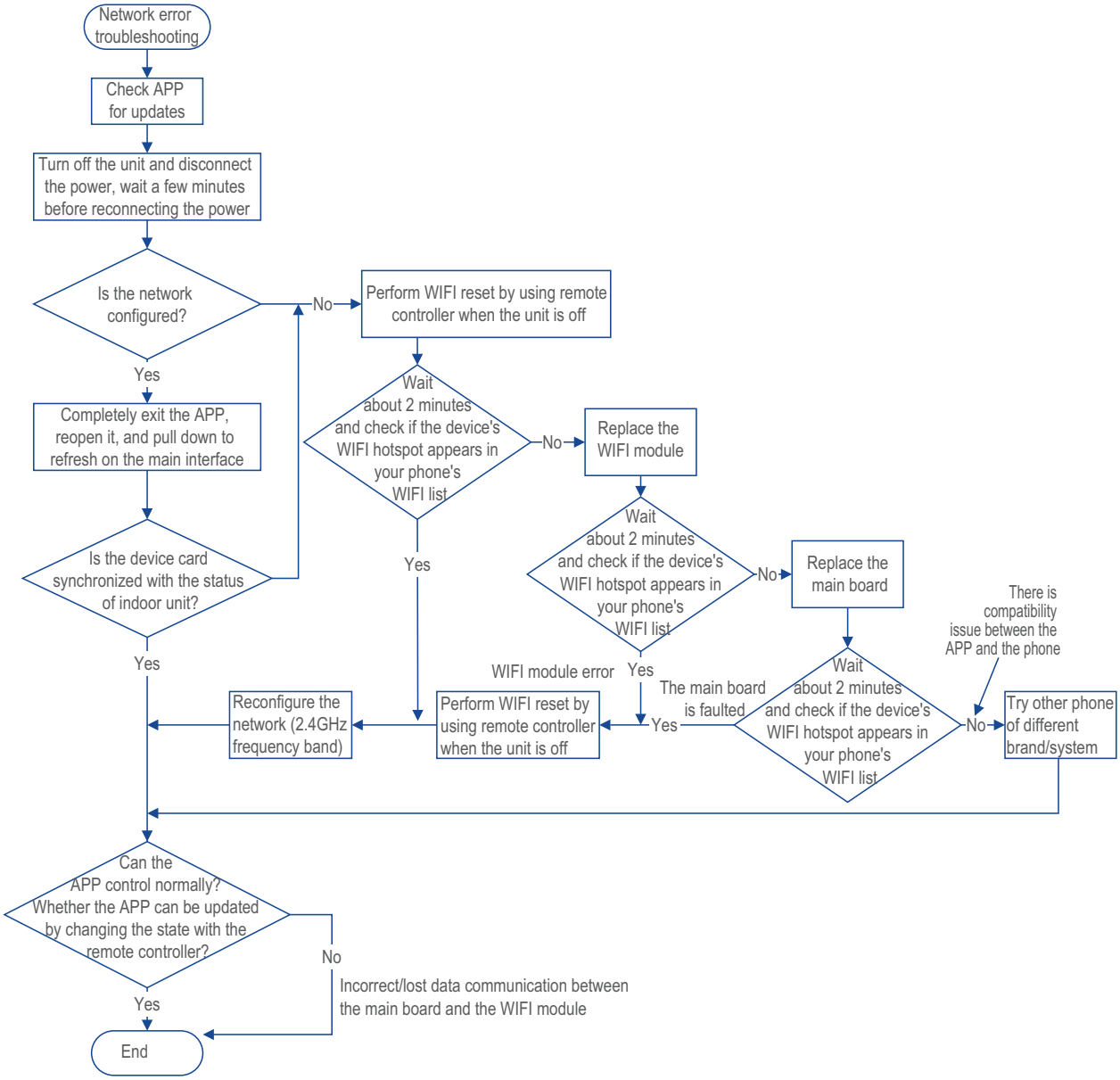
3. Troubleshooting

(1) Update the APP version;

(2) Use other mobile phone brands or systems to connect to the network;

(3) Check whether the home network meets the requirements;

(4) Replace the main board or WIFI module.


Network error troubleshooting
Check APP for updates
Turn off the unit and disconnect the power, wait a few minutes before reconnecting the power
Is the network configured?
No
Perform WIFI reset by using remote controller when the unit is off
Yes
Completely exit the APP, reopen it, and pull down to refresh on the main interface
Wait about 2 minutes and check if the device's WIFI hotspot appears in your phone's WIFI list
No
Replace the WIFI module
Is the device card synchronized with the status of indoor unit?
Yes
Wait about 2 minutes and check if the device's WIFI hotspot appears in your phone's WIFI list
No
Replace the main board
There is compatibility issue between the APP and the phone
WIFI module error
Yes
The main board is faulted
Yes
Wait about 2 minutes and check if the device's WIFI hotspot appears in your phone's WIFI list
No
Try other phone of different brand/system
Reconfigure the network (2.4GHz frequency band)
Perform WIFI reset by using remote controller when the unit is off
Can the APP control normally? Whether the APP can be updated by changing the state with the remote controller?
No
Incorrect/lost data communication between the main board and the WIFI module
Yes
End

9.3 Checkup

1. Check the thermal resistor resistance

(1) Tool preparation

Multimeter.

(2) Find the model of thermal resistor

Check the label on the outer case of the thermal resistor to find the model number. Refer to the resistance table of thermal resistor in the appendix to find the resistance range corresponding to the model.

(3) Disconnection

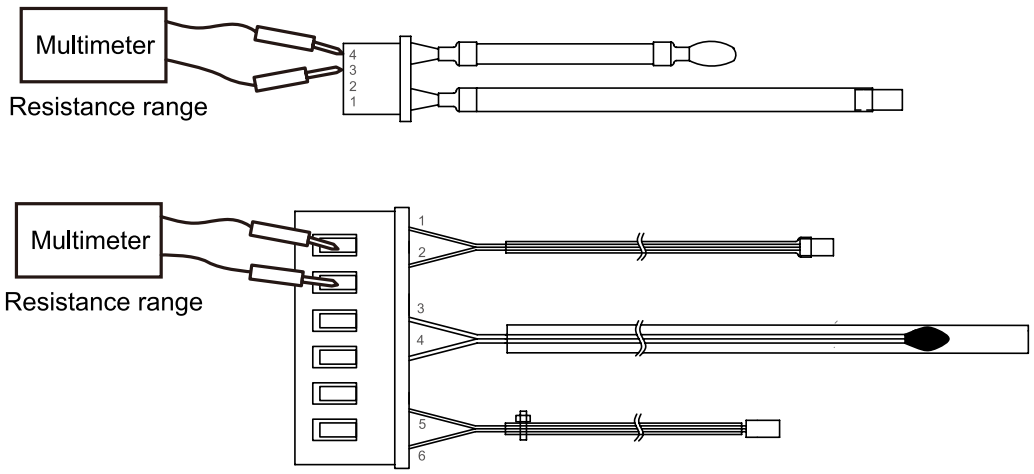
Disconnect the thermal resistor from the connector on the PCB board. This ensures that you are measuring the resistance of the thermal resistor itself, not the entire circuit.

(4) Measure resistance

Use the resistance mode on the multimeter (usually marked as Ω). Place the two probes of the multimeter on the two pins of the thermal resistor to measure its resistance.

(5) Compare resistance

Compare the measured resistance with the resistance mode for the corresponding model in Appendix 4. If the measured resistance is outside the specified range, it indicates that the thermal resistor may be damaged and needs to be replaced.



2. Check the electronic expansion valve

1. Check the connection

Check whether the connector of the electronic expansion valve (EV) is properly connected to the PCB board.

— Make sure that the connector is firmly plugged in and there is no looseness or poor contact.

2. Check the action sound

Turn off the power, then turn it back on, and check whether the electronic expansion valve makes a latching sound.

— This sound indicates that the electronic expansion valve is responding to the control signal.

3. Check the coil

If the electronic expansion valve does not make a latching sound in step 2, disconnect the connector and use a multimeter to check the conductivity of the connector.

— Use the resistance mode of the multimeter (usually marked as Ω), use the probe to touch the corresponding pins of the connector to check whether there is continuity. Check the conductivity between the connector pins. The specific pin combinations are as follows:

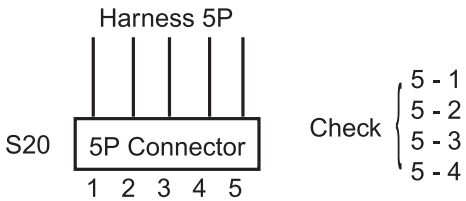
Pin 5 - 1
Pin 5 - 2
Pin 5 - 3
Pin 5 - 4

If there is no conduction between these pins (i.e. the measured resistance value is infinite), the coil of the electronic expansion valve may be damaged and the electronic expansion valve coil needs to be replaced.

4. Check the PCB board

If the conductivity between the pins is confirmed in step 3, but the electronic expansion valve still does not make a latching sound, it means that the PCB board of outdoor unit (main PCB board) may be faulty.

— Further inspection or replacement of the PCB board of outdoor unit is required.



3. Check the compressor

1. Disconnect the power supply

Disconnect the compressor power cord from the PCB board of outdoor unit.

— Make sure the power supply is completely disconnected to avoid the risk of electric shock.

2. Measure the winding resistance

Use the resistance mode (usually marked as Ω) of the multimeter to measure the resistance between the compressor windings.

— The compressor usually has three terminals, namely U, V, W (or similar identification). The following combinations of resistance values need to be measured:

U - V
U- W
V- W

3. Check the resistance consistency

Make sure the resistance between any two terminals is roughly equal.

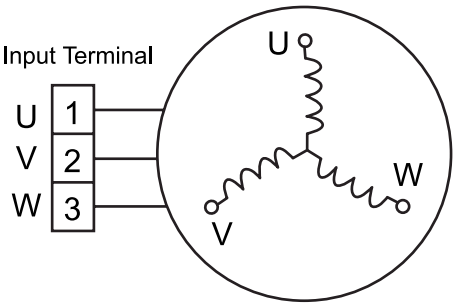
— Under normal circumstances, these three resistance values should be very close. If one resistance value is significantly different, it may indicate a problem with the winding.

4. Check the insulation to ground

Measure the resistance between each terminal and the outer case of compressor.

— Use one probe of the multimeter to touch the outer case of compressor and the other probe to the U, V, and W terminals respectively.

— If the measured resistance value is very low (close to 0Ω), there is a short circuit between the winding and the outer case and the compressor needs to be replaced.



4. Check the 4-way valve coil

Measure the resistance between the two leads of the coil. If the resistance is between 500~2500Ω, the coil is normal. If the resistance is infinite, the coil is abnormal.

- The resistance of DC24V coil is about 550Ω;
- The resistance of AC110-120V coil is about 550Ω;
- The resistance of AC220-240V coil is about 2000~2500Ω.

9.4 Troubleshooting for Normal Malfunction

1. Air Conditioner Can't be Started Up

Possible Causes	Troubleshooting
No power supply, or poor connection for power plug	● Confirm whether it's due to power failure. — If yes, wait for power recovery. — If not, check power supply circuit and make sure the power plug is connected well.
Wrong wire connection between indoor unit and outdoor unit, or poor connection for wiring terminals	● Check the circuit according to circuit diagram and connect wires correctly. ● Make sure all wiring terminals are connected firmly
Electric leakage for air conditioner	● Make sure the air conditioner is grounded reliably. ● Make sure wires of air conditioner is connected correctly. ● Check the wiring inside air conditioner. Check whether the insulation layer of power cord is damaged; if yes, place the power cord.
Model selection for air switch is improper	● Select proper air switch
Malfunction of remote controller	● Replace batteries for remote controller ● Repair or replace remote controller

2. Poor Cooling (Heating) for Air Conditioner

Possible Causes	Troubleshooting
Set temperature is improper	• Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	• Set the fan speed at high or medium
Filter of indoor unit is blocked	• Clean the filter
Installation position for indoor unit and outdoor unit is improper	• Adjust the installation position, and install the rainproof and sunproof for outdoor unit
Refrigerant is leaking	• Find out the leakage causes and deal with it. Add refrigerant.
Malfunction of 4-way valve	• Replace the 4-way valve
Malfunction of capillary	• Replace the capillary
Flow volume of valve is insufficient	• Open the valve completely
Malfunction of horizontal louver	• Refer to point 3 of maintenance method for details
Malfunction of the IDU fan motor	• Refer to troubleshooting for H6 for maintenance method in details
Malfunction of the ODU fan motor	• Refer to point 4 of maintenance method for details
Malfunction of compressor	• Refer to point 5 of maintenance method for details

3. Horizontal Louver Can't Swing

Possible Causes	Troubleshooting
Wrong wire connection, or poor connection	• Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Stepping motor is damaged	• Repair or replace stepping motor
Main board is damaged	• Replace the main board with the same model

4. ODU Fan Motor Can't Operate

Possible Causes	Troubleshooting
Wrong wire connection, or poor connection	• Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of the ODU fan motor is damaged	• Replace the capacity of fan
Power voltage is a little low or high	• Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	• Change compressor oil and refrigerant. If no better, replace the compressor with a new one

5. Air Conditioner is Leaking

Possible Causes	Troubleshooting
Drain pipe is blocked	• Eliminate the foreign objects inside the drain pipe
Drain pipe is broken	• Replace drain pipe
Wrapping is not tight	• Wrap it again and bundle it tightly

6. Compressor Can't Operate

Possible Causes	Troubleshooting
Wrong wire connection, or poor connection	• Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Capacity of compressor is damaged	• Replace the compressor capacitor
Power voltage is a little low or high	• Suggest to equip with voltage regulator
Coil of compressor is burnt out	• Repair or replace compressor
Cylinder of compressor is blocked	• Repair or replace compressor

7. Abnormal Sound and Vibration

Possible Causes	Troubleshooting
When turn on or turn off the unit, the panel and other parts will expand and there's abnormal sound	• Normal phenomenon. Abnormal sound will disappear after a few minutes.
When turn on or turn off the unit, there's abnormal sound due to flow of refrigerant inside air conditioner	• Normal phenomenon. Abnormal sound will disappear after a few minutes.
Foreign objects inside the indoor unit or there are parts touching together inside the indoor unit	• Remove foreign objects. Adjust all parts position of indoor unit, tighten screws and stick damping plaster between connected parts
Foreign objects inside the outdoor unit or there are parts touching together inside the outdoor unit	• Remove foreign objects. Adjust all parts position of outdoor unit, tighten screws and stick damping plaster between connected parts
Short circuit inside the magnetic coil	• Replace magnetic coil
Abnormal shake of compressor	• Adjust the support foot mat of compressor, tighten the bolts
Abnormal sound inside the compressor	• If add too much refrigerant during maintenance, please reduce refrigerant properly. Replace compressor for other circumstances.

10. Removal Procedure

10.1 Removal Procedure of Indoor Unit

Step	Procedure

01

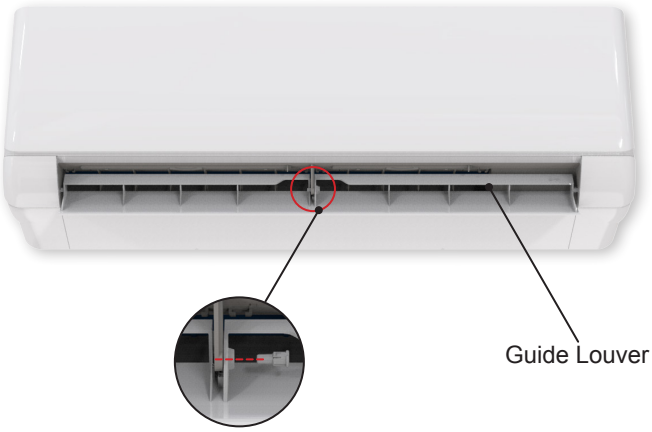
Before disassemble

Turn off the air conditioner and disconnect the power before disassemble the air conditioner.

02

Remove guide louver

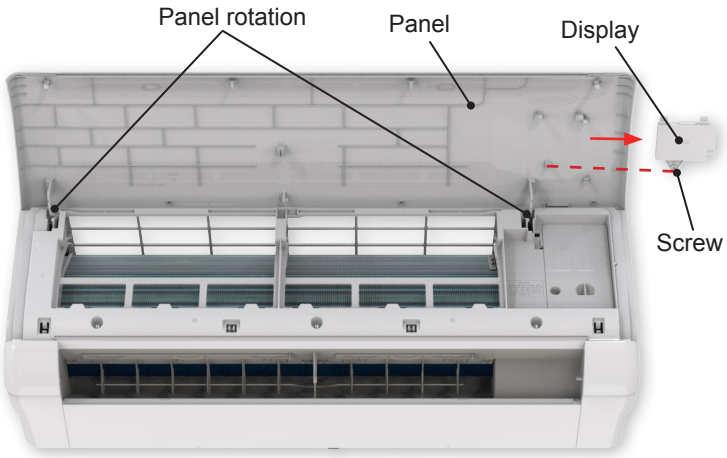
Push out the plug pin on guide louver, bend the guide louver with hand and then separate the guide louver from the crank shaft of step motor to remove it.



03

Remove panel

Open the front panel; separate the panel rotation shaft from the groove fixing the front panel and then removes the front panel.

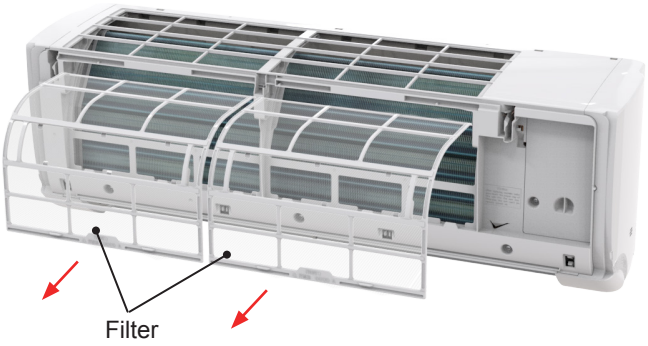


Step	Procedure

04

Remove filter

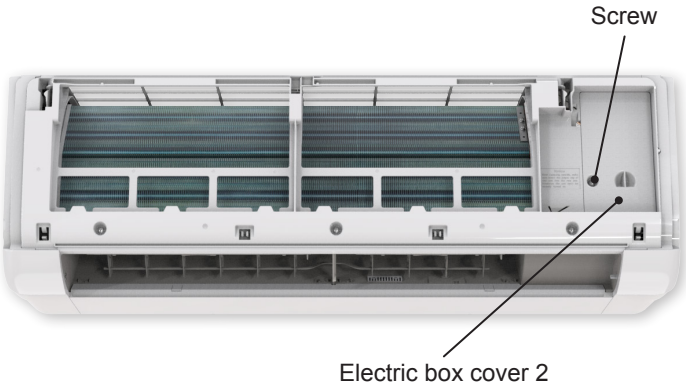
Hold the handle on the filter, pull it forwards and then the filter can be pulled out.



05

Remove electric box cover 2

Remove the screws on the electric box cover 2 to remove the electric box cover 2.



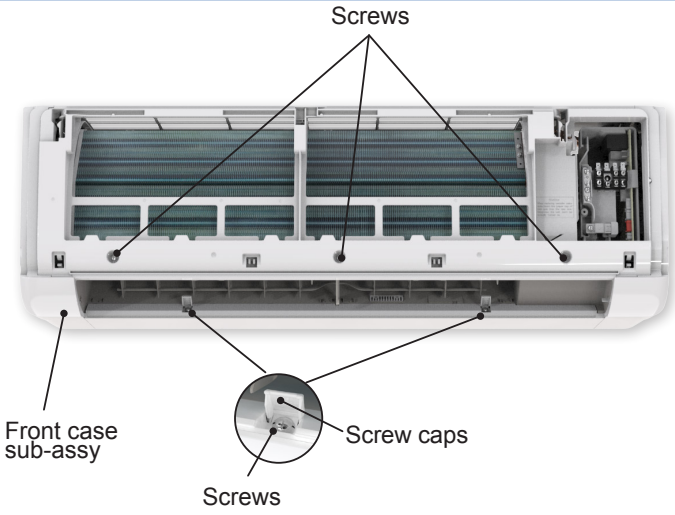
06

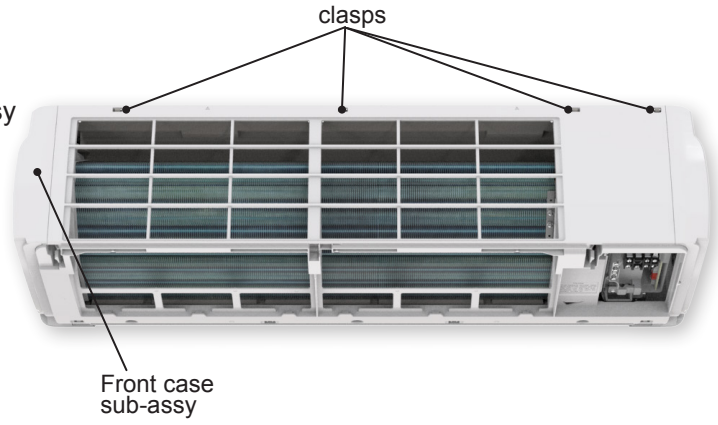
Remove front case sub-assy

1. Remove the screws fixing front case.

NOTE:
(1) Open the screw caps before removing the screws around the air outlet.
(2) The quantity of screws fixing the front case sub-assy is different for different models.

2. Loosen the clasps at left, middle and right sides of front case. Life the front case sub-assy upwards to remove it.



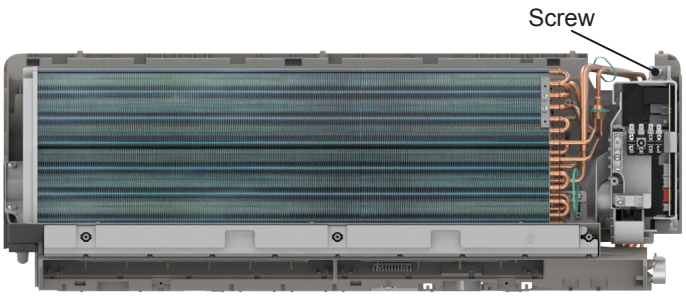


Step	Procedure

07

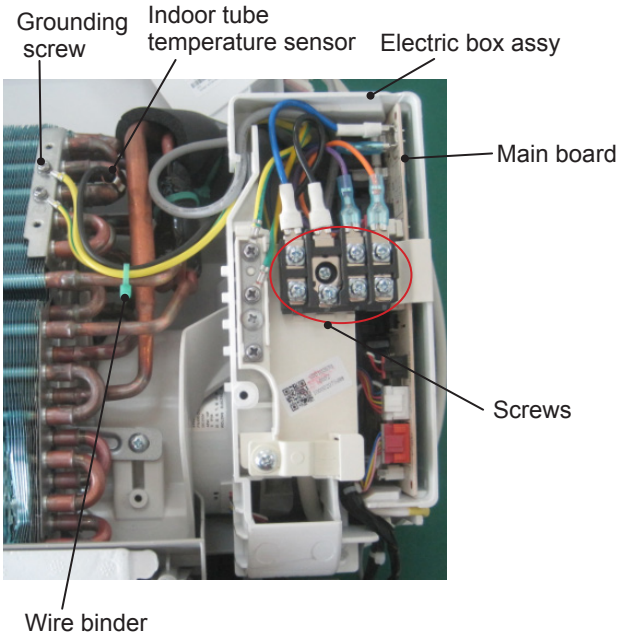
Remove electric box assy

Remove the screw fixing electric box assy.



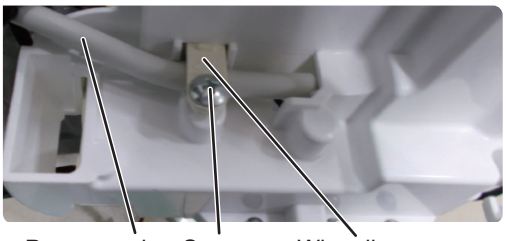
1. Cut off the wire binder and pull out the indoor tube temperature sensor.
2. Screw off one grounding screw.
3. Remove the wiring terminals of motor, cold plasma generator and stepping motor.
4. Remove the electric box assy.
5. Screw off the screws that are locking each.

(NOTE: Take AC unit for example).

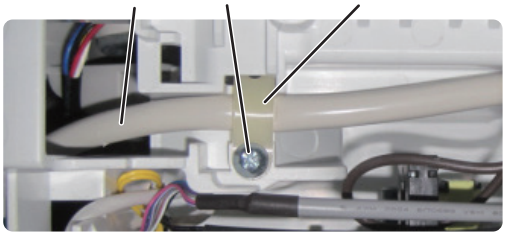


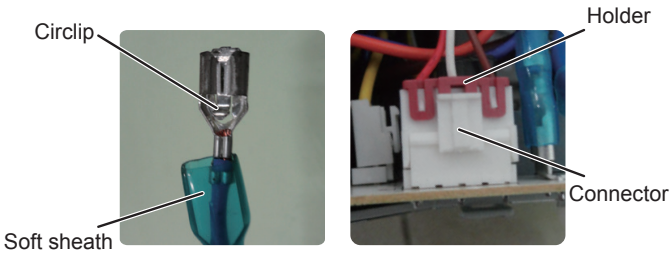
Rotate the electric box assy. Twist off the screws that are locking the wire clip and loosen the power cord. Remove the wiring terminal of power cord. Lift up the main board and take it off.

09K
12K



18K
24K
36K

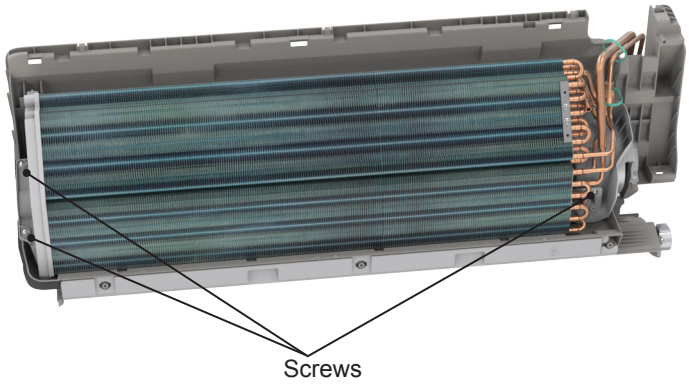


Step	Procedure
Instruction: Some wiring terminal of this products is with lock catch and other devices. The pulling method is as below: 1. Remove the soft sheath for some terminals at first, hold the circlip and then pull out the terminals, 2. Pull out the holder for some terminals at first (holder is not available for some wiring terminal). hold the connector and then pull the terminal.	

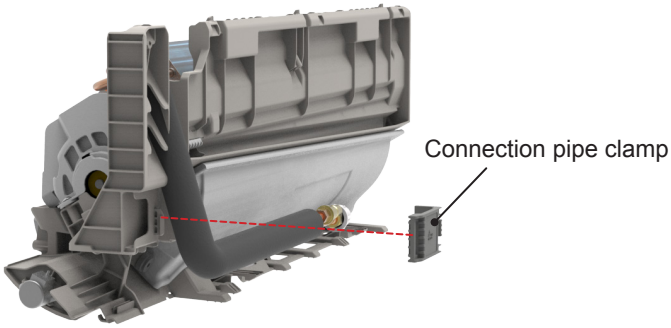
08

Remove evaporator assy

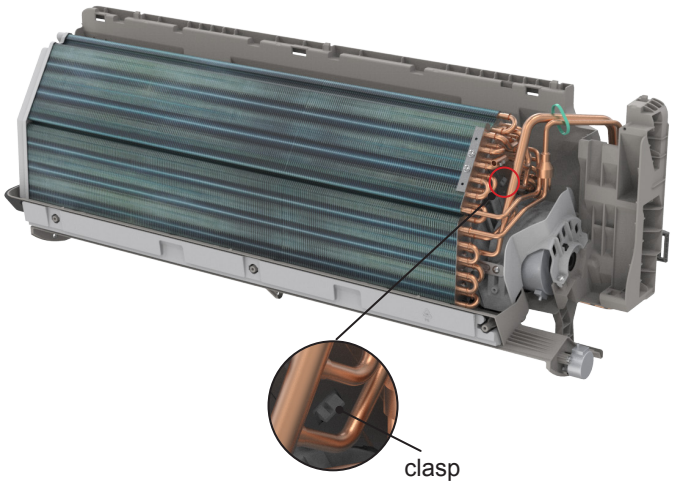
Remove 2 screws fixing evaporator assy.

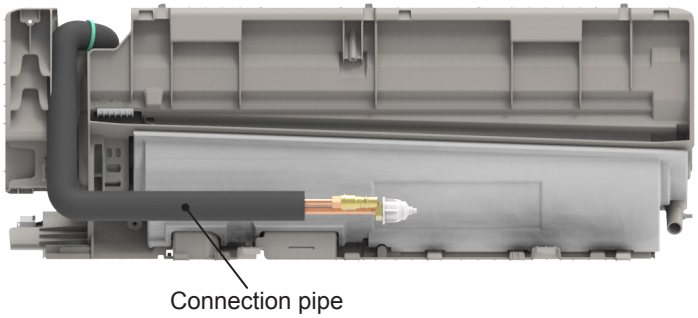
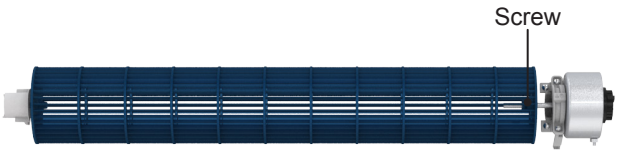
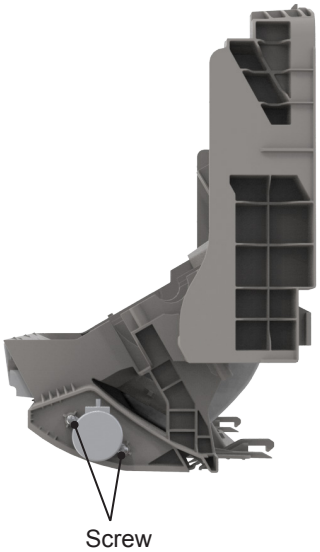


At the back of the unit, Loosen the clasp of the connection pipe clamp and then remove the connection pipe clamp.



First remove the left side of evaporator from the groove of bottom shell and then remove the right side from the clasp on the bottom shell.



Step	Procedure
Adjust the position of connection pipe on evaporator slightly and then lift the evaporator upwards to remove it.	
09 **Remove motor and cross flow fan** Remove 3 screws fixing motor clamp and then remove the motor clamp. Loose the screws (2-3 circles) used for fixing the cross flow fan, pull right to pull out the motor.	  
10 **Remove swing motor** Screw off the screws that are locking the swing motor and take the motor off.	

10.2 Removal Procedure of Outdoor Unit

GRHFR32T09AS
GRHFR32T12ASA
GRHFR32T12AS

Caution: discharge the refrigerant completely before removal.

Step	Procedure

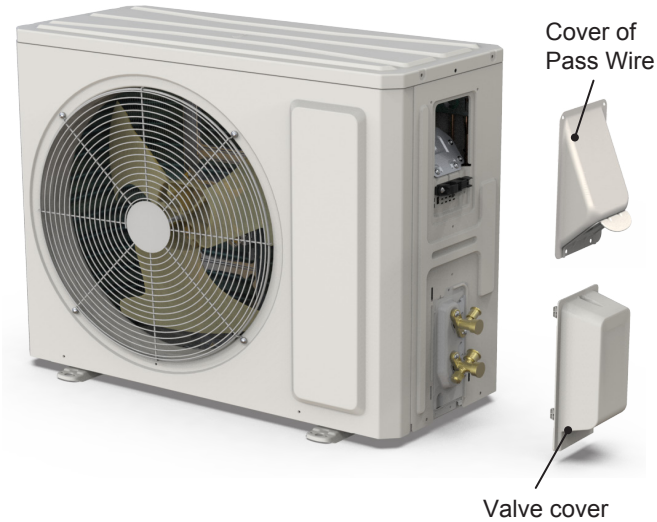
01

Before disassembly

02

Remove Cover of Pass Wire and valve cover

Remove the screws fixing Cover of Pass Wire, valve cover and then remove them.



03

Remove top cover

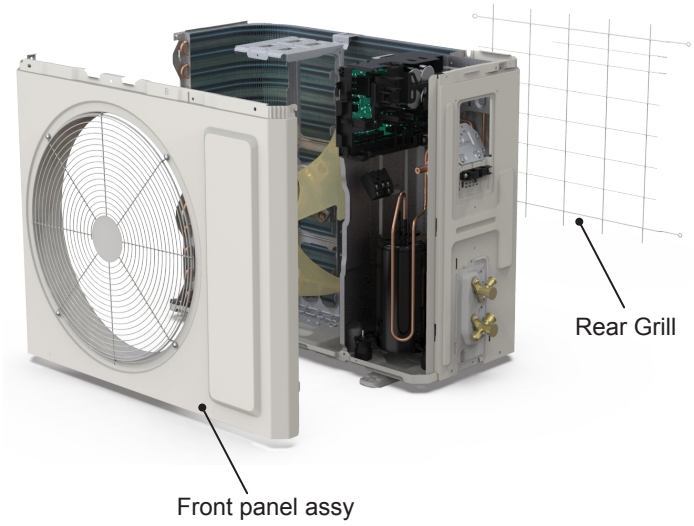
Remove the screws fixing top panel and then remove the top panel.

Step	Procedure

04

Remove front panel assy and Rear Grill

Remove connection screws connecting the front panel assy and Rear Grill, and then remove the front panel assy and Rear Grill.

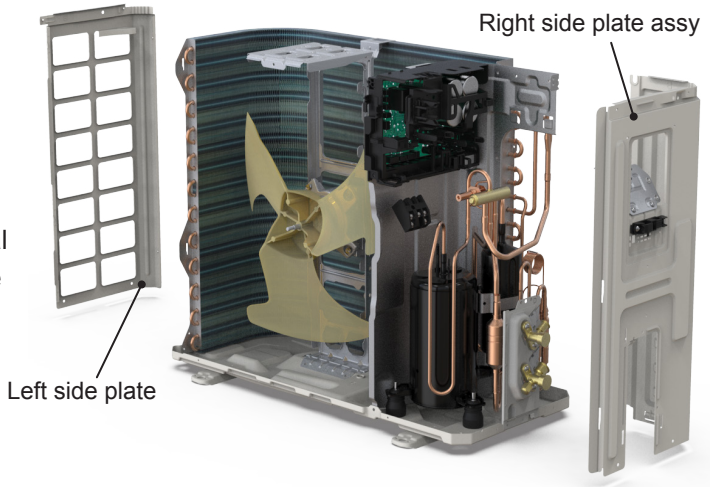


05

Remove right side plate assy and left side plate

Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right side plate, and remove the right side plate assy.

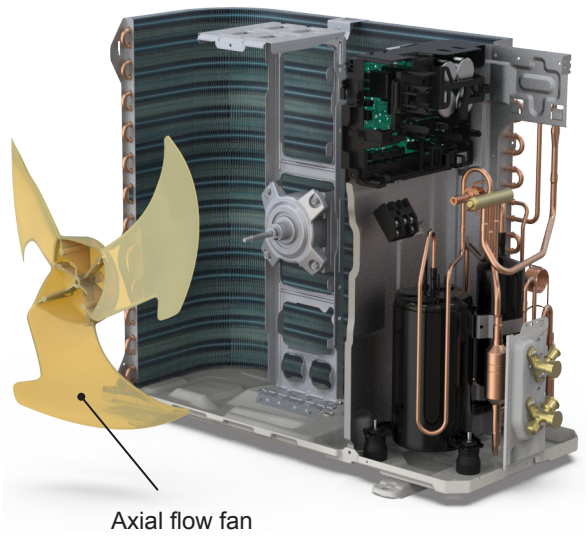
Rescrew the screws fixing the left side plate, and remove the left side plate assy.



06

Remove axial flow fan

Remove the nut on the fan and then remove the axial flow fan.



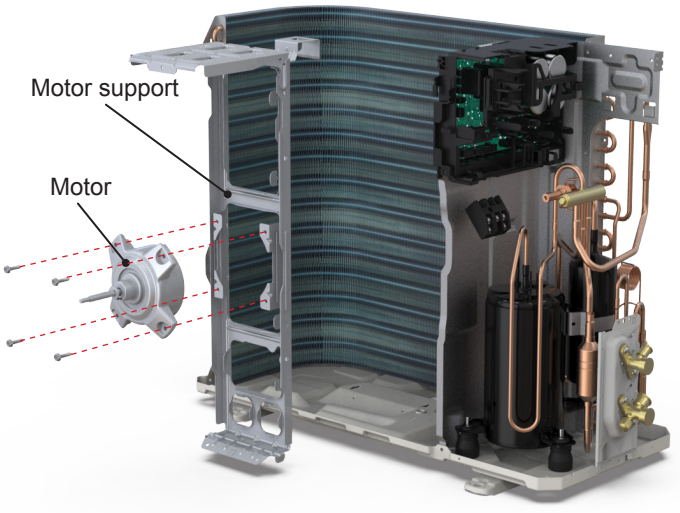
Step	Procedure

07

Remove motor support and motor

Remove the screws fixing the motor support and lift the motor support to remove it.

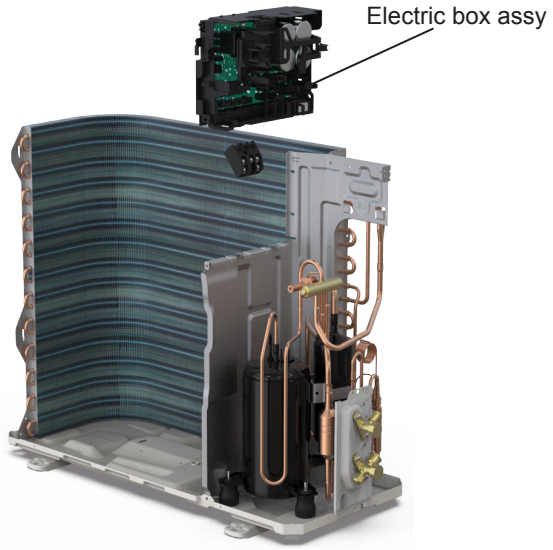
Remove the screws fixing the motor and then remove the motor.



08

Remove electric box assy

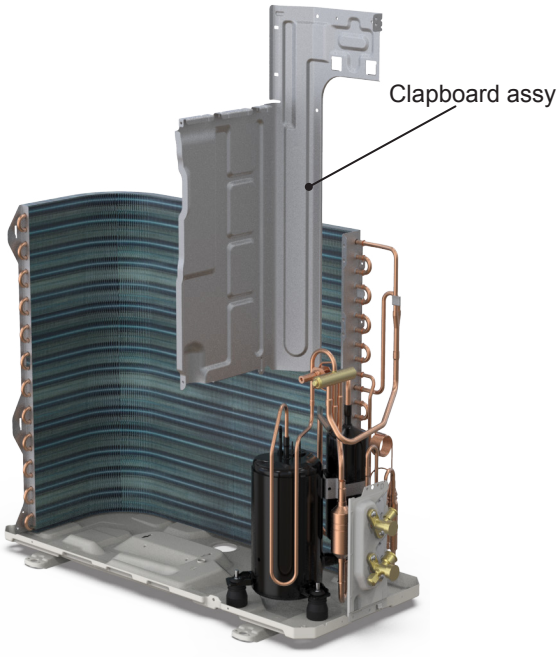
Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed.



09

Remove clapboard assy

Remove the screws fixing the clapboard assy and then remove the clapboard assy.



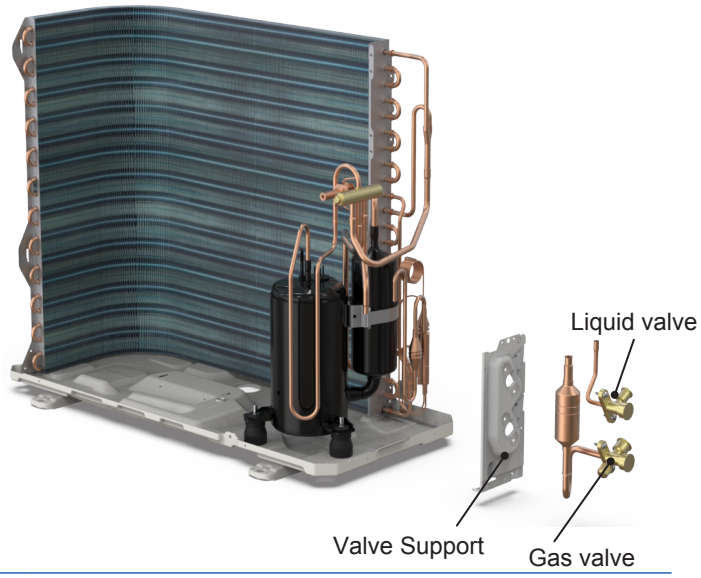
Step	Procedure

10

Remove gas valve and liquid valve

Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them.

Note:
Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.



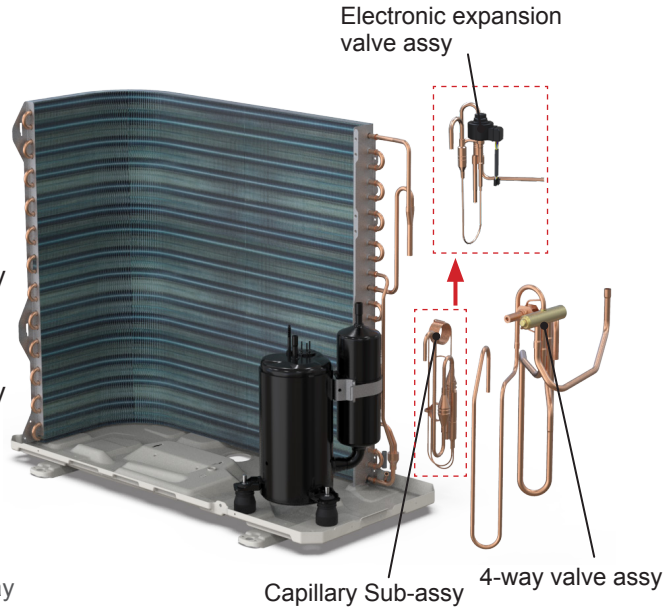
11

Remove 4-way valve and capillary Subassy(electronic expansion valve assy)

Unsolder the welding joints connecting capillary Subassy(electronic expansion valve assy), and then remove it.

Unsolder the welding joints connecting the 4-way valve assy with capillary sub-assy(electronic expansion valve assy), compressor and condenser; remove the 4-way valve and capillary Sub-assy(electronic expansion valve assy). Cooling only unit removes Discharge Tube and Inhalation Tube.

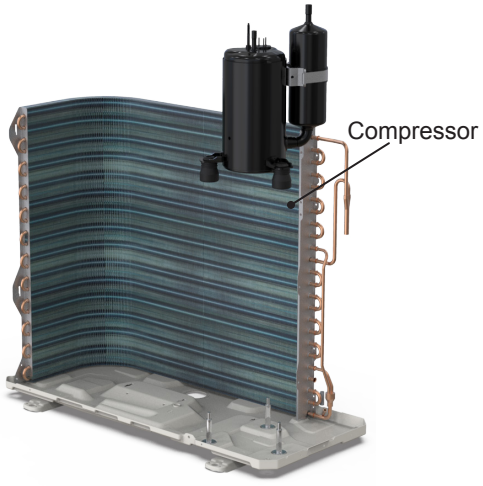
Note:
Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.



12

Remove compressor

Remove the 3 foot nuts on the compressor and then remove the compressor.



GRHFR32T18AS

Caution: discharge the refrigerant completely before removal.

Step	Procedure

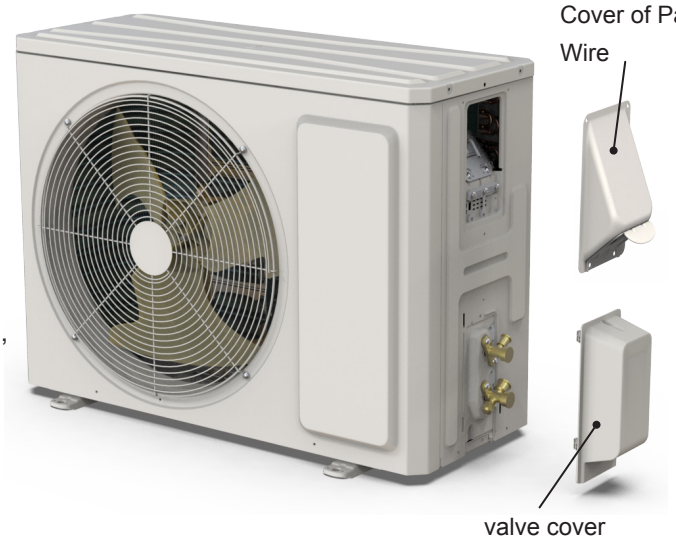
01

Before disassembly

02

Remove Cover of Pass Wire and valve cover

Remove the screws fixing Cover of Pass Wire, valve cover and then remove them.



03

Remove top cover

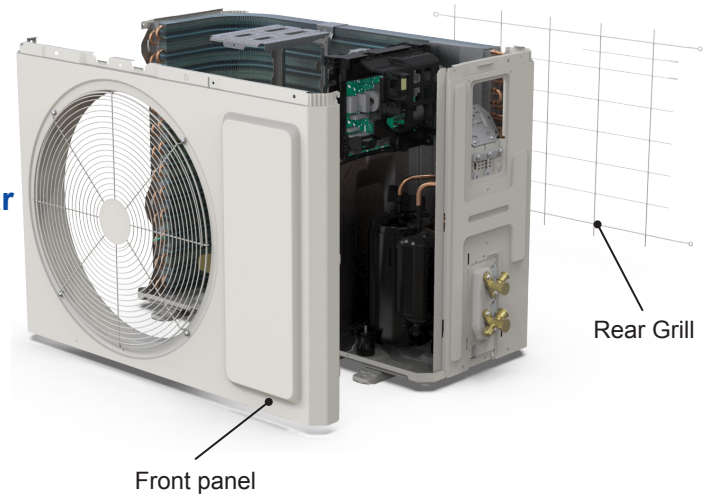
Remove the screws fixing top panel and then remove the top panel.

Step	Procedure

04

4. Remove front panel assy and Rear Grill

Remove connection screws connecting the front panel assy and Rear Grill, and then remove the front panel assy and Rear Grill.

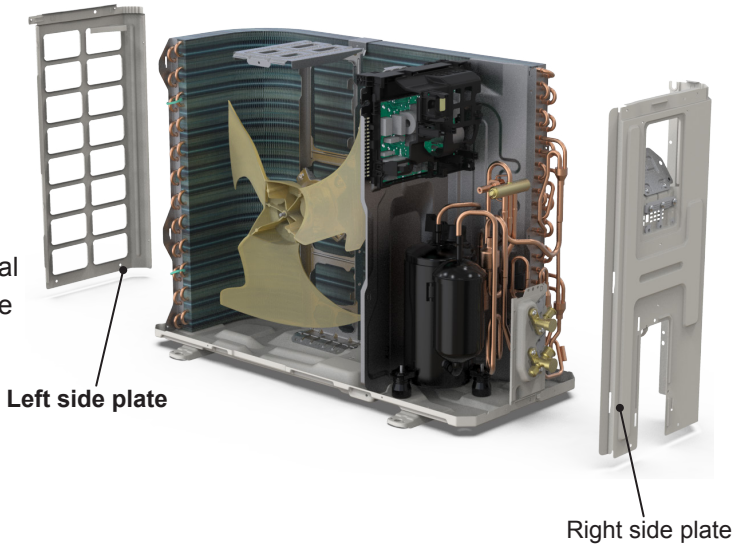


05

Remove right side plate assy and left side plate

Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right side plate, and remove the right side plate assy.

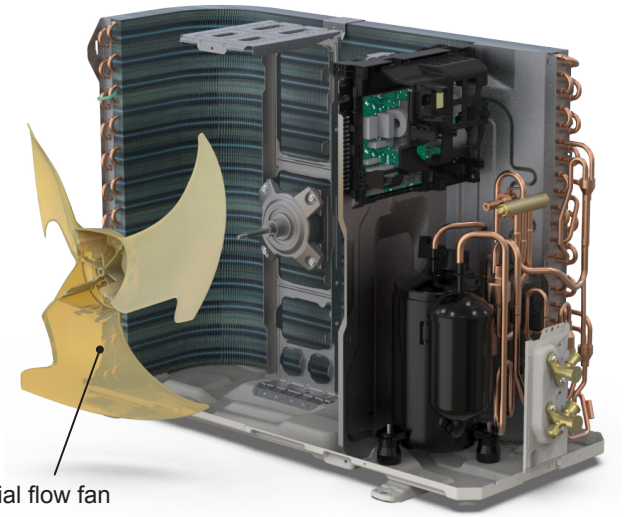
Rescrew the screws fixing the left side plate, and remove the left side plate assy.



06

Remove axial flow fan

Remove the nut on the fan and then remove the axial flow fan.



Step	Procedure

07

Remove electric box assy

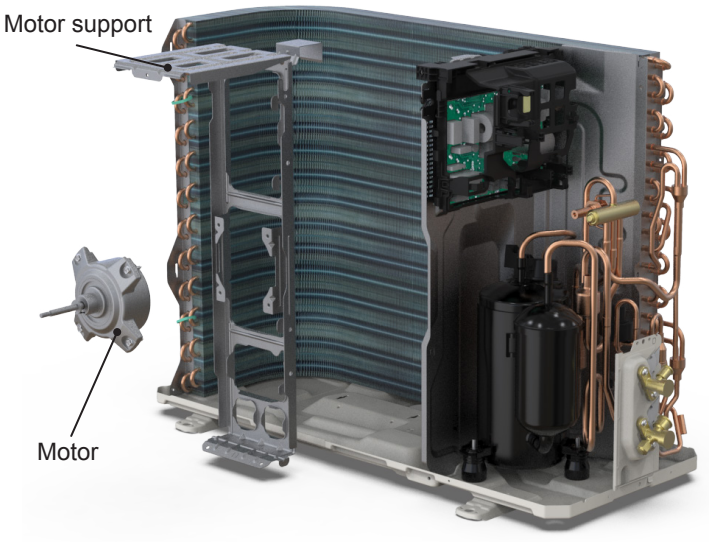
Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed.

08

Remove motor and motor support

Remove the screws fixing the motor and then remove the motor.

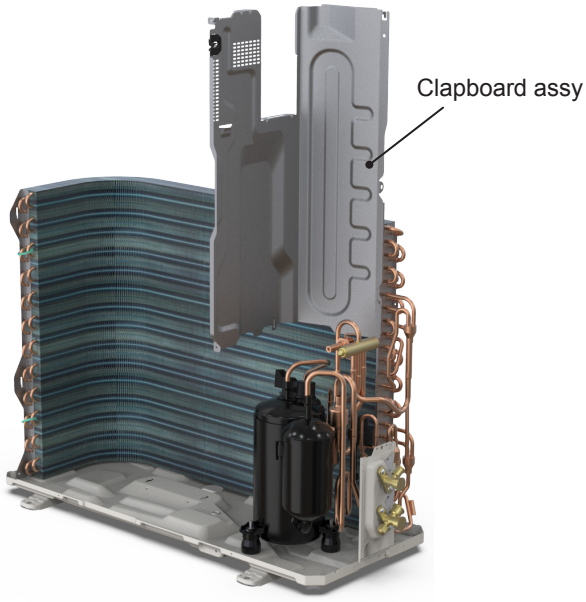
Remove the screws fixing the motor support and lift the motor support to remove it.



09

Remove clapboard assy

Remove the screws fixing the clapboard assy and then remove the clapboard assy.



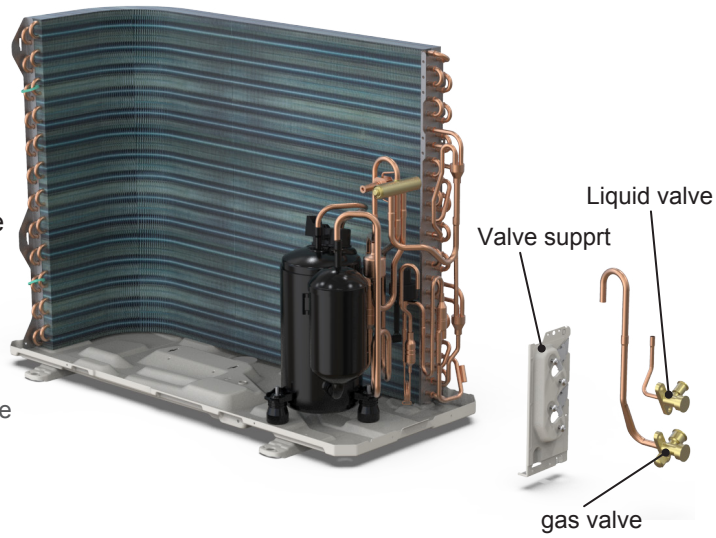
Step	Procedure

10

Remove gas valve and liquid valve

Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them.

Note:
Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.
Remove the screws fixing valve support, then remove the valve support.



11

Remove 4-way valve assy and Capillary Sub-assy

Unsolder the welding joints connecting the 4-way valve assy, remove the 4-way valve.

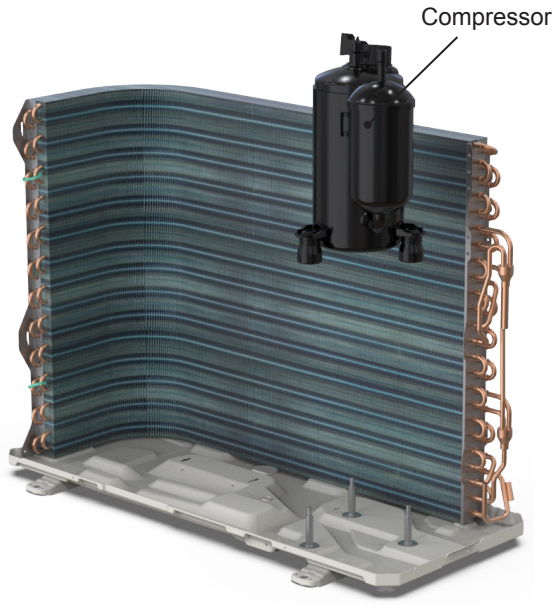
Unsolder the spot weld of Capillary Sub-assy and condenser, and then remove the Capillary Sub-assy.

Note:
Before unsoldering the welding joint, wrap the 4-way valve with a wet cloth completely to avoid damage to the valve caused by high temperature.

12

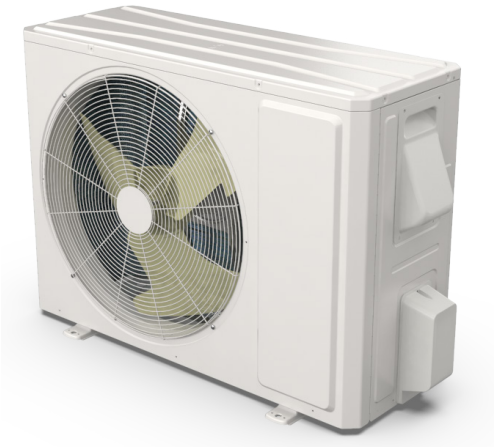
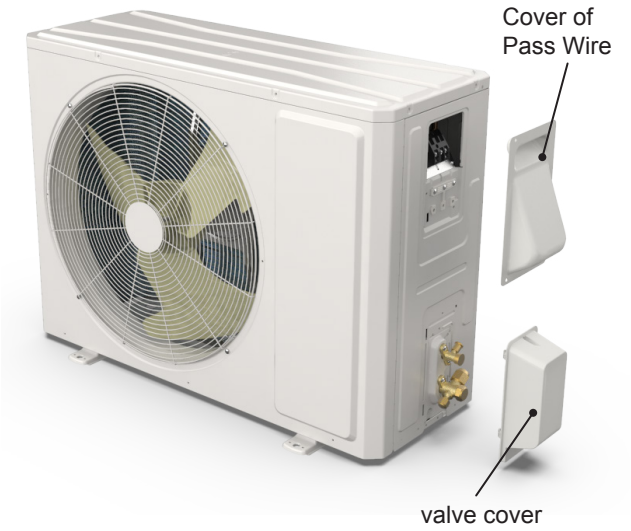
Remove compressor

Remove the 3 foot nuts on the compressor and then remove the compressor.



GRHFR32T24AS

Caution: discharge the refrigerant completely before removal.

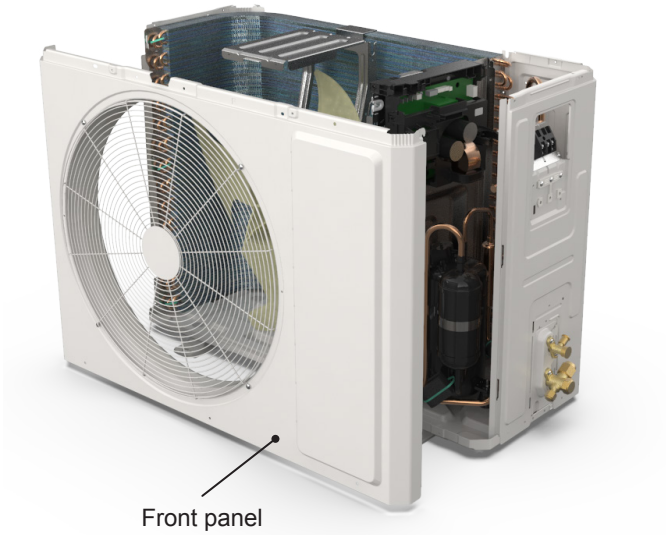
Step	Procedure
01 **Before disassembly**	
02 **Remove Cover of Pass Wire and valve cover** Remove the screws fixing Cover of Pass Wire, valve cover and then remove them.	
03 **Remove top cover** Remove the screws fixing top panel and then remove the top panel.	

Step	Procedure

04

Remove front panel assy

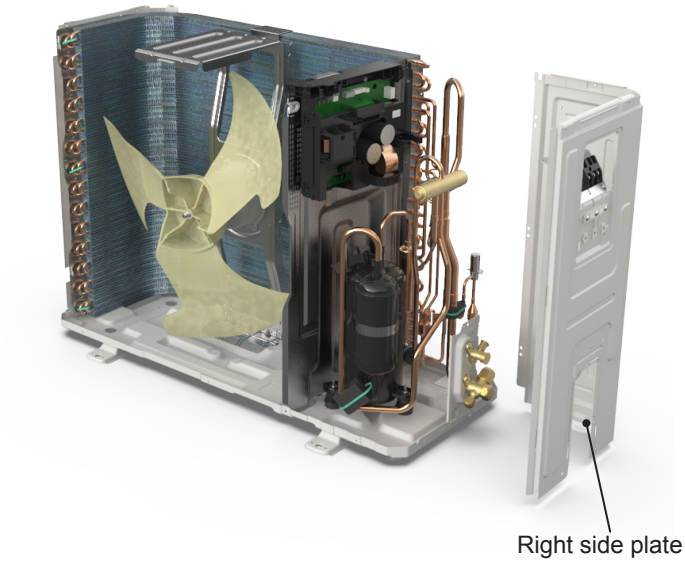
Remove connection screws connecting the front panel assy with the chassis and the motor support, and then remove the front panel assy.



05

Remove right side plate assy

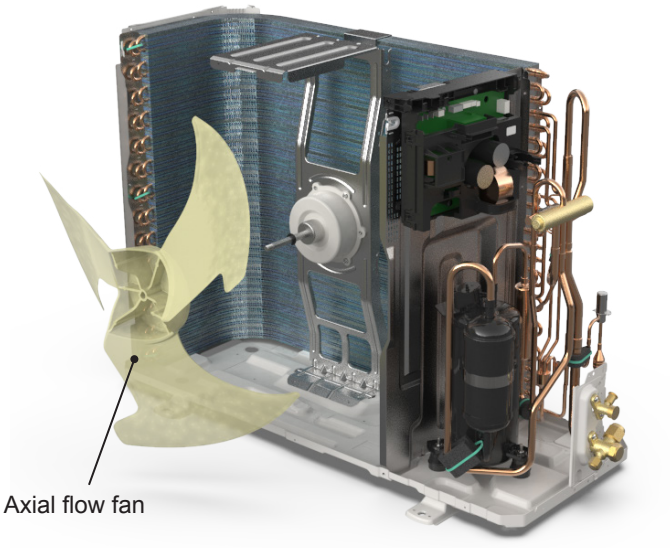
Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right plate, and remove the right side plate assy.



06

Remove axial flow fan

Remove the nut on the fan and then remove the axial flow fan.



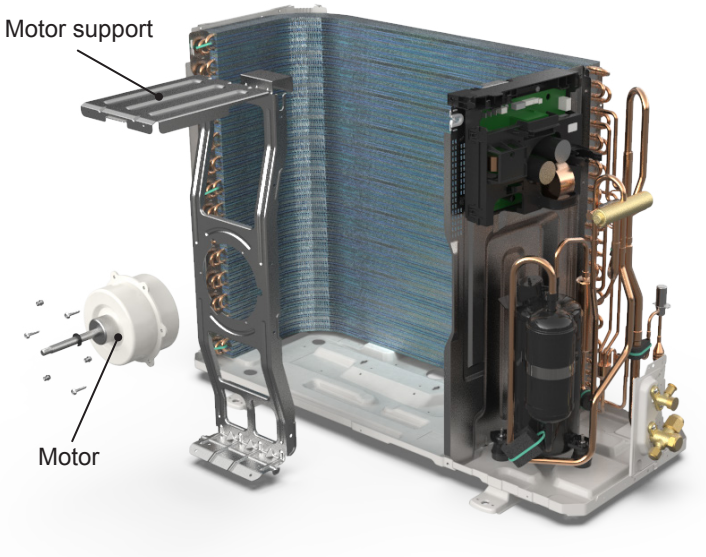
Step	Procedure

07

Remove motor support and motor

Remove the screws fixing the motor support and lift the motor support to remove it.

Remove the screws fixing the motor and then remove the motor.



08

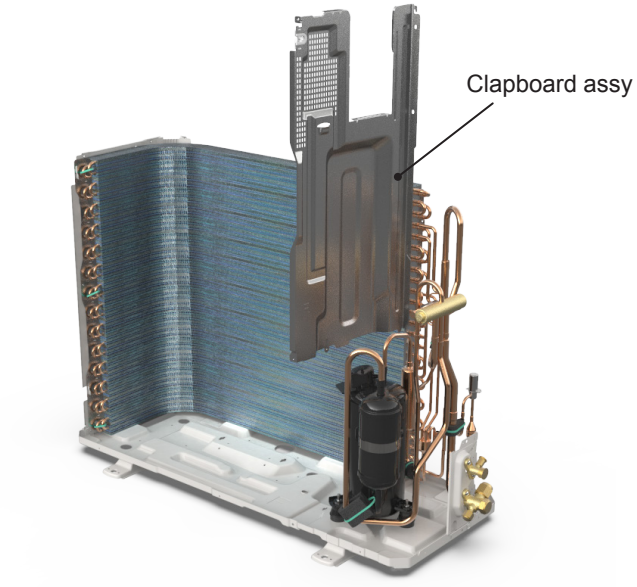
Remove electric box assy

Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed.

09

Remove clapboard assy

Remove the screws fixing the clapboard assy and then remove the clapboard assy.



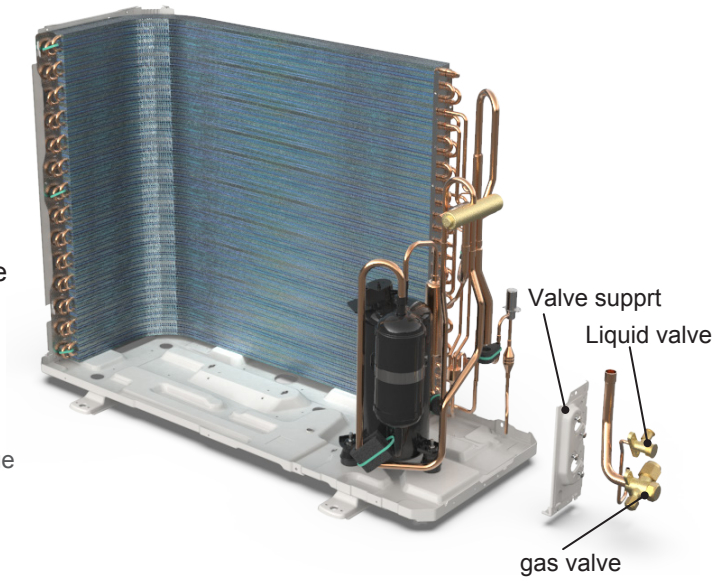
Step	Procedure

10

Remove gas valve and liquid valve

Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them.

Note:
Discharge the refrigerant completely befor unsoldering; when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.



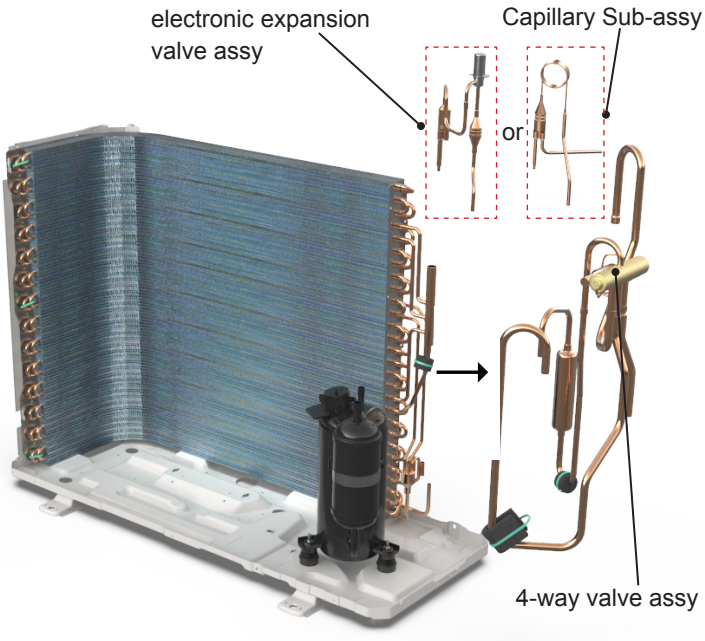
11

Remove 4-way valve assy, electronic expansion valve assy(Capillary Sub-assy)

Unsolder the welding joints connecting the 4-way valve assy, remove the 4-way valve.

Unsolder the spot weld of electronic expansion valve assy(Capillary Sub-assy) and condenser, and then remove the electronic expansion valve assy(Capillary Sub-assy).

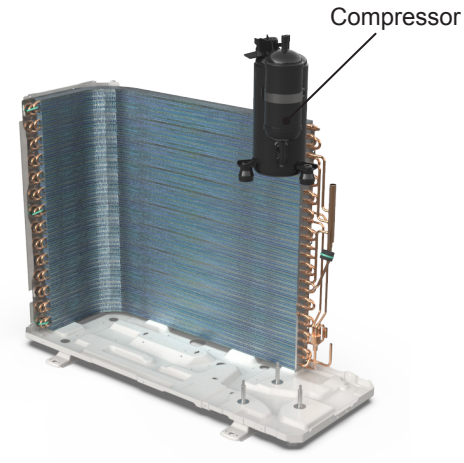
Note:
Before unsoldering the welding joint, wrap the 4-way valve,electric expansion valve sub-assy,and Capillary Sub-assy with a wet cloth completely to avoid damage to the valve caused by high temperature.



12

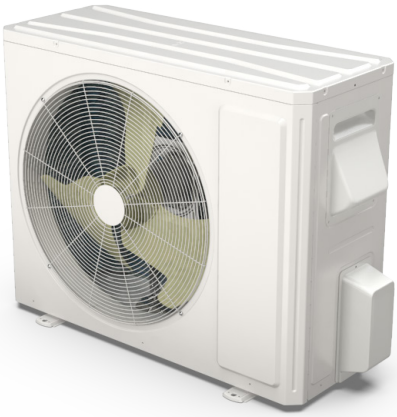
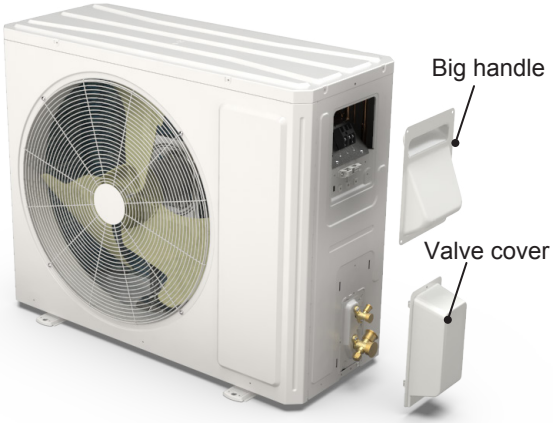
Remove compressor

Remove the 3 foot nuts on the compressor and then remove the compressor.



GRH32IT36AS

Caution: discharge the refrigerant completely before removal.

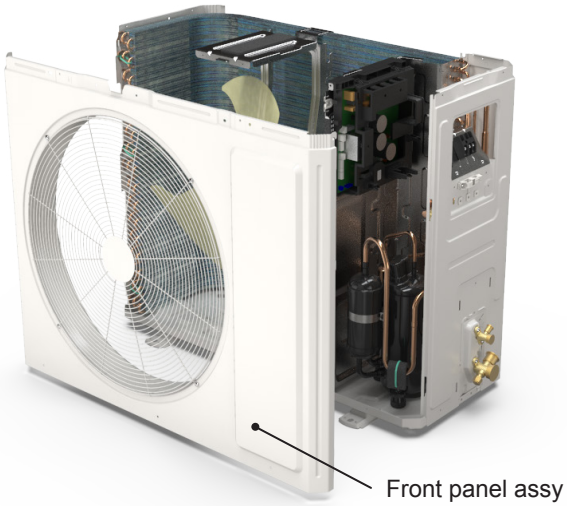
Step	Procedure
01 **Before disassembly**	
02 **Remove Cover of Pass Wire and valve cover** Remove the screws fixing Cover of Pass Wire, valve cover and then remove them.	
03 **Remove top cover** Remove the screws fixing top panel and then remove the top panel.	

Step	Procedure

04

Remove front panel assy

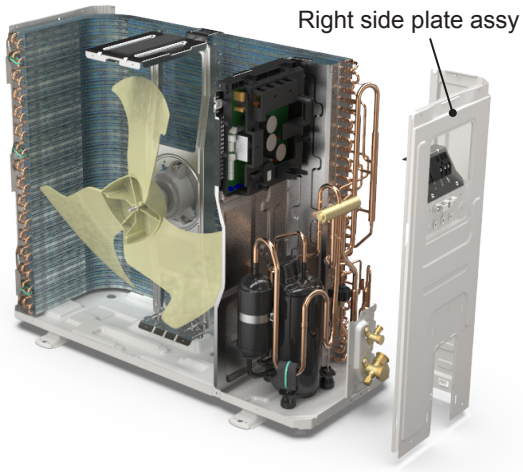
Remove connection screws connecting the front panel assy with the chassis and the motor support, and then remove the front panel assy.



05

Remove right side plate assy

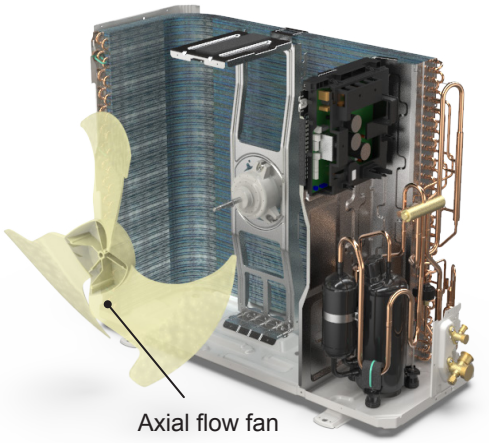
Rescrew the ground screws, remove the ground wires, loosen the screws fixing terminal board, remove the terminal board, rescrew the screws fixing the right plate, and remove the right side plate assy.



06

Remove axial flow fan

Remove the nut on the fan and then remove the axial flow fan.



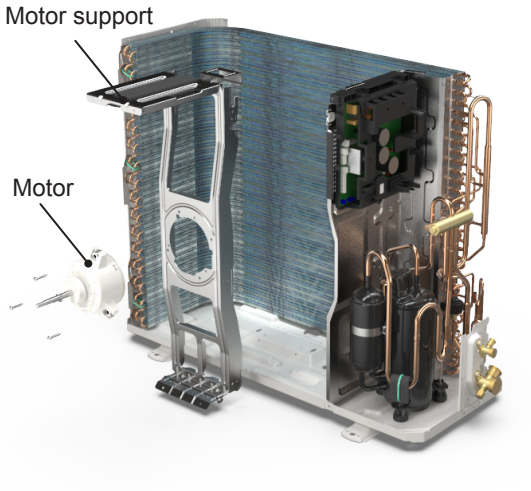
Step	Procedure

07

Remove motor support and motor

Remove the screws fixing the motor support and lift the motor support to remove it.

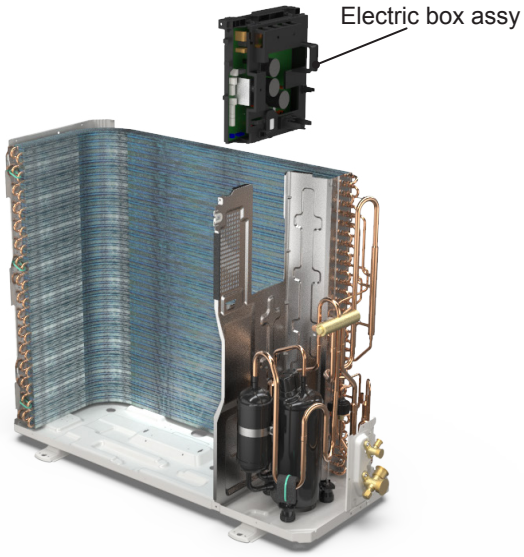
Remove the screws fixing the motor and then remove the motor.



08

Remove electric box assy

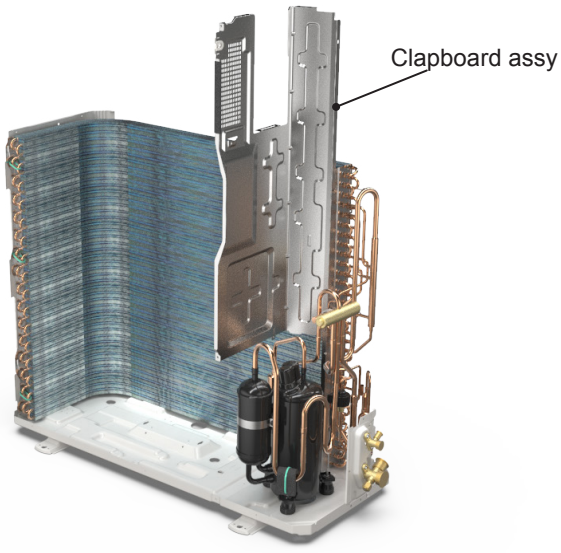
Remove the terminals, lift up and rotate the electrical box assy to the right so that the snaps on the clapboard are removed and the electrical box assy are removed.



09

Remove clapboard assy

Remove the screws fixing the clapboard assy and then remove the clapboard assy.



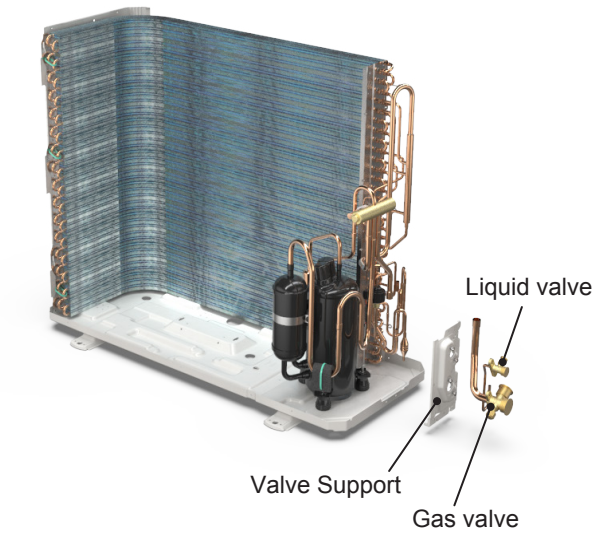
Step	Procedure

10

Remove gas valve and liquid valve

Remove the valve support bolck, remove the screws fixing the gas valve and the liquid valve,unsolder the welding joint connecting the gas valve and the liquid valve, remove them.

Note:
Discharge the refrigerant completely befor unsoldering;
when unsoldering, wrap the gas valve with a wet cloth completely to avoid damage to the valve caused by high temperature.

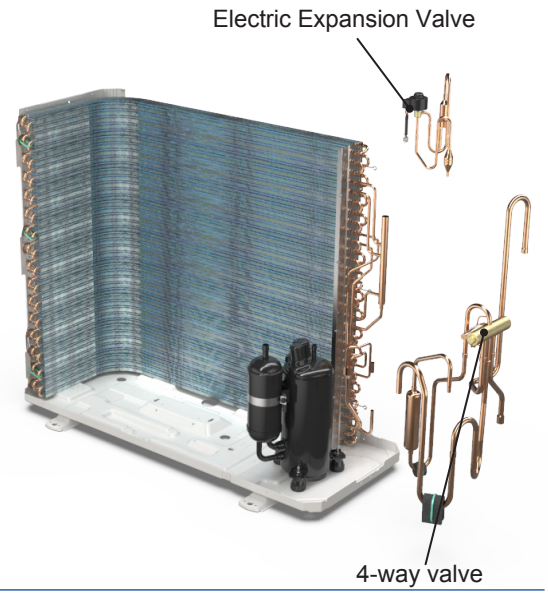


11

Remove 4-way valve and electric expansion valve

Unsolder the welding joints connecting the 4-way valve and electric expansion valve, and then remove them.

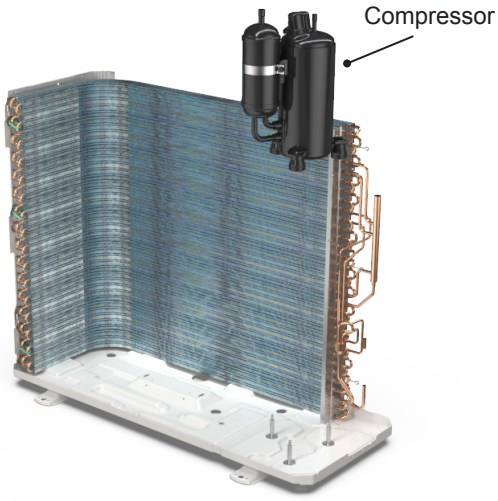
Note:
When unsoldering the spot weld, wrap the electric expansion valve sub-Assy with wet cloth completely to avoid damaging the valve due to high temperature.



12

Remove compressor

Remove the 3 foot nuts on the compressor and then remove the compressor.



Appendix

Appendix 1 Reference Sheet of Celsius and Fahrenheit

Set temperature

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
61	60.8	16
62/63	62.6	17
64/65	64.4	18
66/67	66.2	19
68	68	20
69/70	69.8	21
71/72	71.6	22
73/74	73.4	23
75/76	75.2	24
77	77	25
78/79	78.8	26
80/81	80.6	27
82/83	82.4	28
84/85	84.2	29
86	86	30

Ambient temperature

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
32/33	32	0
34/35	33.8	1
36	35.6	2
37/38	37.4	3
39/40	39.2	4
41/42	41	5
43/44	42.8	6
45	44.6	7
46/47	46.4	8
48/49	48.2	9
50/51	50	10
52/53	51.8	11
54	53.6	12
55/56	55.4	13
57/58	57.2	14
59/60	59	15
61/62	60.8	16
63	62.6	17
64/65	64.4	18
66/67	66.2	19

Fahrenheit display temperature (°F)	Fahrenheit (°F)	Celsius (°C)
68/69	68	20
70/71	69.8	21
72	71.6	22
73/74	73.4	23
75/76	75.2	24
77/78	77	25
79/80	78.8	26
81	80.6	27
82/83	82.4	28
84/85	84.2	29
86/87	86	30
88/89	87.8	31
90	89.6	32
91/92	91.4	33
93/94	93.2	34
95/96	95	35
97/98	96.8	36
99	98.6	37

Appendix 2 Configuration of Connection Pipe

1. Standard length of connection pipe (More details please refer to the specifications.)
2. Min length of connection pipe for the unit with standard connection pipe of 5m, there is no limitation for themin length of connection pipe. For the unit with standard connection pipe of 7.5m and 8m, the min length of connection pipe is 3m.
3. Max. length of connection pipe and max. high difference.(More details please refer to the specifications.)
4. The additional refrigerant oil and refrigerant charging required after prolonging connection pipe
   - After the length of connection pipe is prolonged for 10m at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe.
   - The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):
   - Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See the following sheet.
   - Additional refrigerant charging amount = prolonged length of liquid pipe X additional refrigerant charging amount per meter.

Additional refrigerant charging amount for R32

Piping size		Outdoor unit throttle	
Liquid pipe	Gas pipe	Cooling only	Cooling and heating
1/4"	3/8" or 1/2"	12	16
1/4" or 3/8"	5/8" or 3/4"	12	40
1/2"	3/4" or 7/8"	24	96
5/8"	1" or 1 1/4"	48	96
3/4"	/	200	200
7/8"	/	280	280

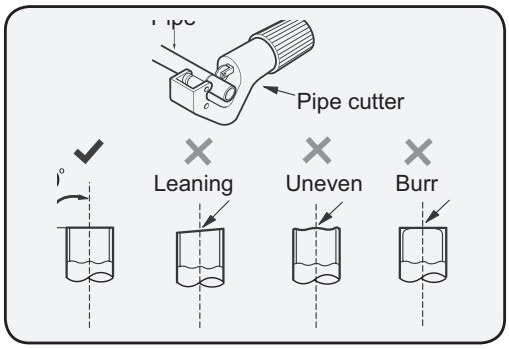
Appendix 3 Pipe expanding method

NOTE:

Improper pipe expanding is the main cause of refrigerant leakage.Please expand the pipe according to the following steps:

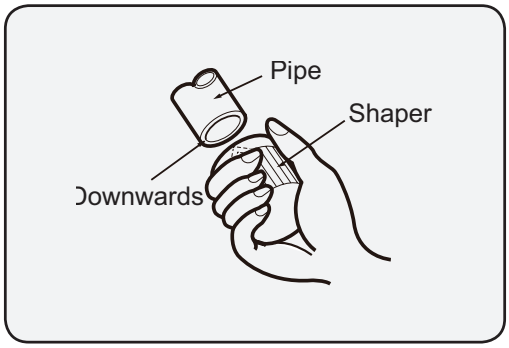
A: Cut the pip

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



B: Remove the burrs

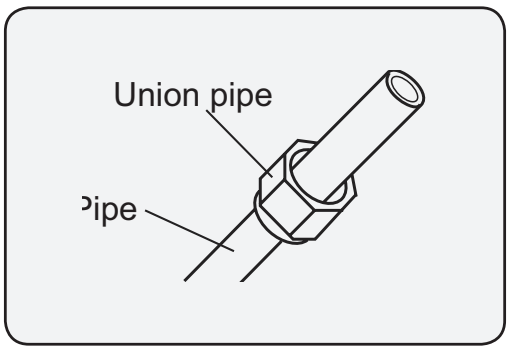
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C: Put on suitable insulating pipe

D: Put on the union nut

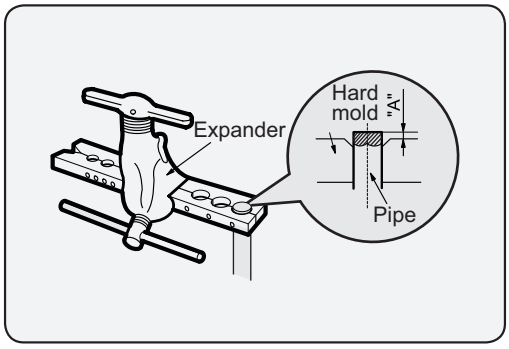
- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



E: Expand the port

- Expand the port with expander.

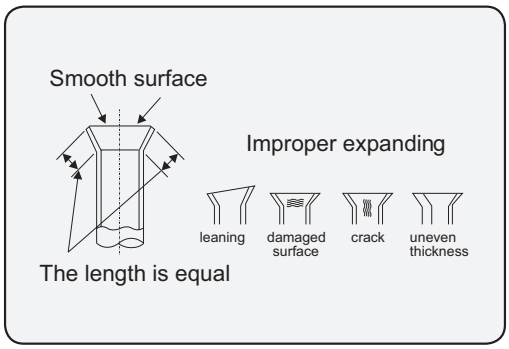
> ⚠ **NOTE:**
>
> "A" is different according to the diameter, please refer to the sheet below:



Outer diameter(mm)	A (mm)	
	Max	Min
Φ6 - 6.35 (1/4")	1.3	0.7
Φ9 - Φ9.52 (3/8")	1.6	1.0
Φ12 - 12.70 (1/2")	1.8	1.0
Φ16 - 15.88 (5/8")	2.4	2.2

F: Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



Appendix 4 List of Resistance for Temperature Sensor

Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor Units (15K)

Temp (°C)	Resistance (kΩ)	Temp (°C)	Resistance (kΩ)
-19	138.10	20	18.75
-18	128.60	22	17.14
-16	115.00	24	15.68
-14	102.90	26	14.36
-12	92.22	28	13.16
-10	82.75	30	12.07
-8	74.35	32	11.09
-6	66.88	34	10.20
-4	60.23	36	9.38
-2	54.31	38	8.64
0	49.02	40	7.97
2	44.31	42	7.35
4	40.09	44	6.79
6	36.32	46	6.28
8	32.94	48	5.81
10	29.90	50	5.38
12	27.18	52	4.99
14	24.73	54	4.63
16	22.53	56	4.29
18	20.54	58	3.99

Resistance Table of Tube Temperature Sensors for Indoor and Outdoor (20K)

Temp (°C)	Resistance (kΩ)
-19	181.40
-15	145.00
-10	110.30
-5	84.61
0	65.37
5	50.87
10	39.87
15	31.47
20	25.01
25	20.00
30	16.10
35	13.04
40	10.62
45	8.71
50	7.17
55	5.94

Temp (°C)	Resistance (kΩ)
60	4.95
65	4.14
70	3.48
75	2.94
80	2.50
85	2.13
90	1.82
95	1.56
100	1.35
105	1.16
110	1.01
115	0.88
120	0.77
125	0.67
130	0.59
135	0.52

Resistance Table of Discharge Temperature Sensor for Outdoor (50K)

Temp (°C)	Resistance (kΩ)	Temp (°C)	Resistance (kΩ)
-30	911.40	50	17.65
-25	660.80	55	14.62
-20	486.50	60	12.17
-15	362.90	65	10.18
-10	274	70	8.56
-5	209	75	7.22
0	161	80	6.13
5	125.10	85	5.22
10	98	90	4.44
15	77.35	95	3.84
20	61.48	100	3.32
25	49.19	105	2.87
30	39.61	110	2.50
35	32.09	115	2.18
40	26.15	120	1.91
45	21.43	125	1.68

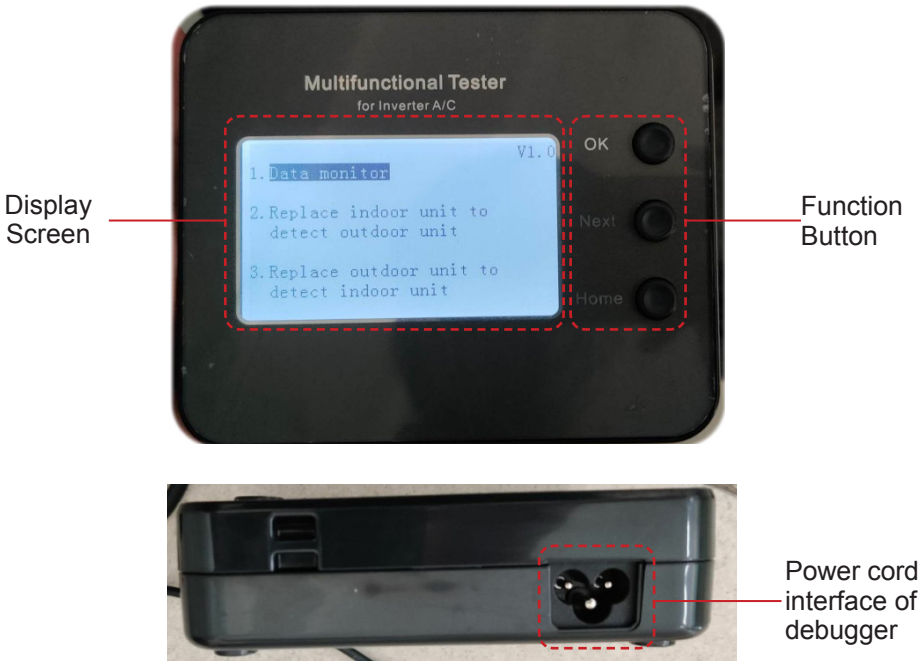
Appendix 5 After-sales debugger operation Instruction

1. Applicable models

Model	Specific types	GT2A3Ac/d Debugger Applicable Models
Split unit	Inverter split unit (IDU power supply)	Applicable
	Inverter split unit (ODU power supply)	Applicable
Floor standing unit	Inverter	Applicable to T-fresh model and new models
Free match	Inverter	Applicable
Fixed frequency communication model	Split unit, T-fresh model and new models	Data monitor function only
NOTE: GT2A3Ac/d debugger is only suitable for 220V models, not for 110V models.		

2. Appearance Introduction

- **Appearance of GT2A3Ac/d debugger**



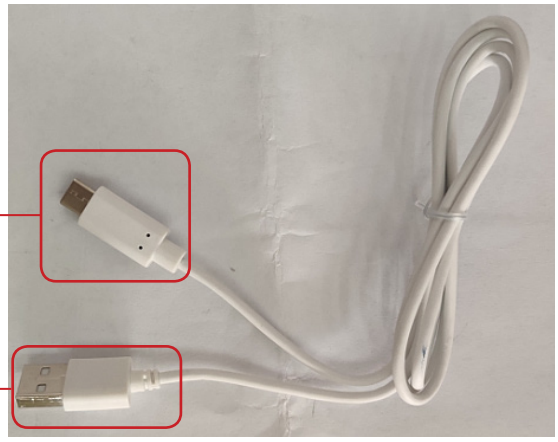
- **Button function description**

(1) OK button: Enter the selected function

(2) Next button: Select a function or turn to another page

(3) Home button: Return or back to the home page


USB interface
of debugger


USB interface
for connecting
debugger
USB interface
for connecting
computer

3. Precautions

- **Be sure to read before use**

(1) All wiring connection should be completed under power off status. Do not connect the debugger when the air conditioner is energized to avoid electric shock.

(2) Before connecting the debugger to the air conditioner, make sure that the residual voltage of the air conditioner is discharged. Use multimeter to test the voltage between live wire and neutral wire, and the voltage between communication wire and neutral wire, the voltage should be 0V. After confirming the safety, connect the debugger and the wire, then power on.

(3) Before removing the debugger from the terminal board, please power off the air conditioner first. Use the multimeter to test whether the voltage between the live line and the neutral line, and the voltage between the communication line and the neutral line are 0V. After the air conditioner is completely powered off, remove the connecting wire of the debugger.

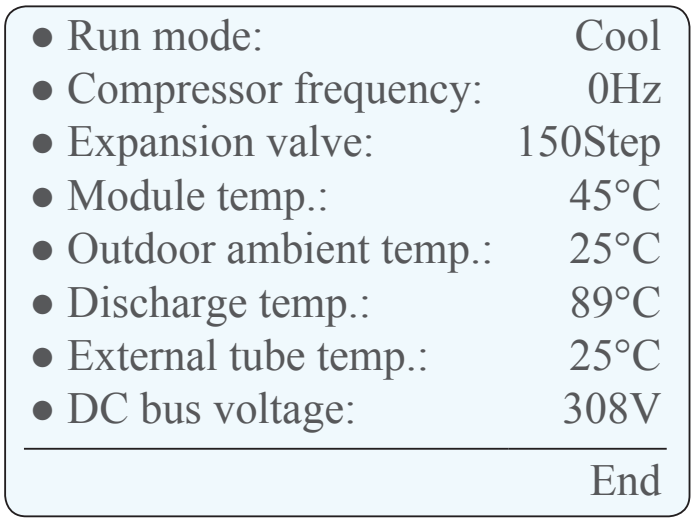
(4) It is necessary to ensure that the wire connection of the debugger is firm, live wire and the neutral wire cannot be reversed, otherwise the data will not be detected and "E6" will be displayed.

(5) Do not use the debugger under severe weather such as thunderstorms, pay attention to moisture proof and water proof, and do not use the debugger under condensed water.

4. Function Introduction

- **Data monitor function**

  This function is mainly used to detect the operating parameters of the whole unit. The display interface is as follows:

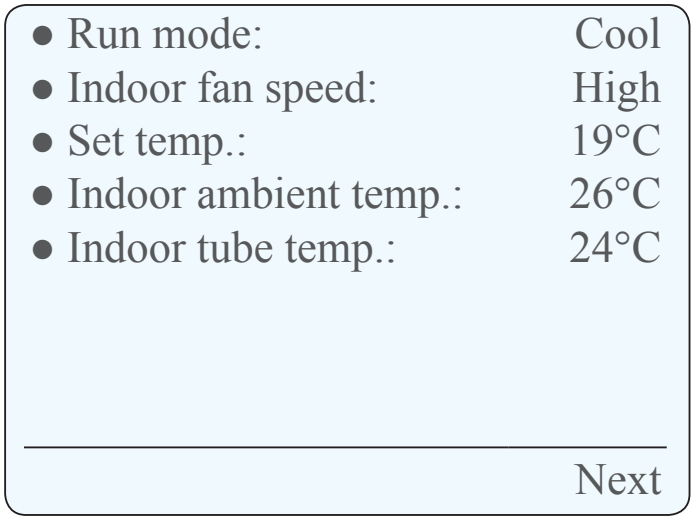


- **Replae the IDU to detect the ODU**

  This function is used to detect the operating status of the ODU, and display the operating parameters of the ODU. If there is a fault, it will display the error code of the ODU.

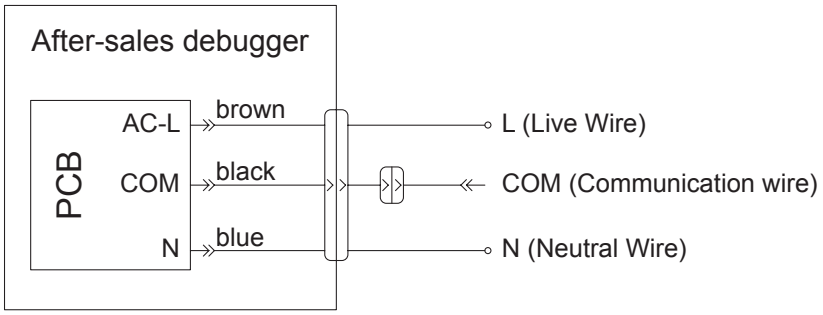
- **Replace the ODU to detect the IDU**

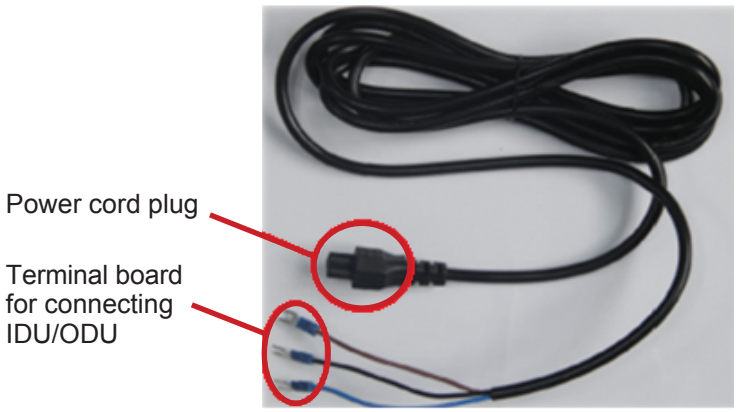
  This function is used to detect the operating status of the IDU, and display the operating parameters of the IDU. If there is a fault, it will display the error code of the IDU.



5. Wiring Instruction

- **Power cord connection instruction of debugger**





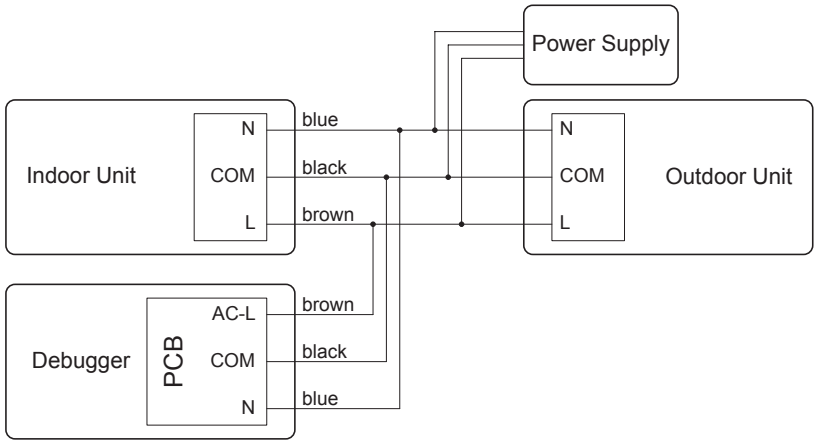
NOTE:

1. The communication line (COM) should be connected to the communication terminal of the indoor unit or the outdoor unit. Some models do not have terminal board on IDU, and the communication wire COM can be connected to the terminal board of ODU.

2. Please connect power only after the wires are properly connected. The neutral wire and live wire must not be reversed. Wires of the debugger must be securely connected to the AC; otherwise, data cannot be detected and E6 will be displayed.

- **Wiring instruction of Data monitor function**

Cut off the power of the air conditioner and make sure that the residual voltage of the air conditioner is discharged. Connect the connection wires of the debugger to the IDU or ODU terminal board in parallel. The connection wires must correspond to each other and cannot be reversed. Power on the whole unit again and enter the Data Detection Function from the debugging interface. The wiring diagram is as follows:



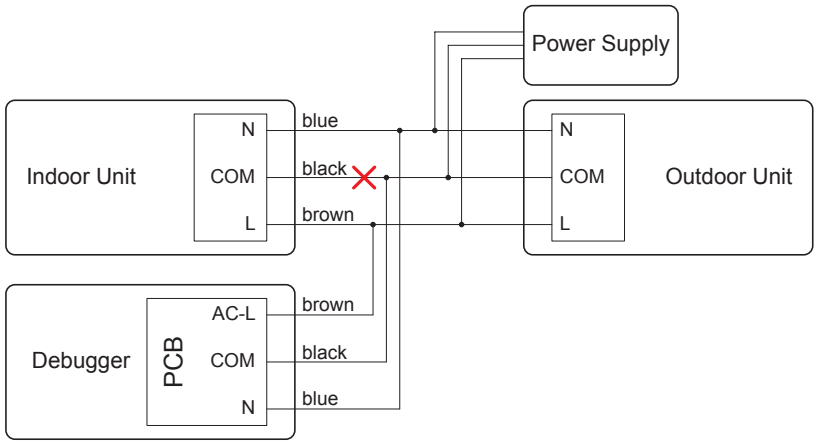
NOTE:

1. Before connecting or disconnecting the wires to the air conditioner, pls cut off the power of the air conditioner and make sure that the residual voltage of the air conditioner is discharged.

2. AC-L connect brown wire, COM connect black wire, N connect blue wire, the wires can not be connected reversely.

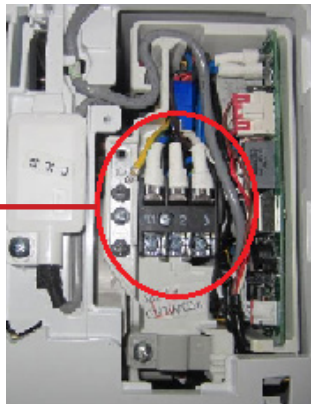
- **Wiring instruction of Replacing the IDU to detect the ODU**

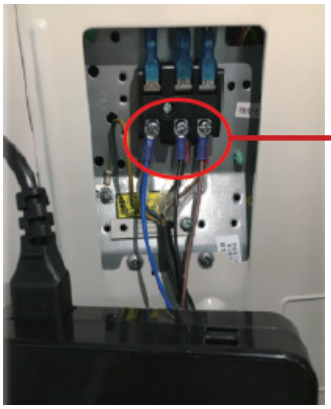
  If selecting the function of Replace the IDU to detect ODU, the debugger is equivalent to an IDU and will detect whether the ODU is abnormal. when using this function, disconnect the communication wire of the IDU and connect the communication wire of the debugger with the communication wire of ODU.



The power cord of the debugger can be connected to the terminal board of the IDU or the ODU. Note that the communication wire(black wire) of the IDU main board must be disconnected from the terminal board. As shown below:

When the debugger is connected to the IDU terminal board, the COM communication wire (black) of IDU must be disconnected.





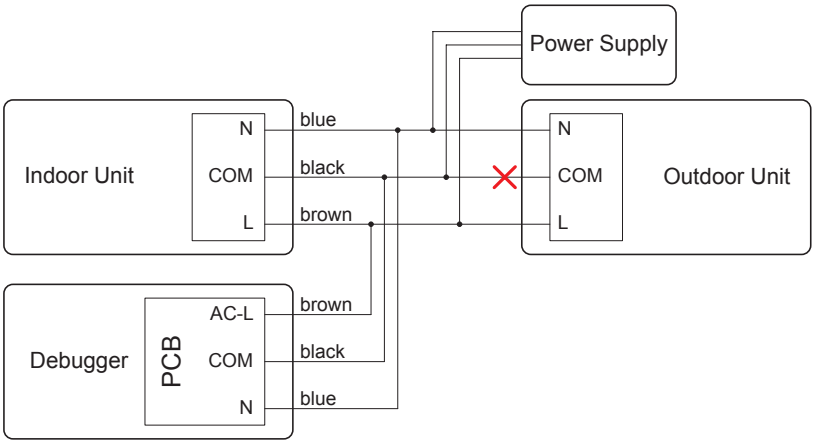
If the debugger is connected to the ODU terminal board, the communication wire of the IDU must also be disconnected.

NOTE:

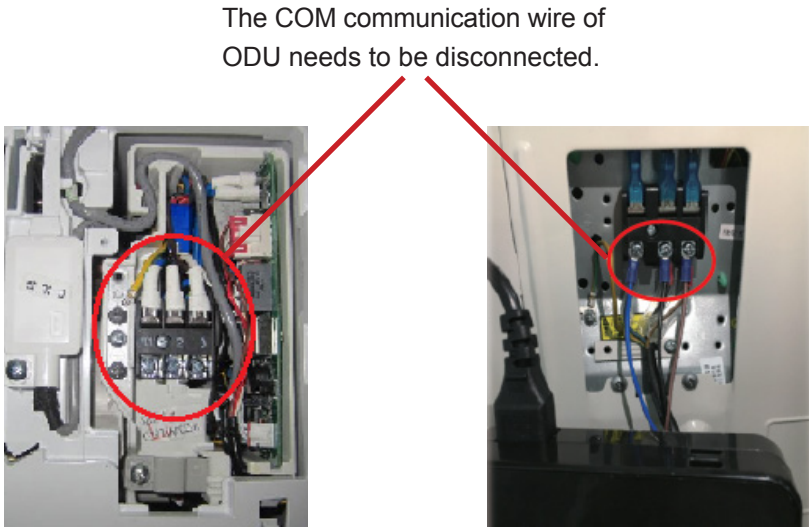
1. Before connecting or disconnecting the wires to the air conditioner, please cut off the power of the air conditioner and make sure that the residual voltage of the air conditioner is discharged.
2. AC-L connect brown wire, COM connect black wire, N connect blue wire, the wires can not be connected reversely.
3. It is only used to let the ODU run for a short time for troubleshooting, and it should not run for more than 10 minutes.

- **Wiring instruction of Replacing the ODU to detect the IDU**

  If selecting the function of **Replace the ODU to detect IDU**, the debugger is equivalent to an ODU and will detect whether the IDU is abnormal. when using this function, disconnect the communication wire of the ODU and connect the communication wire of the debugger with the communication wire of IDU.



The power cord of the debugger can be connected to the terminal board of the IDU or the ODU. Note that the communication wire (black wire) of the ODU must be disconnected from the terminal board. As shown below:

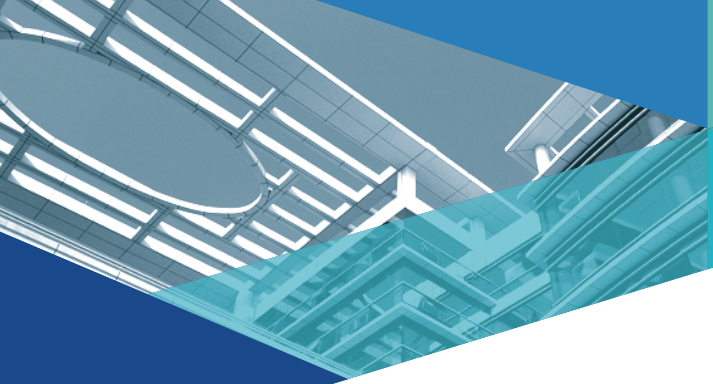


NOTE:

1. Before connecting or disconnecting the wires to the air conditioner, please cut off the power of the air conditioner and make sure that the residual voltage of the air conditioner is discharged.

2. AC-L connect brown wire, COM connect black wire, N connect blue wire, the wires can not be connected reversely.

3. For free match models, it need to replace and connect the IDU one by one for troubleshooting.



For product improvement, specifications and appearance in this manual are subject to change without prior notice.

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