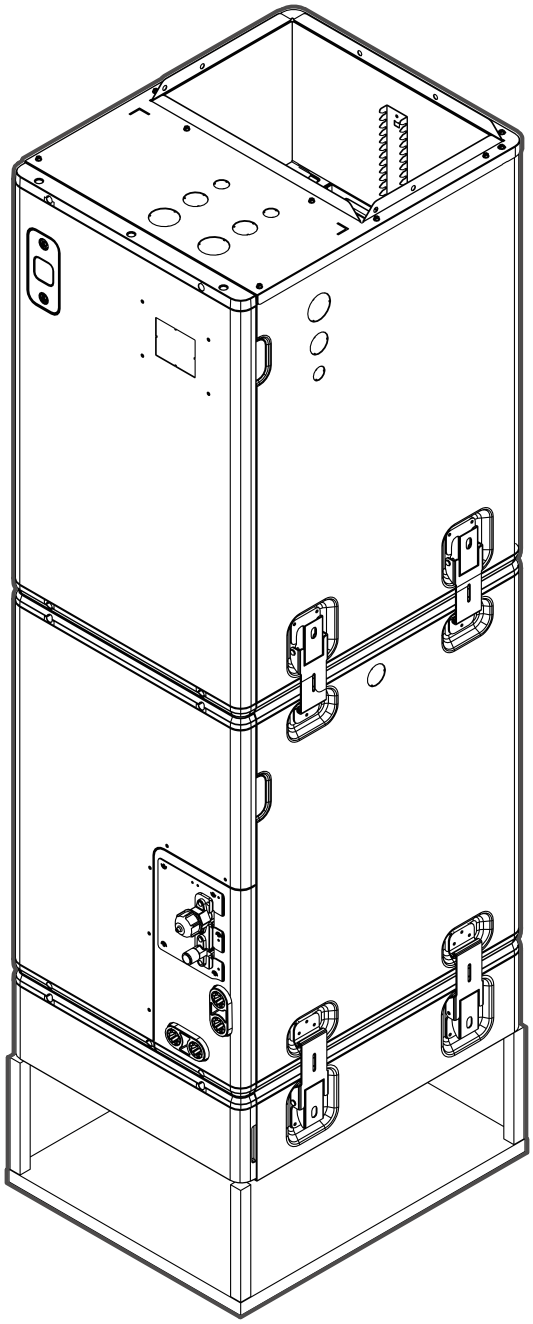
Service Manual
Air Handler

EVOX G³ XTREME HEAT

For 18,000 - 60,000 BTU Systems



Units Covered In This Manual

SYSTEM TONS	BTUH	VOLTAGE/ PHASE	AIR HANDLER MODEL
1.5	18,000	115/208/230-1	MAUSE-H18B-2A
2.0	24,000	115/208/230-1	MAUSE-H24B-2A
2.5	30,000	115/208/230-1	MAUSE-H30B-2A
3.0	36,000	115/208/230-1	MAUSE-H36B-2A
4.0	48,000	115/208/230-1	MAUSE-H48B-2A
5.0	60,000	115/208/230-1	MAUSE-H60B-2A

A2L

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Safety Precautions

To prevent personal injury, property, or unit damage, adhere to all precautionary measures and instructions outlined in this manual. Before servicing a unit, refer to this service manual and its relevant sections.
Failure to adhere to all precautionary measures listed in this section may result in personal injury, damage to the unit or property, or in extreme cases, death.

⚠ WARNING

WARNING indicates a potentially hazardous situation that if not avoided could result in serious personal injury or death.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation which if not avoided could result in minor or moderate personal injury, or unit damage.

NOTE

A property-damage-only hazard, meaning no personal injury is possible.

IMPORTANT

Is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

IMPORTANT

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Have a fire extinguisher available. Consult local building codes and the current editions of the National Electrical Code (NEC) NFPA 70.

IMPORTANT

In Canada, refer to the current editions of the Canadian Electrical Code CSA C22.1. Follow the safety information.

⚠ WARNING

ELECTRICAL WARNINGS

- Only use the specified wire. If the wire is damaged, it must be replaced by the manufacturer, service agent, or similarly qualified persons to avoid a hazard.
- The product must be properly grounded at the time of repair, or electric shock may occur.
- For all electrical work, follow all local and national wiring standards, regulations, and the Installation Manual. Connect cables tightly, and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections can overheat, cause fire, and may also cause shock. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
- All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.
- Disconnection must be incorporated in the fixed wiring in accordance with the NEC, CEC, or local codes.
- **DO NOT** share the electrical outlet with other appliances. The unit must be installed on a dedicated electrical circuit.

⚠ WARNING

WARNINGS FOR PRODUCT INSTALLATION

- Turn off the air conditioner and disconnect the power before performing any installation or repairs. Failure to do so can cause electric shock.
- Installation must be performed by an authorized dealer or specialist according to the installation instructions. Improper installation can cause water damage, electrical hazards, or fire. Contact an authorized service technician for repair or maintenance.
- This appliance shall be installed in accordance with national wiring regulations. Only use the included accessories, parts, and specified parts for installation.
- Using non-standard parts can cause water leakage, electrical shock, and fire, and can cause the unit to fail.
- Install the unit in a firm location that can support the unit's weight. If the chosen location cannot support the unit's weight, or the installation is not done properly, the unit may drop and cause serious injury and damage.
- Install drainage piping according to the instructions in this manual. Improper drainage may cause water damage to your home and property.
- For units that have an auxiliary electric heater, do not install the unit within 3 ft. (1 m) of any combustible materials.
- For the units that have a wireless network function, USB device access, replacement, and maintenance operations must be carried out by professional staff.
- Do not install the unit in a location that may be exposed to combustible gas leaks. **If combustible gas accumulates around the unit, it may cause fire.**
- Do not turn on the power until all work has been completed.
- **When moving or relocating the air conditioner**, consult experienced service technicians for disconnection and reinstallation of the unit.

⚠ WARNING

WARNINGS FOR CLEANING AND MAINTENANCE

- Turn off the device and disconnect the power before cleaning. Failure to do so can cause electrical shock.
- Do not clean the air conditioner with excessive amounts of water.
- Do not clean the air conditioner with combustible cleaning agents. Combustible cleaning agents can cause fire or deformation.

⚠ WARNING

USING FLAMMABLE REFRIGERANT

1. Installation (Space)
   - That the installation of pipe work shall be kept to a minimum.
   - That pipe work shall be protected from physical damage.

- Where refrigerant pipes shall comply with national gas regulations.
- That mechanical connections shall be accessible for maintenance purposes.
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- When disposing of the used product, it must be based on national regulations, and properly processed.

2. Servicing
   - Any person who is involved with working on or breaking into a refrigerant circuit should hold a currently valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely following an industry-recognized assessment specification.
3. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of a person competent in the use of flammable refrigerants.
4. Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
5. 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).
6. Be careful that foreign matter(oil, water,etc) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc.
7. Do not pierce or burn.
8. Be aware that refrigerants may not contain an odor.
9. All working procedures that affect safety means shall only be carried out by competent technicians.
10. Appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
11. The appliance shall be stored to prevent mechanical damage from occurring.
12. Joints shall be tested with detection equipment with a capability of 5 g/year of refrigerant or better, with the equipment in standstill and under operation or pressure of at least these standstill or operation conditions after installation. Detachable joints shall NOT be used in the indoor side of the unit (brazed, welded joints could be used).

Information servicing (For flammable materials)

1. Installation (where refrigerant pipes are allowed)
- 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 authorizes their competence to handle refrigerants safely in accordance with an industry-recognized assessment specification.
- 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.
- That the installation of pipe work shall be kept to a minimum.
- That pipe work shall be protected from physical damage.
- Where refrigerant pipes shall comply with national gas regulations.
- That mechanical connections shall be accessible for maintenance purposes.
- Be more careful that foreign matter (oil, water, etc.) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc.
- All working procedures that affect safety means shall only be carried out by competent technicians.
- Appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- Joints shall be tested with detection equipment with a capability of 5 g/year of refrigerant or better, with the equipment in a standstill and under operation or under pressure of at least these standstill or operation conditions after installation. Detachable joints should NOT be used on the indoor side of the unit (brazed, welded joints could be used).
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.
- LEAK DETECTION SYSTEM installed. The unit must be powered except for service.
- For the unit with a refrigerant sensor, when the refrigerant sensor detects refrigerant leakage, the indoor unit will display an error code and emit a buzzing sound, the compressor of the outdoor unit will immediately stop, and the indoor fan will start running. The service life of the refrigerant sensor is 15 years. When the refrigerant sensor malfunctions, the indoor unit will display the error code "FHCC".
- The refrigerant sensor cannot be repaired and can only be replaced by the manufacturer. It shall only be replaced with the sensor specified by the manufacturer.

2. When a FLAMMABLE REFRIGERANT is used, the requirements for installation space of appliance and/or ventilation requirements are determined according to
- the mass charge amount (M) used in the appliance,
- the installation location,
- the type of ventilation of the location or the appliance.
- piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and comply with national and local codes and standards, such as ASHRAE 15, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection before being covered or enclosed.
- that protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris;
- that piping in refrigeration systems shall be so designed and installed to minimize the likelihood of hydraulic shock damaging the system;
- that steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation;
- that precautions shall be taken to avoid excessive vibration or pulsation;

- the minimum floor area of the room shall be mentioned in the form of a table or a single figure without reference to a formula;
- after completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested before refrigerant charging, according to the following requirements:
  a. The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system can not be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.
  b. The test pressure after removal of the pressure source shall be maintained for at least 1 h with no decrease of pressure indicated by the test gauge, with test gauge resolution not exceeding 5% of the test pressure.
  c. During the evacuation test, after achieving a vacuum level specified in the manual or less, the refrigeration system shall be isolated from the vacuum pump and the pressure shall not rise above 1500 microns within 10 min. The vacuum pressure level shall be specified in the manual and shall be the lessor of 500 microns or the value required for compliance with national and local codes and standards, which may vary between residential, commercial, and industrial buildings.
- field-made refrigerant joints indoors shall be tightness tested according to the following requirements: The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected.

3 . Qualification of workers

Any maintenance, service, and repair operations must require the qualification of the working personnel. Every working procedure that affects safety means shall only be carried out by competent technicians who joined the training and achieved competence should be documented by a certificate. The training of these procedures is carried out by national training organizations or manufacturers that are accredited to teach the relevant national competency standards that may be set in legislation. All training shall follow the ANNEX HH requirements of UL 60335-2-40 4th Edition.

Examples of such working procedures are:

- breaking into the refrigerating circuit;
- opening of sealed components;
- opening of ventilated enclosures.

4. Checks to the area

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

5. Work procedure

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

6. General work area

All maintenance staff and others working in the local area should be instructed on the nature of the work being carried out. Work in confined spaces shall be avoided.

7. Checking for the presence of refrigerant

The area should be checked with an appropriate refrigerant detector before and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. no sparking, adequately sealed or intrinsically safe.

8. Presence of fire extinguisher

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

9. No ignition sources

No person carrying out work on 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 a fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repair, removal, and disposal, during which refrigerant can be released into the surrounding space. Before work takes 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.

10. 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.

11. Check the refrigeration 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 circuits shall be checked for the presence of refrigerant;
- marking to the equipment continues to be visible and legible, marking and illegible signs shall be corrected;
- refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance that may corrode refrigerant-containing components unless the components are constructed of materials that are inherently resistant to being corroded or are suitably

protected against being so corroded.

12. Checks to electrical devices

Repair and maintenance of 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 it is necessary to continue operation, and 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 safely to avoid the 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;

Sealed electrical components shall be replaced if it's damaged; Intrinsically safe components must be replaced if it's damaged.

13. Wiring

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.

14. Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the search 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 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 leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (using shut-off valves) in a part of the system remote from the leak. See the following instructions for the removal of refrigerant.

15. 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 best practice must be 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 a flame to open the circuit; and open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerant purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to the 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.

16. Charging procedures

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

- Works shall be undertaken with appropriate tools only (In case of uncertainty, please consult the manufacturer of the tools for use with flammable refrigerants) Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Ensure that the refrigeration system is earthed before charging the system with refrigerant.
- Label the system when charging is complete(if not already). Extreme care shall be taken not to overfill the refrigeration system.
- Before recharging the system, it shall be pressure tested with oxygen-free nitrogen (OFN). The system shall be leak tested on completion of charging but before commissioning. A follow-up leak test shall be carried out before leaving the site.

17. Decommissioning

Before carrying out this procedure, the technician must be completely familiar with the equipment and all its details. It is recommended good practice that all refrigerants are

recovered safely. Before the task is carried out, an oil and refrigerant sample shall be taken in case analysis is required before the re-use of recovered refrigerant. Electrical power must be available before the task commences.

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 the 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 the cylinder is situated on the scales before recovery takes place.
g. Start the recovery machine and operate following 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 the site promptly and all isolation valves on the equipment are closed off.
k. Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

18. Labelling

Equipment shall be labeled stating that it has been de-commissioned 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.

19. 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 labeled for that refrigerant (i. e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valves 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 the flammable refrigerant. If in doubt, the manufacturer should be consulted. 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.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units 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 compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

20. Unventilated areas

- An unventilated area where the appliance using FLAMMABLE REFRIGERANTS is installed shall be so constructed that should any refrigerant leak, it will not stagnate to create a fire or explosion hazard.
- If appliances connected via an air duct system to one or more rooms with A2L REFRIGERANTS are installed in a room with an area less than Amin, that room shall be without continuously operating open flames (e.g. an operating gas appliance) or other POTENTIAL IGNITION SOURCES (e.g. an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest.
- Auxiliary devices which may be a POTENTIAL IGNITION SOURCE shall not be installed in the duct work. Examples of such POTENTIAL IGNITION SOURCES are hot surfaces with a temperature exceeding 700 °C and electric switching devices.
- Only auxiliary devices (such as certificated heater kits) approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork.
- For duct-connected appliances, false ceilings or drop ceilings may be used as a return air plenum if a REFRIGERANT DETECTION SYSTEM is provided in the appliance and any external connections are also provided with a sensor immediately below the return air plenum duct joint.
- REFRIGERANT SENSORS for REFRIGERANT DETECTION
- SYSTEMS Shall Only be replaced with sensors specified by the appliance manufacturer.
- LEAK DETECTION SYSTEM installed. The unit must be powered except for service.

21. Transportation, marking, and storage for units that employ flammable refrigerants

a. **General** - The following information is provided for units that employ FLAMMABLE REFRIGERANTS.
b. **Transport of equipment containing flammable refrigerants** - Attention is drawn to the fact that additional transportation regulations may exist concerning equipment containing flammable gas. The maximum number of pieces of equipment or the configuration of the equipment permitted to

be transported together will be determined by the applicable transport regulations.

- Cylinders shall be kept upright.

c. **Marking of equipment using signs -** Signs for similar appliances used in a work area are generally addressed by local regulations and give the minimum requirements for the provision of safety and/or health signs for a work location.

All required signs are to be maintained, and employers should ensure that employees receive suitable and sufficient instruction and training on the meaning of appropriate safety signs and the actions that need to be taken in connection with these signs.

The effectiveness of signs should not be diminished by too many signs being placed together.

Any pictograms used should be as simple as possible and contain only essential details.

d. **Disposal of equipment using flammable refrigerants See national regulations.**

e. **Storage of equipment/appliances -** The storage of the appliance should be following the applicable regulations or instructions, whichever is more stringent.

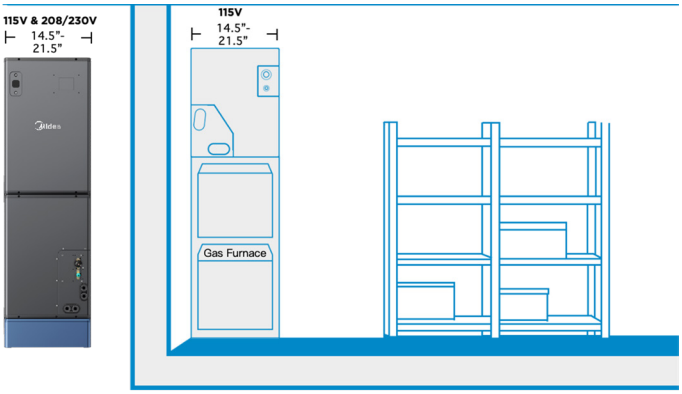
f. **Storage of packed (unsold) equipment -** Storage package protection should be constructed in such a way that mechanical damage to the equipment inside the package will not cause a leak of the REFRIGERANT CHARGE.

The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

Features

Innovative Modular Design

- Screwless connection enables the installers to assemble and dissemble easily during installation.



- Slim body is especially friendly for attic space with upstairs & downstairs and narrow entrance.

- Modular design and smaller pieces enable one-man operation.

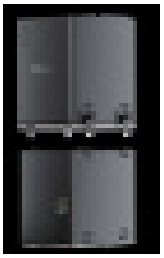
- Allows lowboy installation position that has flexible requirements for installation spaces.

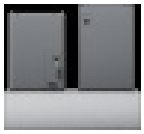
Symmetric Fan Blower Design

- Optimized structure to enhance airflow circulation for even airflow circulation and higher efficiency.

Simplify the Installation Process

- Just rotate and move two modules to fit different installation styles, no need to reconfigure the coil.





- Easy to do the lowboy style without cutting the unit.

Computational Constant Airflow

- Computational Constant Airflow technology enables airflow to automatically adapt to the existing ductwork design or issues caused by blocked coils, dirty filters, and improper duct sizing. This is done by adjusting output power and fan speeds. Even with no call for heating or cooling, the Computational Constant Airflow technology will still work to ensure optimal airflow.
- The upgraded Computational Constant Airflow technology also offers flexibility to adjust air volume according to the customers' personal needs. All the adjustments can be made easily through the "Engineer Mode" on the remote control/wired controller.

Dimension Drawing

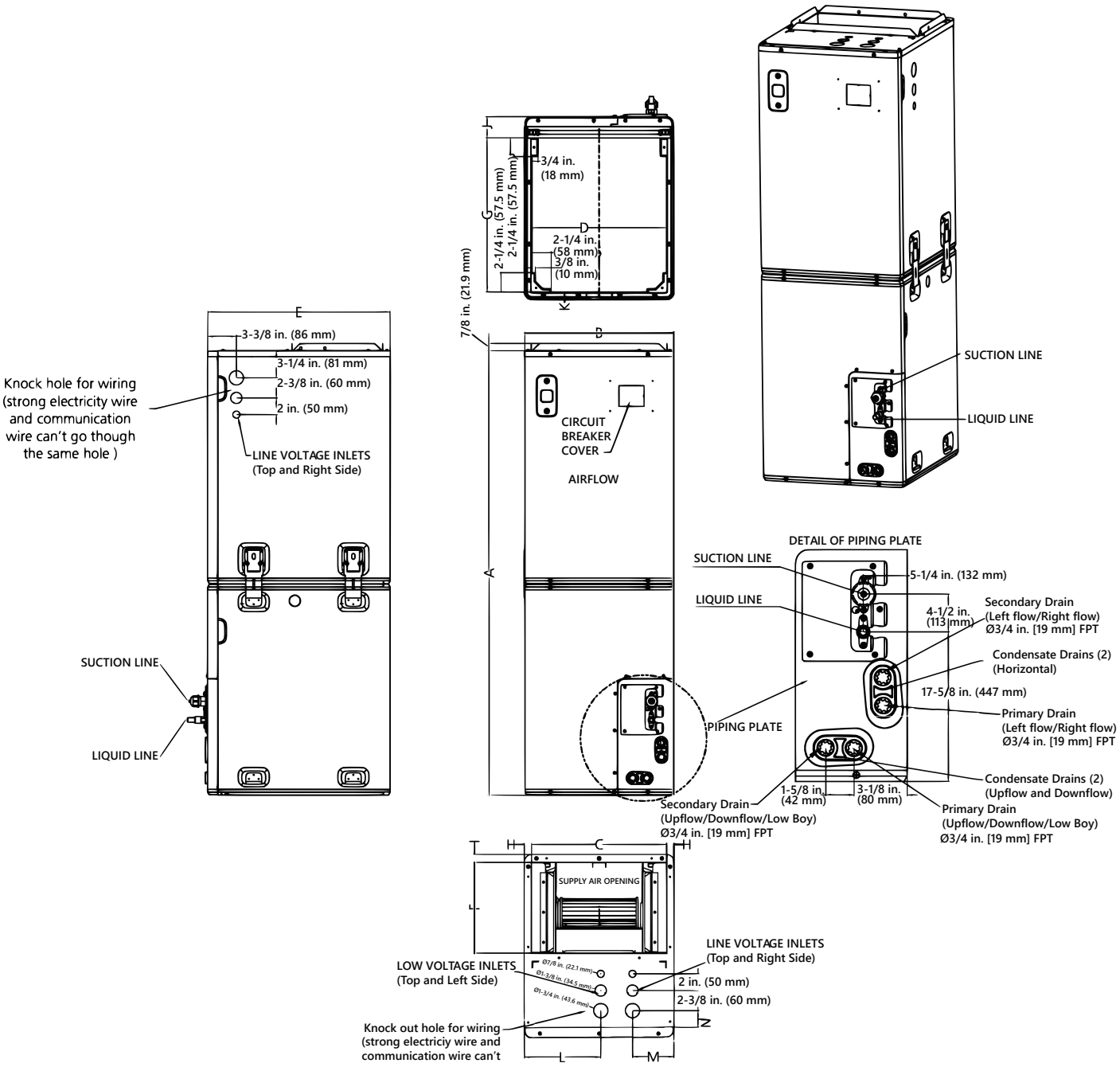


Fig. D-1: Unit Dimensions

Table D-1: Dimensions

Callout	Callout Description	Model					
		18k/24k		30k/36k		48k/60k	
		Dimensions					
		inch	mm	inch	mm	inch	mm
A	Model Height	48-1/8	1,222	52-3/8	1,330	54-3/8	1,380
B	Model Width	14-1/2	368	17-1/2	445	21-1/2	546
C	Supply Air Opening Width	12-7/8	330	16	407	20	508
D	Return Air Opening Width	12-13/16	326	15-7/8	402	19-7/8	504
E	Model Depth	21-1/2	546	21-1/2	546	21-1/2	546
F	Supply Air Opening Depth	10-1/4	273	10-1/4	273	10-1/4	273
G	Return Air Opening Depth	18-1/8	461	18-1/8	461	18-1/8	461
H	Supply Air Opening Clearance	7/8	22	7/8	22	7/8	22
I	Supply Air Opening Clearance	1	24	1	24	1	24
J	Return Air Opening Front Clearance	2-1/2	64	2-1/2	64	2-1/2	64
K	Return Air Opening Back Clearance	7/8	23	7/8	23	7/8	23
L		/	/	9	229	10-7/8	275
M		4-1/2	113	4-7/8	124	5-1/8	131
N		2	51	2	51	1-5/8	41

Product Names And Functions

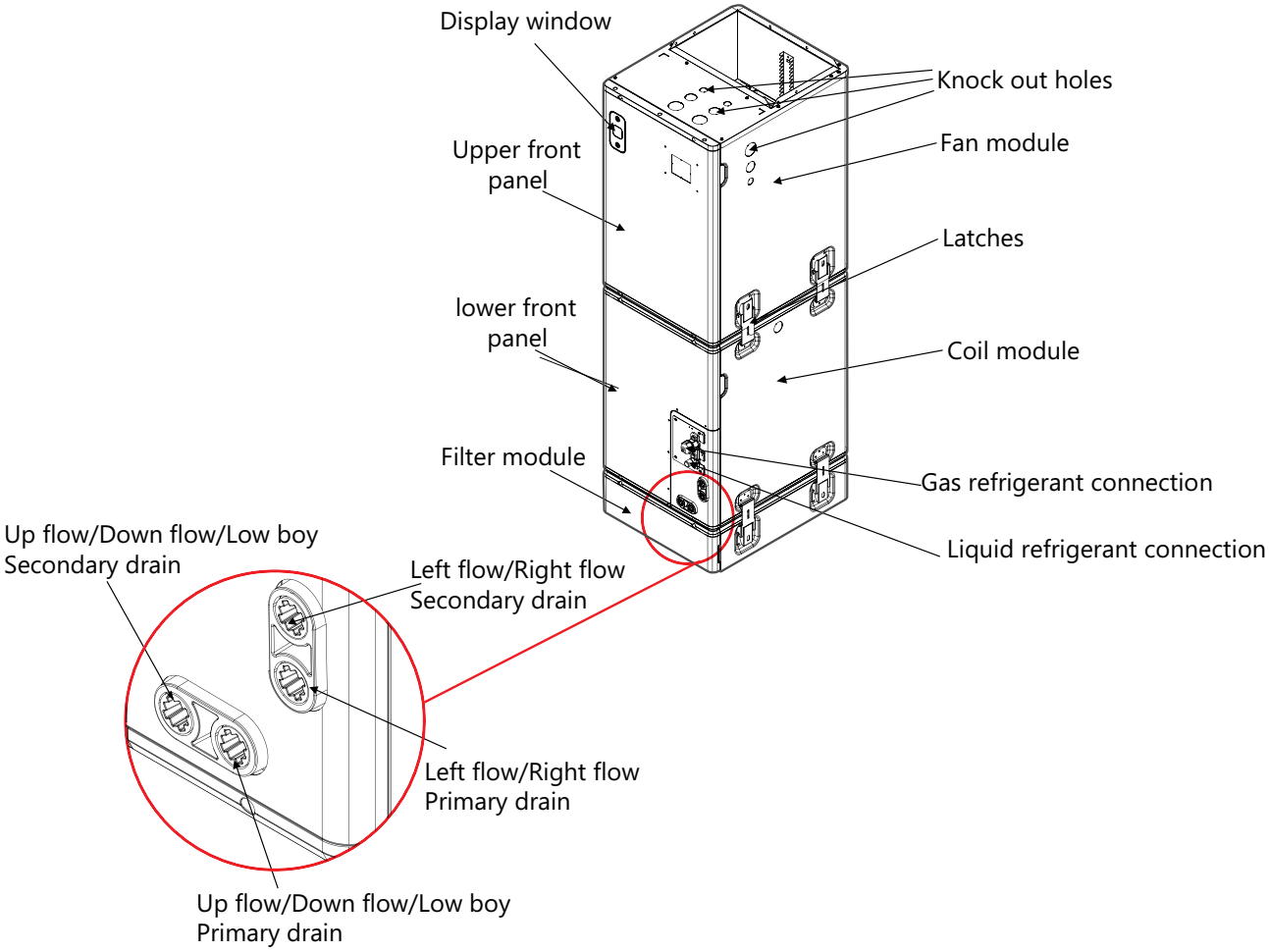


Fig. P-1: External Component Location

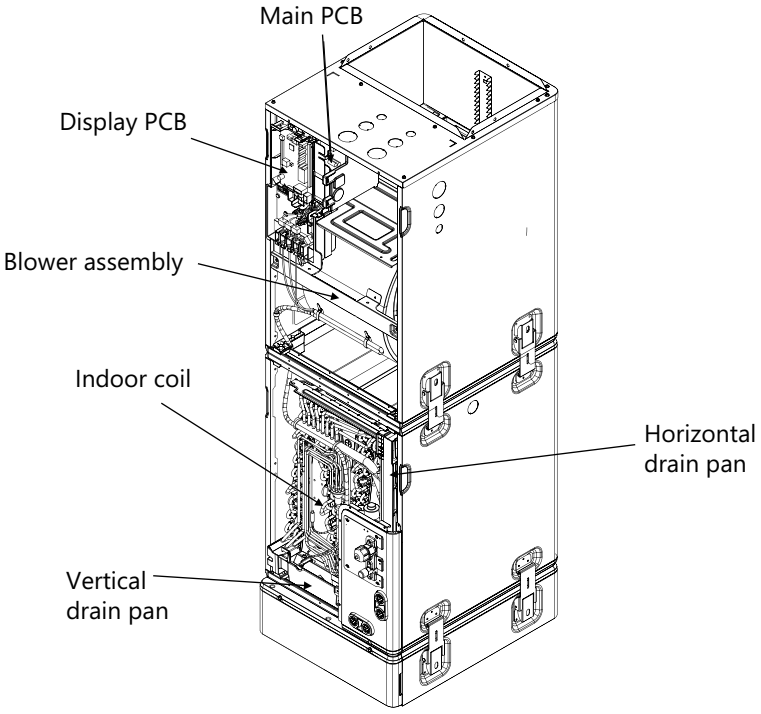


Fig. P-2: Internal Component Location

Service Clearances

The distance between the mounted indoor unit should meet the specifications illustrated in the following diagram.

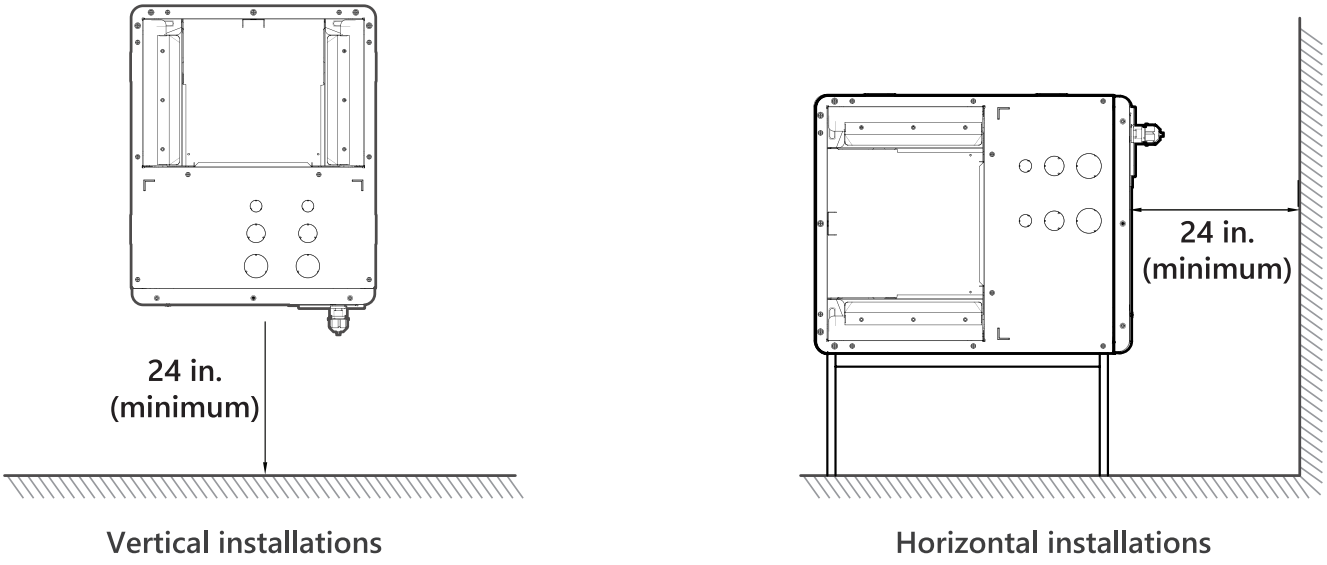


Fig. SC-1: Clearance Dimensions

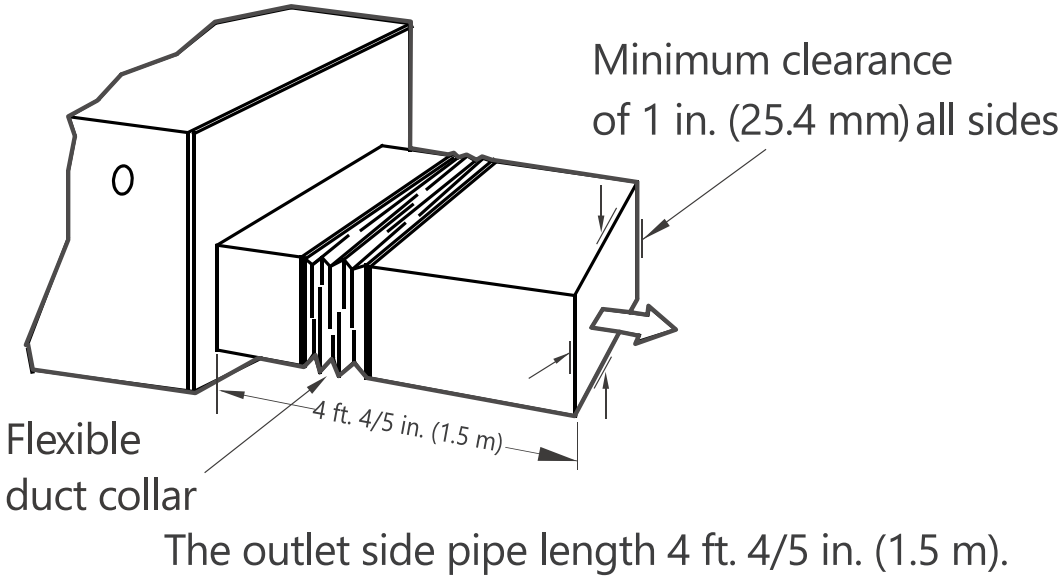


Fig. SC-2: Duct Clearances

Accessories

The system is shipped with the following accessories. Use all the installation parts and accessories to install the system. Improper installation may result in water leakage, electrical shock, and fire, or cause the equipment to fail. Keep the installation manual in a safe place and do not discard any other accessories until the installation work has been completed.

Table A-1: Included Accessories

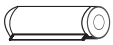
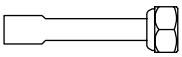
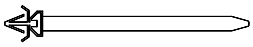
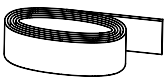
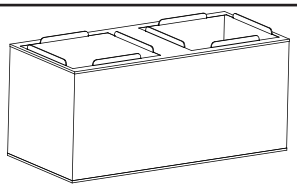
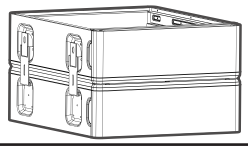
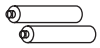
QTY.	Part Name	Part Image
2	Manual	
4	Cable ties (type A)	
2	Insulation sleeve	
2	Flare nut	
2	Braze to flare adapter	
2	Reusable zip ties (type B)	
1	Insulation tape	
1	Adapter cable	

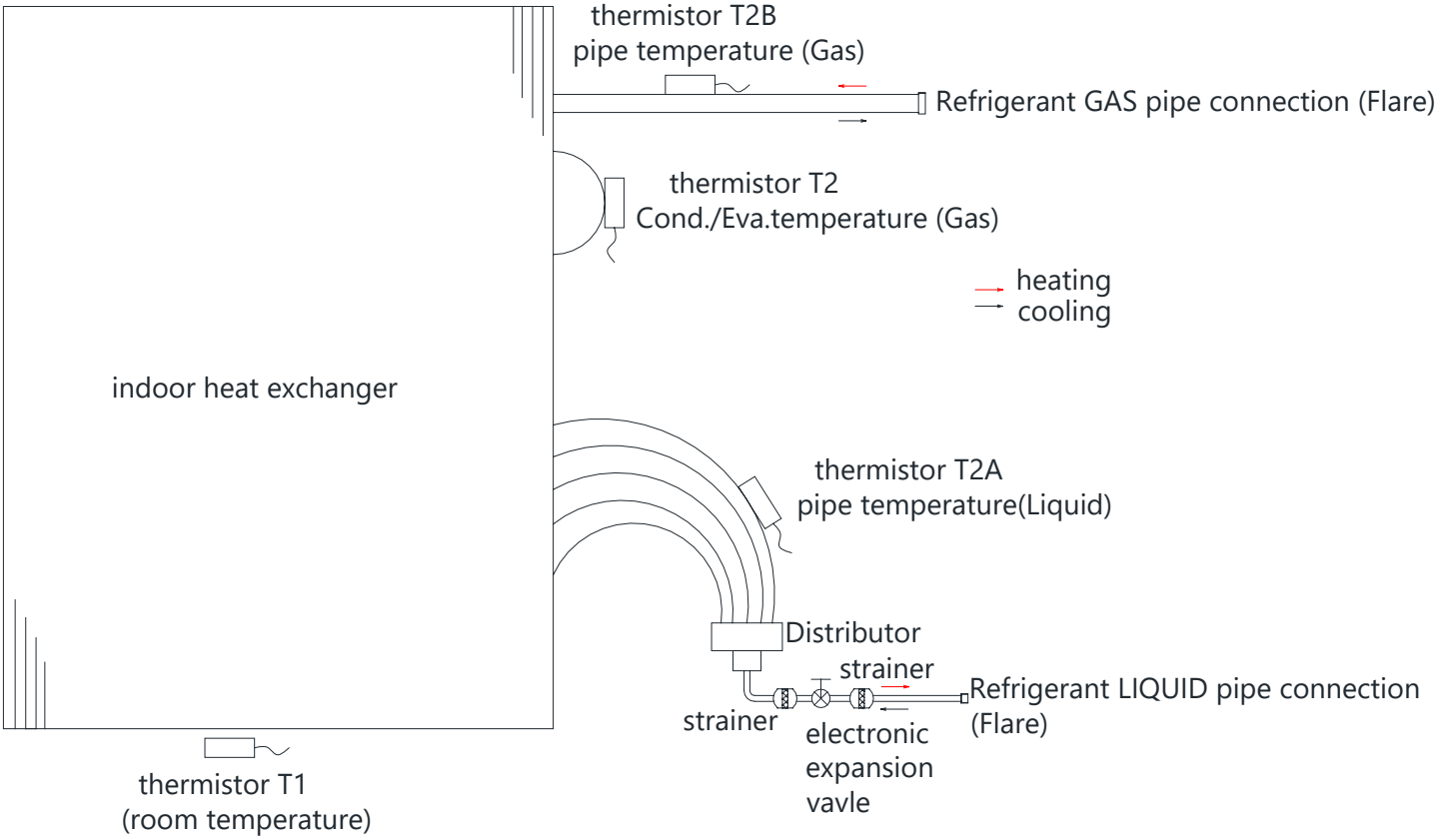
Table A-2: Optional Accessories

Part Name	Part Image
Lowboy Plenum Box	
Lowboy Filter Box Kit (Type A and Type B)	
Remote control	
Remote control holder	
Battery	
Wired remote control	

NOTE

The wired system control functions as an IR receiver for the handheld remote, if the remote is not used it must be retained with the indoor unit to adjust parameters, and for troubleshooting.

Refrigerant System Diagram



Electrical Wiring Engineering

⚠ CAUTION

Electrical Wiring Precautions

- A qualified electrician should finish all field wiring construction.
- Air conditioning equipment should be grounded according to local electrical regulations.
- A current leakage protection switch should be installed.
- Do not connect the power wire to the terminal of the signal wire.
- When the power wire is parallel with the signal wire, put wires in a separate wire tube and remain at least 11.8 in. /300 mm gap.
- According to the table in the indoor part named "the specification of the power" to choose the wiring, make sure the selected wiring is not smaller than the data shown in the table.
- Select different colors for different wires according to relevant regulations.

24 V Terminal Guide

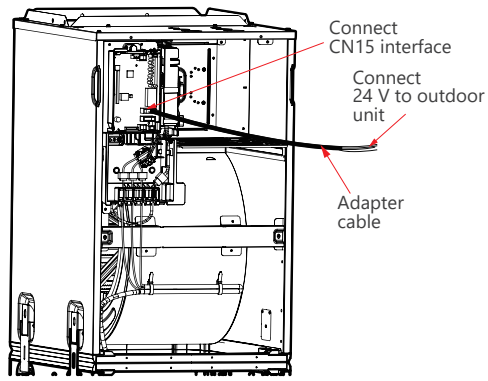
- Do not use metal wire tubes in a place with acid or alkali corrosion, use a plastic wire tube to replace it.
- There must be no wire connect joint in the wire tube. If the joint is a must, set a connection box at the place.
- The wiring with different voltages should not be in one wire tube.
- Ensure that the color of the wires of the outdoor and terminal No. are the same as those of indoor units respectively.

Electrical Wiring Diagrams

Capacity (Btu/h)	IDU Wiring Diagram
18k	16023000014872
24k	
30k	
36k	
48k	
60k	

NOTE

The adapter cable must be used when applying the full 24 V communication scheme. This will stop the operation of the outdoor unit for safety if refrigerant leakage happens.



24 V Terminal Guide

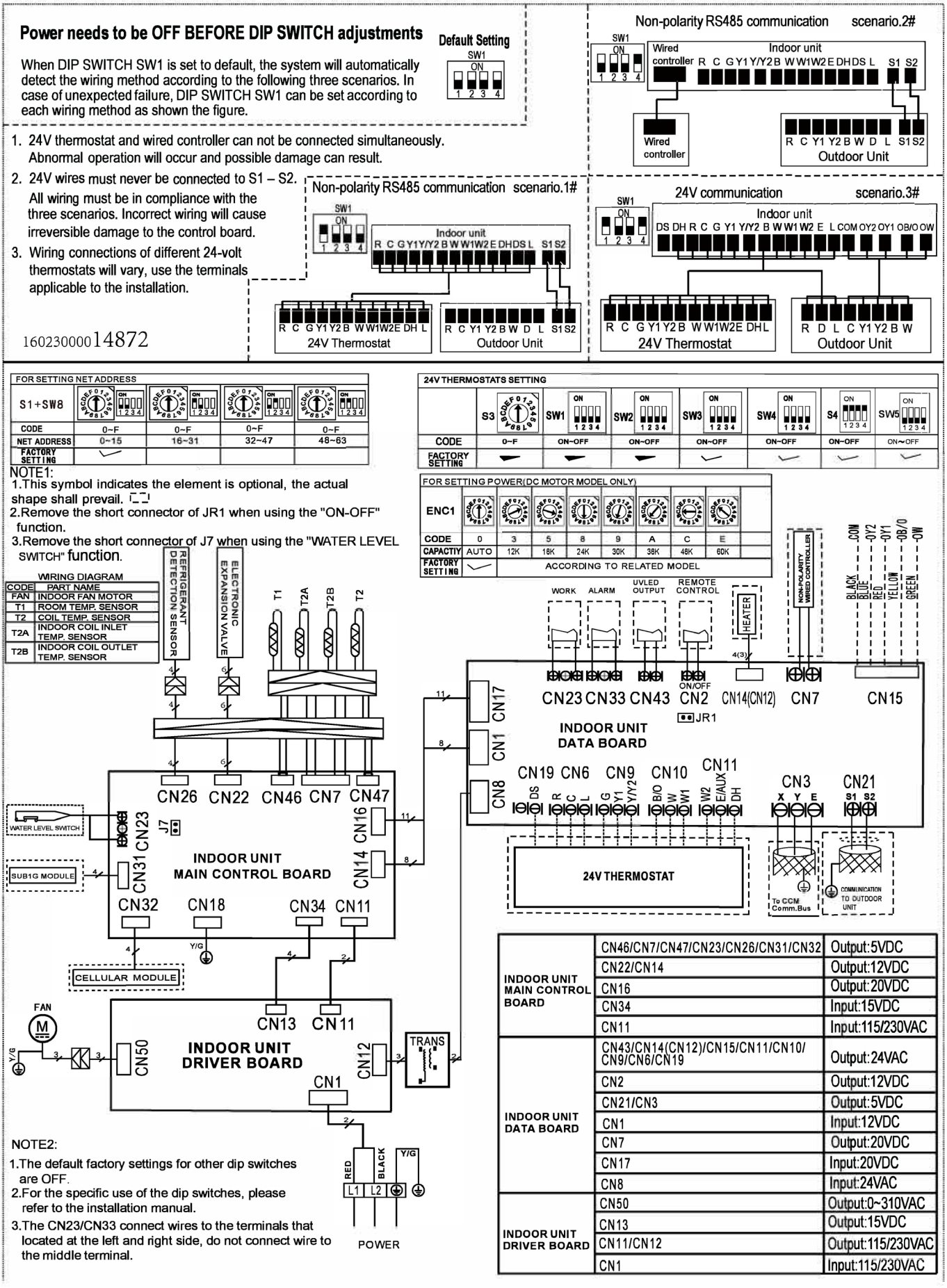
Terminal	Function
R	24 V Power Connection
C	Common
G	Fan Control
Y1	Low Demand
Y/Y2	High Demand
B	Heating Reversing Valve
W	Heating Control
W1	Stage 1 Electric Heating
W2	Stage 2 Electric Heating
E/AUX	Emergency Heating
DH/BK	Dehumidification/Zoning Control
DS	Reserved Signal
L	System Fault - (24 V output signal)

Wiring Color Guide

THERMOSTAT				INDOOR UNIT	OUTDOOR UNIT
Heat - 2nd stage	W2	WHITE		W2	N/C
Emergency Heat - 1st stage	W1/E	BLACK	→	W1	→ D
		N/C		E	
		N/C		W	W
4 Way Valve	B	ORANGE	→	B	→ B
Cool - 2nd stage	Y2	BROWN	→	Y2	→ Y2
Cool - 1st stage	Y	YELLOW		Y	Y
Fan	G	GREEN	→	G	→ G
	L	GRAY	→	L	→ L
Power Common	C	BLUE	→	C	→ C
Power	R	RED	→	R	→ R
	DH	PURPLE	→	DH	→ N/C

Abbreviation Definitions

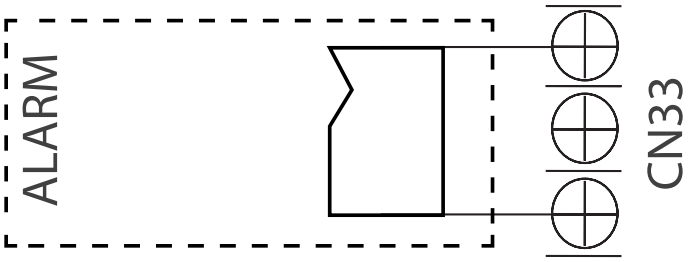
Abbreviation	Definition
Y/G	Yellow-Green Conductor
FAN1	Indoor ECM Motor
TO CCM Comm. Bus	Central Controller
T1	Indoor Room Temperature Sensor
T2	Indoor Coil Temperature Sensor
T2A	Indoor Coil Inlet Temperature Sensor
T2B	Indoor Coil Outlet Temperature Sensor



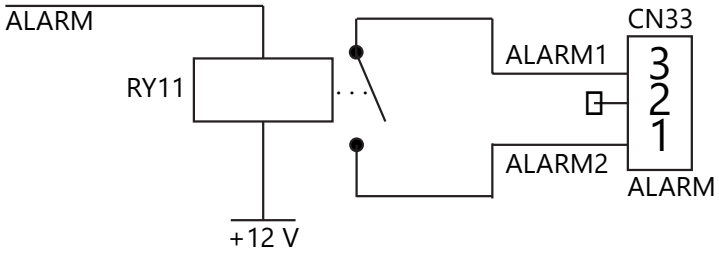
INDOOR UNIT MAIN CONTROL BOARD	CN46/CN7/CN47/CN23/CN26/CN31/CN32	Output:5VDC
	CN22/CN14	Output:12VDC
	CN16	Output:20VDC
	CN34	Input:15VDC
	CN11	Input:115/230VAC
INDOOR UNIT DATA BOARD	CN43/CN14(CN12)/CN15/CN11/CN10/ CN9/CN6/CN19	Output:24VAC
	CN2	Output:12VDC
	CN21/CN3	Output:5VDC
	CN1	Input:12VDC
	CN7	Output:20VDC
	CN17	Input:20VDC
	CN8	Input:24VAC
INDOOR UNIT DRIVER BOARD	CN50	Output:0~310VAC
	CN13	Output:15VDC
	CN11/CN12	Output:115/230VAC
	CN1	Input:115/230VAC

Optional function wiring

The Fault Warning

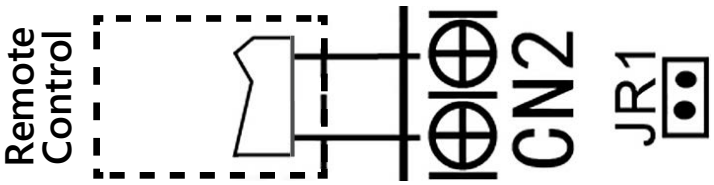


1. Provide the terminal port to connect ALARM, but no voltage of the terminal port, the power from the ALARM system (not from the unit)
2. Although design voltage can support higher voltage, we strongly ask you to connect the power less than 24V, and current less than 0.5A
3. When the unit causes the problem, the relay will be closed, then ALARM works



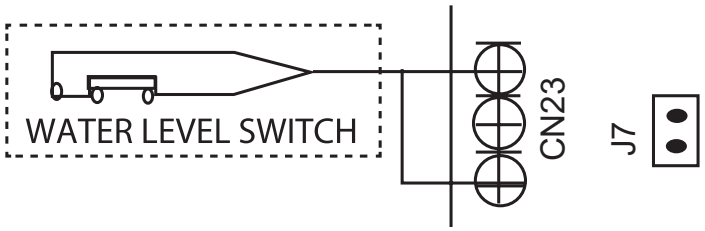
JDQ-SS112V/5A-O-T85-P35-B-02

Remote Control (On-Off) Terminal Port Cn2 And Short Connector Of Jr1



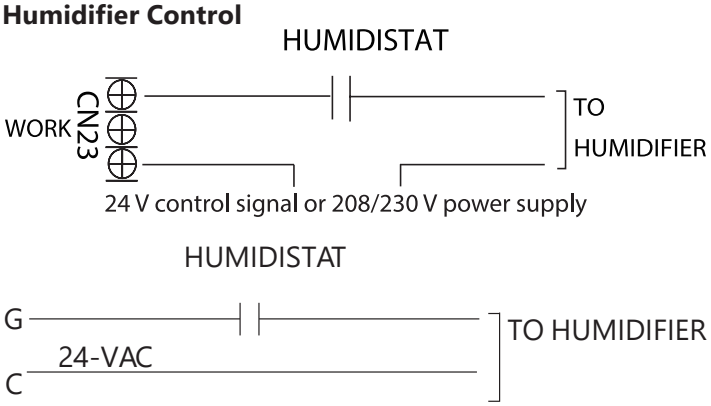
1. Remove the short connector of JR1 when you use the ON-OFF function;
2. When the remote is switched off (OPEN); the unit is off;
3. When the remote switch is on (CLOSE); the unit will be on;
4. When closing/opening the remote switch, the unit would respond to the demand within 2 seconds;
5. When the remote switch is on, you can use the remote controller/ wire controller to select the mode that you want; when the remote switch is off, the unit will not respond to the demand from the remote controller/ wire controller. When the remote is switched off, but the remote control/wired control is on, the CP code will be shown on the display board.
6. The voltage of the port is 12V DC, design Max. current is 5mA.

Condensate Overflow Switch



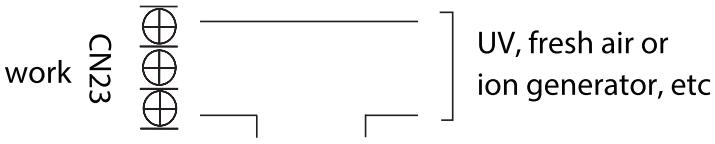
The unit will accommodate a remote condensate overflow switch. To enable, remove jumper J7, and connect the installer-provided condensate overflow device to CN23 per below. When an overflow condition is present, the device should open the connection signaling the unit to turn off the system.

Humidifier Control

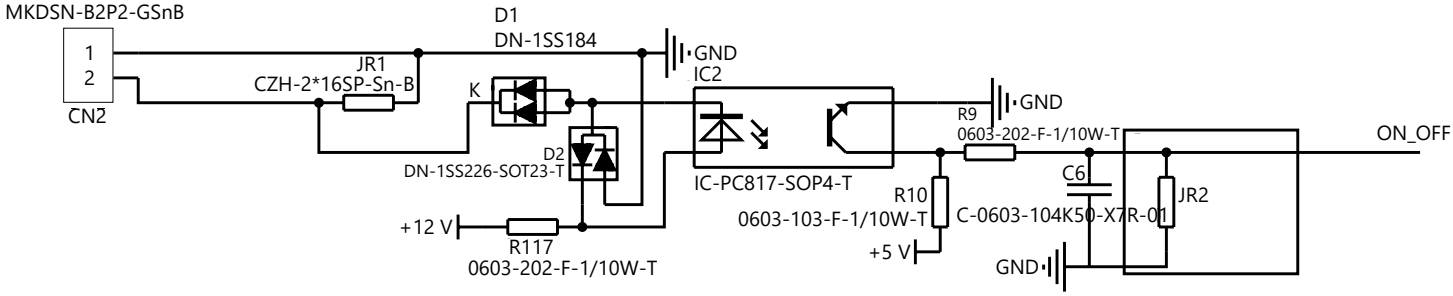


To connect a humidifier, utilize the passive signal "WORK" output (CN23) port as well as the G and C wires on the controller, and wire the humidistat and humidifier per the above wiring diagram. When the fan is running, the CN23 relay will be closed, which will allow power to the humidifier when the humidistat is below humidity setpoint. If the thermostat or zone controller has a HUM interface, connect the humidifier directly to the HUM and C ports.

Uv, Fresh Air, Or Negative Ion Wiring

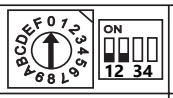
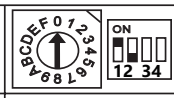
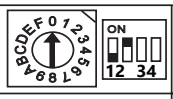
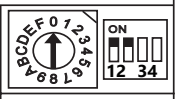


The WORK port is linked to the fan. When the fan is running, the relay is closed; if an active 24V signal is required, it can be directly connected to the G and C ports.



Micro-Switch Introduction

A. Micro-switch S1 and dial-switch SW8 are for address settings when you want to control this unit with a central controller.
Range: 00-63

FOR SETTING NETADDRESS				
S1+SW8				
CODE	0~F	0~F	0~F	0~F
NETADDRESS	0~15	16~31	32~47	48~63
FACTORY SETTING	✓			

Network address: The address silkscreen is the NET address, which is composed of a 16-bit address rotary code S1 plus a two-digit DIP switch SW8 [Set during engineering installation, no network function does not need to be set]

When SW8 is 00, the network address value is the value of S1;

When SW8 is 10, the network address value is the value of S1 plus 16; When SW8 is 01, the network address value is the value of S1 plus 32; When SW8 is 11, the network address value is the value of S1 plus 48.

Dial Code Selection	Net Address
	S1 + 48
	S1 + 32
	S1 + 16
	S1

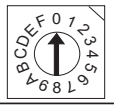
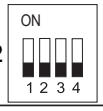
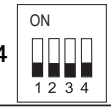
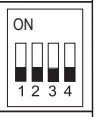
FOR SETTING POWER (DC MOTOR MODEL ONLY)									
ENC1									
CODE	0	3	5	8	9	A	C	E	
CAPACITY	AUTO	12K	18K	24K	30K	36K	48K	60K	
FACTORY SETTING	✓	ACCORDING TO RELATED MODEL							

B. Dial-switch ENC1: The indoor PCB is universally designed for whole series units from 12K to 60 K. This ENC1 setting tells the main program what size the unit is

Range: AUTO, 12K, 18K, 60K

NOTE

AUTO means the indoor unit is equipped with different outdoor units, which can automatically identify the capacity of the outdoor unit, model, mono or multi zone and match the indoor unit parameters.

24 V THERMOSTAT SETTING								
	S3 	SW1S 	W2 	SW3S 	W4 	S4 	SW5 
CODE	0~F	ON~OFF	ON~OFF	ON~OFF	ON~OFF	ON~OFF	ON~OFF
FACTORY SETTING	✓	✓	✓	✓	✓	✓	✓

C. Function DIP Switch Settings

Indoor Unit Dial Code

The 24V thermostat mode needs to refer to the following settings:

No.	Dial Code	Function	ON	OFF	Note
Control Scenario		**24 V Tstat, S1+S2**			
1	SW1-2	Anti-cold blow protection option	NO	[Default] YES	
2	SW1-3	Single cooling/heating and cooling options	Cooling	[Default] Cooling & Heating	
3	SW2-1	Compressor Running (demand working with heat pump+ Electric heat)	Compressor slower speed	[Default] Faster Compressor	Only afects compressor and W1
4	SW2-4	Compressor	The operation of heat pump is limited by the outdoor temperature, and the operation of auxiliary heat is not limited.The system makes judgments according to the following rules: 1) The compressor can be operated when the outdoor temperature is ≥S3 DIP switch temperature +2 °C. 2) The compressor cannot be operated when the outdoor temperature is lower than the S3 DIP switch temperature.	[Default]The operation of heat pump is limited by the outdoor temperature, and the operation of auxiliary heat is not limited. The system makes judgments based on the following rules: 1) The compressor cannot be operated when the outdoor temperature is lower than the S3 DIP switch. 2) The compressor can be operated when the outdoor temperature is ≥S3 DIP switch temperature +2 °C.	SW2-4 and S3 need to working together
5	Rotary Switch S3	Set outdoor temperature Limitation (for auxiliary heating or compressor)	Table A		
6	SW3-1	Maximum continuous runtime allowed before system automatically stages up capacity to satisfy set point. This adds 1 to 5°F to the user set point in the calculated control point to increase capacity and satisfy user set point	30 minutes	[Default] 90 minutes	
7	SW3-2	Cooling and heating Y/Y2 temperature diferential adjustment.	Compressor slower speed	[Default] Faster Compressor	Only afects compressor
8	SW3-3	Compressor Running (demand working with heat pump+ Electric heat)	Compressor slower speed	[Default] Faster Compressor	Only afects compressor and W2
9	SW3-4	Fan speed of cooling mode when 24 V Thermostat is applied for.	Turbo	High	
10	SW4-1 SW4-2 SW4-3	Electric heat nominal CFM adjustment	Available settings are 000/001/010/011. Each digit corresponds to an indiviual swith position. For example [SW4-1 OFF, SW4-2 ON, SW4 -3 OFF] = 010		
11	S4-4	Default ON	[Default] For single stage supplemental heat,W1 and W2 are connected	For dual stage supplemental heat, W1 and W2 are controlled independently.	
12	S4-2	DH function selection	[Default] Dehumidification control not available	Dehumidification feature is enabled through thermostat	
13	SW5-3	L or Alarm relay selection	L output 24 V or alarm relay close only when refrigerant sensor fault or R454B refrigerant leakage be detected	[default] L output 24 V or alarm relay close when any fault be detected	
14	SW5-4	R output selection	R stop ouput 24 V when refrigerant sensor fault or R454B refrigerant leakage be detected	[default] R keep ouput 24 V even when refrigerant sensor fault or R454B refrigerant leakage be detected	

Indoor Unit Dial Code (continued)

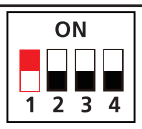
No.	Dial Code	Function	ON	OFF	Note
Control Scenario		**Wired Controller S1+S2**			
1	SW1-2	Anti-cold blow protection option	NO	[Default] YES	
2	SW1-3	Single cooling/heating and cooling options	Cooling	[Default] Cooling & Heating	
3	SW2-1	Temperature diferential to activate first stage auxiliary heat (the GAP of T1 and Ts), Wire controller demand with heat pump+Electric heat working together	2°F (1°C)	[Default] 4°F (2°C)	
4	SW2-2	Electric heat on delay	YES	[Default] NO	
5	SW2-3	Electric auxiliary heating delay to start time	30 minutes	[Default] 15 minutes	Based on SW2-2 is ON
6	SW2-4	Compressor/Auxiliary heat outdoor ambient lockout	The operation of heat pump is limited by the outdoor temperature, and the operation of auxiliary heat is not limited.The system makes judgments according to the following rules: 1) The compressor can be operated when the outdoor temperature is ≥S3 DIP switch temperature +2 °C. 2) The compressor cannot be operated when the outdoor temperature is lower than the S3 DIP switch temperature.	[Default]Only one heat pump or auxiliary heat can be operated .The system makes judgments according to the following rules: 1) When the outdoor temperature is lower than the S3 DIP switch temperature,the compressor is not allowed to operated, but auxiliary heat is allowed to operated ; 2) When the outdoor temperature is ≥S3 DIP switch temperature +2 (°C), the compressor can be operated, but auxiliary heat cannot be operated.	SW2-4 and S3 need to working together
7	Rotary Switch S3	Set outdoor temperature Limitation (for auxiliary heating or compressor)	Table A		
8	SW3-3	Temperature diferential to activate second stage auxiliary heating (the GAP of T1 and Ts)Wire controller demand with heat pump+Electric heat working together	4°F (2°C)	[Default] 6°F (3°C)	
9	SW4-1 SW4-2 SW4-3	Electric heat nominal CFM adjustment	Available settings are 000/001/010/011. Each digit corresponds to an indiviual swith position. For example [SW4-1 OFF, SW4-2 ON, SW4 -3 OFF] = 010		
10	SW4-4	Temperature diferential to activate third stage auxiliary heating (the GAP of T1 and Ts) Wire controller demand with heat pump+ Electric heat working together	6°F (3°C)	[Default] 8°F (4°C)	Only valid for product which has three stage auxiliary heating.
11	SW5-3	L or Alarm relay selection	L output 24 V or alarm relay close only when refrigerant sensor fault or R454B refrigerant leakage be detected	[default] L output 24 V or alarm relay close when any fault be detected	
12	SW5-4	R output selection	R stop ouput 24 V when refrigerant sensor fault or R454B refrigerant leakage be detected	[default] R keep ouput 24 V even when refrigerant sensor fault or R454B refrigerant leakage be detected	
Control Scenario		**Full 24 V**			
1	SW1-2	Anti-cold blow protection option	NO	[Default] YES	
2	SW1-3	Single cooling/heating and cooling options	Cooling	[Default] Cooling & Heating	
3	SW3-4	Fan speed of cooling mode when 24 V Thermostat is applied for.	Turbo	High	
4	SW4-1 SW4-2 SW4-3	Electric heat nominal CFM adjustment	Available settings are 000/001/010/011. Each digit corresponds to an indiviual swith position. For example [SW4-1 OFF, SW4-2 ON, SW4 -3 OFF] = 010		
5	S4-4	Default ON	[Default] For single stage supplemental heat,W1 and W2 are connected	For dual stage supplemental heat, W1 and W2 are controlled independently.	
6	S4-2	DH function selection	[Default] Dehumidification control not available	Dehumidification feature is enabled through thermostat	
7	SW5-3	L or Alarm relay selection	L output 24 V or alarm relay close only when refrigerant sensor fault or R454B refrigerant leakage be detected	[default] L output 24 V or alarm relay close when any fault be detected	
8	SW5-4	R output selection	R stop ouput 24 V when refrigerant sensor fault or R454B refrigerant leakage be detected	[default] R keep ouput 24 V even when refrigerant sensor fault or R454B refrigerant leakage be detected	

Table A

S3	S3 (°F)	S3 (°C)
0	OFF	OFF
1	-22	-30
2	-18	-30
3	-15	-26
4	-11	-24
5	-8	-22
6	-4	-20
7	3	-16
8	10	-12
9	18	-8
A	25	-4
B	32	0
C	36	2
D	39	4
E	43	6
F	46	8

SW4-1	000 is the default 000/001/010/011/100/101/ 110/111, internal machines with different abilities, electric heating, and PSC classification for use.
SW4-2	
SW4-3	

Function combination table of SW1-1 and SW1-4

SW1	Control Type	IDU & ODU Connection	Note
	Wired controller / 24 V thermostat	(S1+S2) / 24 V connection	Auto Discovery
	Wired controller	S1+S2	Scenario 2
	24 V Thermostat	S1+S2	Scenario 1
	24 V Thermostat	24 V connection	Scenario 3

Electrical Characteristics

IDU Model			18k	24k	30k	36k	48k	60k
Power	Phase		1					
	Frequency & Volt		115/208/230 V,60 Hz					
MCA (Minimum Circuit Ampacity)	115 V	A	8.0	8.0	10.0	10.0	17.5	17.5
	208/230 V	A	5.5	5.5	6.0	6.0	11.0	11.0
MOP (Rating of Overcurrent Protective Device)	115 V	A	15.0	15.0	15.0	15.0	20.0	20.0
	208/230 V	A					15.0	15.0

Specific Wiring Methods

⚠ WARNING

Please refer to the wiring nameplate for the wiring method. Do not connect the power cord to the communication line, as this may damage the system.

Communication Wiring Sizes

Option	Communication Type	Reocommended Cable Size
1	Non-Polarity RS485 Communication (S1 - S2)	20 AWG (stranded shielded)
2	24 V communication	18 AWG 8 conductor thermostat wire

⚠ WARNING

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation. Wires should be sized based on NEDC and local codes.

NOTE

- Do not use the thermostat wire for any RS-485 connection between indoor and outdoor units.
- All connections between the indoor and outdoor units must be made as shown in the wiring diagrams.

Power needs to be OFF before dip switch adjustments.

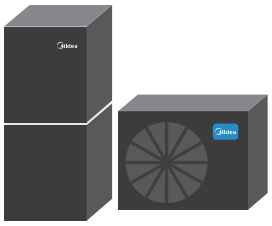
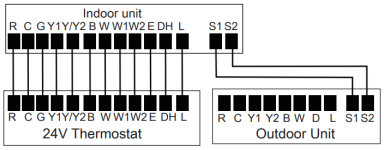
⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation. Be sure to comply with local codes while running wire from the indoor unit to the outdoor unit. Every wire must be connected firmly. Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also exist. Ensure all wiring is tightly connected.

No wire should touch the refrigerant tubing, compressor or any moving parts. Disconnecting means must be provided and shall be located within sight and readily accessible from the air conditioner. Connecting cable with conduit shall be routed through the hole in the conduit panel.

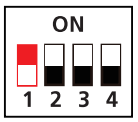
Scenario 1: EVOX Heat Pump and Air Handler 3rd Party 24 V Thermostat

Matchup	Thermostat	Wiring	AHU SW1	ODU SW
Midea AHU+Midea ODU 	3rd Party 24 V Thermostat 	24 V communication* 	ON 	ON 

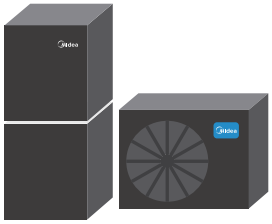
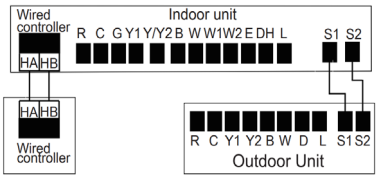
*This is a general wiring diagram. Use the diagram that comes with your selected 24 V thermostat.

Scenario 1 Wiring Diagram

- The IDU and ODU need separate power or are from the ODU. See Step 4 - Power Wiring Connections.
- Bi Communication (IDU SW1-1&-4 and ODU SW-1) auto recognize
- IDU and ODU need 2 non-polarities (5 V RS485 communication through S1 S2)
- IDU and Thermostat Controller Communicate with 24 VAC signal
- Even in retrofit cases, there is no need to change the wire set (use the existing 24 V thermostat wire)
- Factory Default Setting on all Dip Switches are OFF
- IDU SW1 for control optional factory design has automatic recognition (the system will know it is a wired controller signal or 24 V thermostat signal, the DIP switch is just for a verification test)
- When connecting a wired controller and 24 V thermostat will take a 24 V signal as a priority



Scenario 2: EVOX Heat Pump, Air Handler, and RS485 Communication

Matchup	Thermostat	Wiring	AHU SW1	ODU SW
Midea AHU+Midea ODU 	Midea Wired Thermostat 	Non-polarity RS485 communication 	ON 	ON 

Scenario 2 Wiring Diagram and Dip Switch Settings

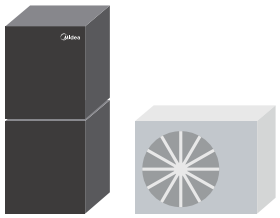
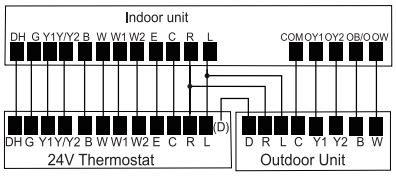
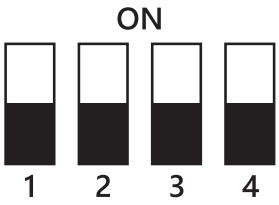
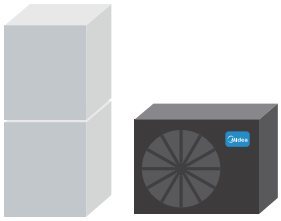
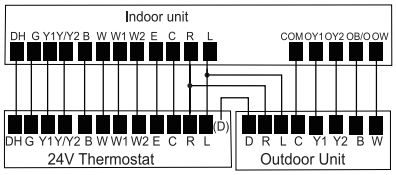
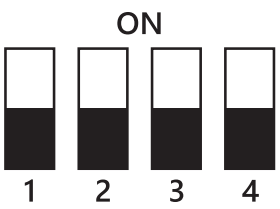
- The IDU and ODU need separate power or are from the ODU. See Step 4 - Power Wiring Connections.
- IDU and ODU need 2 non-polarity (5 V RS485 S1 and S2 communication)
- IDU and Midea wired controller (HA & HB with 20 VDC)

NOTE

HA & HB is RS485 communication and cannot use 16 AWG wire as it will not fit the wired controller.

- Even in the retrofit case we don't need to change the wire set (use the existing 24 V thermostat wire)
- Factory Default Setting on all Dip Switches are OFF
- When connecting a wired controller and 24 V thermostat will take a 24 V signal as a priorit

Scenario 3: Self-Adapt Mode with 3rd Party Equipment

Matchup	Thermostat	Wiring	AHU SW1	ODU SW
Midea AHU+Brand ODU 	3rd Party 24 V Thermostat 	24 V communication* 		Other Brand Outdoor Unit
Brand AHU+Midea ODU 	3rd Party 24 V Thermostat 	24 V communication* 	Other Brand Air Handling Unit	

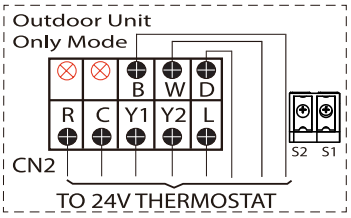
NOTE

For Brand AHU+Midea ODU, the 24V thermostat needs to be connected to a mainboard with a refrigerant sensor, and it should be able to cut off power to the outdoor unit in case of refrigerant leakage. Otherwise, there will be a risk of refrigerant leakage.

Scenario 3 Wiring Diagram and Dip Switch Settings

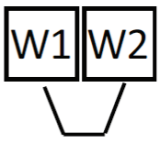
- The IDU and ODU need separate power or are from the ODU. See Step 4 - Power Wiring Connections or the 3rd party unit's instructions.
- IDU and ODU without any wire communication
- IDU and ODU control by 24 V thermostat (24 VAC)
- Factory Default Setting on all Dip Switches is OFF
- When the connected wired controller and 24 V thermostat will take the 24 V signal as a priority

24 V Connection Diagrams

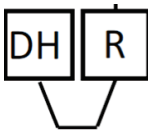


Never Connect 24 V to S1-S2

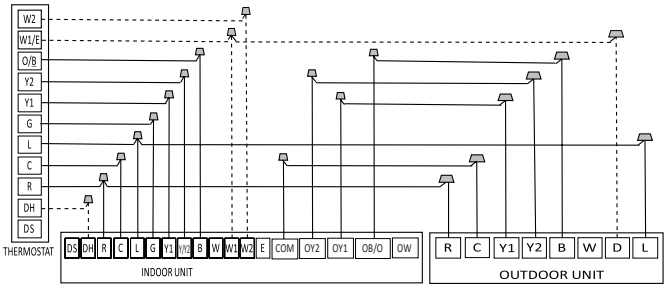
24 V must never be connected to S1 – S2. All wiring must be in compliance with the above scenarios. Incorrect wiring will cause irreversible damage to the control.



Default ON: For single-stage supplemental heat, W1 and W2 are connected.
OFF: W1 and W2 are controlled independently for dual-stage supplemental heat. feature is enabled through the thermostat.



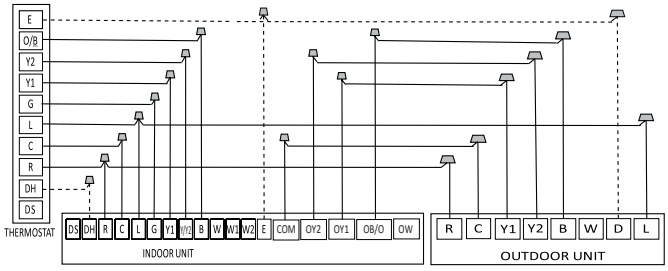
S4-2:
Default ON: Dehumidification control not available.
OFF: The dehumidification feature is enabled through the thermostat.



S4-2 Default on, DH function off. Turn switch off to activate DH function.

S4-4 Default on, W1 and W2 shorted for single stage Aux heat operation. Turn off to separate stages.

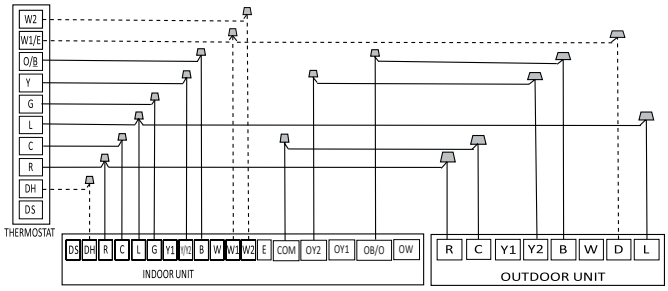
Wiring for 4H and 2C Thermostat



S4-2 Default on, DH function off. Turn switch off to activate DH function.

Emergency heating control two groups of electric heating at the same time

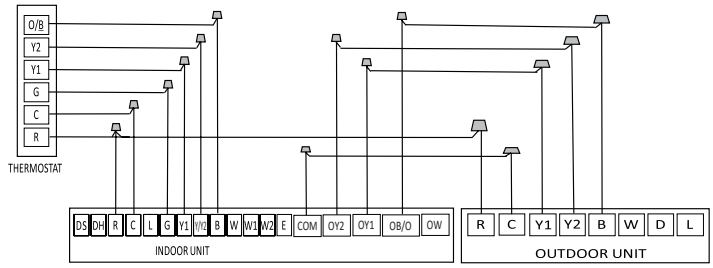
Wiring for 3H and 2C Thermostat



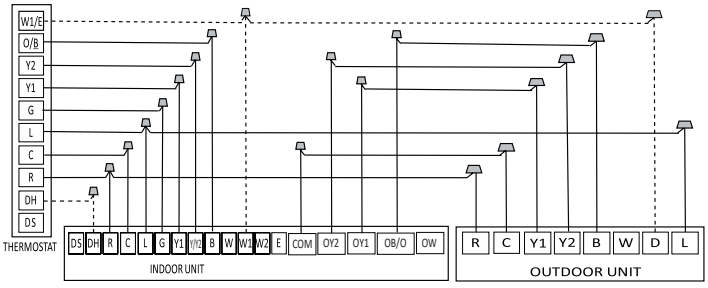
S4-2 Default on, DH function off. Turn switch off to activate DH function.

S4-4 Default on, W1 and W2 shorted for single stage Aux heat operation. Turn off to separate stages.

Wiring for 3H and 1C Thermostat



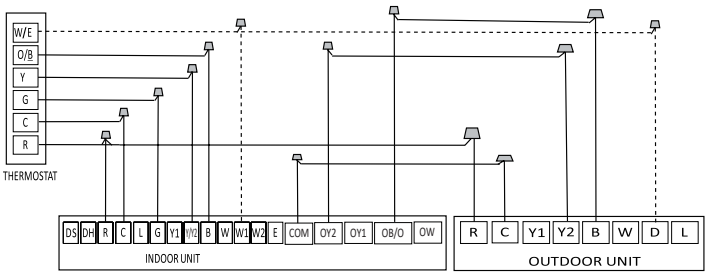
Wiring for 2H and 2C Thermostat No Auxilary Heat



S4-2 Default on, DH function off. Turn switch off to activate DH function.

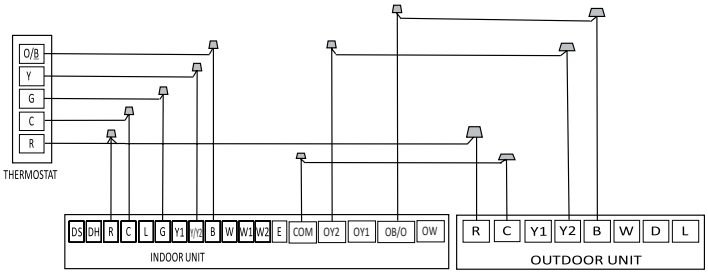
S4-4 Default on, W1 and W2 shorted for single stage Aux heat operation. Turn off to separate stages.

Wiring for 3H and 2C Thermostat

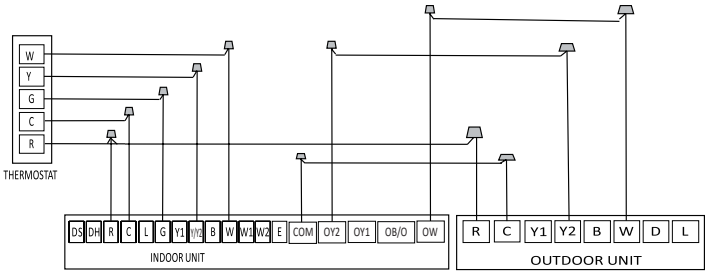


S4-4 Default on, W1 and W2 shorted for single stage Aux heat operation. Turn off to separate stages.

Wiring for 2H and 1C Thermostat



Wiring for 1H and 1C Thermostat



Wiring for 1H and 1C Thermostat

NOTE

This is the least preferred method of control wiring and should only be used in emergencies. It may not achieve full capacity.

NOTE

If the outdoor condensing unit initiates defrost cycles frequently, then it is recommended to adjust the "thermal balance point" to a temperature that would decrease the recurrence of these cycles and prevent cold air from blowing during the duration of the defrost cycle. The thermal balance point is the outdoor ambient temperature at which the heat pump can no longer provide sufficient heating to the space on its own and compromises the reliability of the compressor.

24 V Signal Chart

		24 V input terminal										
Mode	Priority	G	Y1	Y/Y2	B	W	W1	W2	E/AUX	DH	Fan speed	Display
OFF	/	0	0	0	0	0	0	0	0	*	OFF	00
FAN	7	1	0	0	*	0	0	0	0	*	Low	01
Cooling stage 1	6	*	1	0	0	0	0	0	0	1	Mid	02
Cooling stage 2		*	*	1	0	0	0	0	0	1	High	03
Dehumidification 1		*	1	0	0	0	0	0	0	0	Low	04
Dehumidification 2		*	*	1	0	0	0	0	0	0	Low	05
Heat pump stage 1	5	*	1	0	1	0	0	0	0	1	Mid	06
Heat pump stage 2		*	*	1	1	0	0	0	0	1	High	07
Heat pump stage 2		*	*	*	*	1	0	0	0	1	High	
Electric heater kit 1	3	*	0	0	*	0	1	0	0	*	Turbo	08
Electric heater kit 2		*	0	0	*	0	0	1	0	*	Turbo	
Electric heater kit 1 and kit 2		*	0	0	*	0	1	1	0	*	Turbo	09
Heat pump stage 1 + Electric heater kit 1	4	*	1	0	1	0	1	0	0	1	Turbo	10
Heat pump stage 1 + Electric heater kit 2		*	1	0	1	0	0	1	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 1		*	*	1	1	0	1	0	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 1		*	*	*	*	1	1	0	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 2		*	*	1	1	0	0	1	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 2		*	*	*	*	1	0	1	0	1	Turbo	
Heat pump stage 1 + Electric heater kit 1 and kit 2		*	1	0	1	0	1	1	0	1	Turbo	11
Heat pump stage 2 + Electric heater kit 1 and kit 2		*	*	1	1	0	1	1	0	1	Turbo	
Heat pump stage 2 + Electric heater kit 1 and kit 2		*	*	*	*	1	1	1	0	1	Turbo	
Emergency heat	1	*	*	*	*	*	*	*	1	*	Turbo	12
Heating zone control	2	*	1	0	1	0	*	*	0	0	Low	13
Heating zone control		*	*	1	1	0	*	*	0	0	Low	
Heating zone control		*	*	*	*	1	*	*	0	0	Low	

Note:
1: 24 V signal
0: No 24 V signal
*: 1 or 0.
The AHU will turn off if the 24 V input cannot meet the table.

Functions And Features

Safety Features

Indoor fan delayed operation

- When the unit starts, the indoor fan will operate after a period of setting time.
- If the unit is in heating mode, the indoor fan is regulated by the anti-cold wind function.

Sensor redundancy and automatic shutoff

- If one temperature sensor malfunctions, the air conditioner continues operation and displays the corresponding error code, allowing for emergency use.
- When more than one temperature sensor is malfunctioning, the air conditioner ceases operation.

Basic Functions

Abbreviation

Unit Element Abbreviations

Abbreviation	Element
T1	Indoor room temperature
T2	Coil temperature of evaporator
T3	Coil temperature of condenser
T4	Outdoor ambient temperature
TP	Compressor discharge temperature
TS	Setting temperature
Tsc	Adjusted setting temperature

In this manual, such as CDIFTEMP, HDIFTEMP2, TEH2, TCE1, TCE2...etc., they are well-setting parameter of EEPROM.

Fan Mode

When fan mode is activated:

- Temperature control is disabled, and no temperature setting is displayed.
- The indoor fan speed can be set to low, medium, high, turbo, and auto.
- Auto fan: In fan-only mode, AC operates the same as auto fan in cooling mode with the temperature set at 75°F (24°C).
- Under 24V control, when only G signal is available when switching from heating mode or emergency heating mode to fan mode, T4<50°F (10°C), the heating mode is sent to the outdoor; when T4>54 °F (12°C), the normal outdoor control is resumed, and the fan mode is sent to the outdoor.

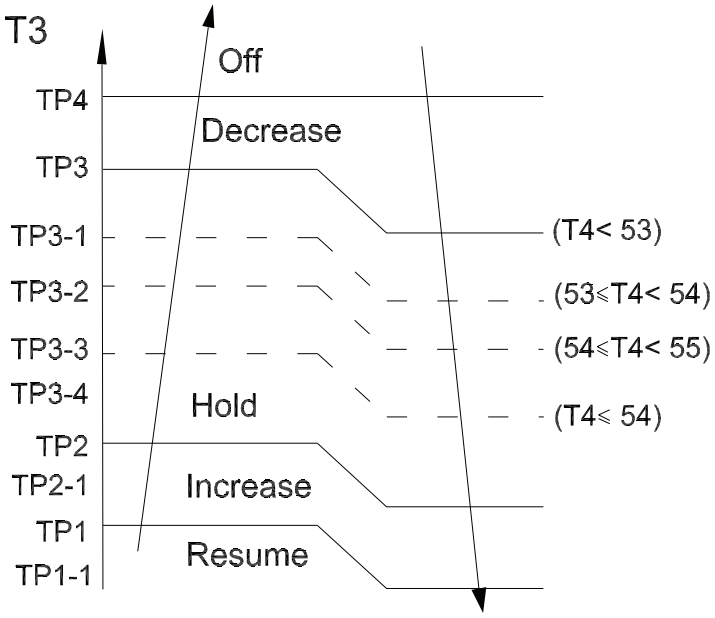
Cooling Mode

Indoor Fan Control

1. In cooling mode, the indoor fan operates continuously. The fan speed can be set to low, medium, high, turbo, and auto.
2. Auto fan action in cooling mode:

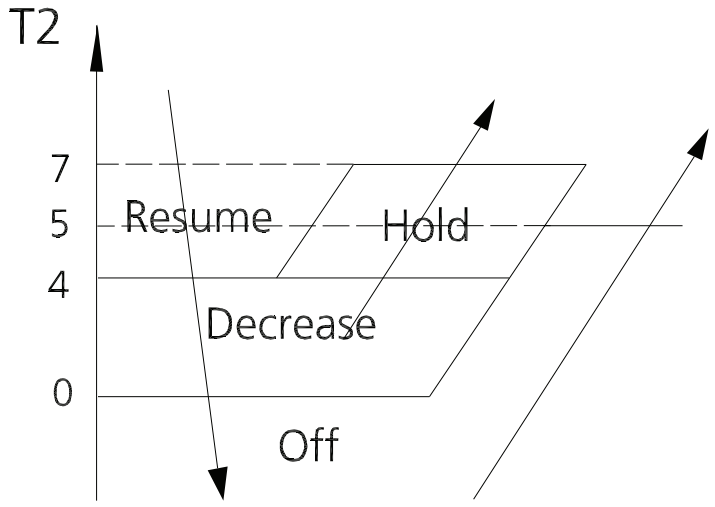
- Descent curve
  - When T1-Tsc is lower than 6°F/3.5°C, fan speed reduces to high;
  - When T1-Tsc is lower than 2°F/1°C, fan speed reduces to medium;
  - When T1-Tsc is lower than 1°F/0.5°C, fan speed reduces to low;
- Rise curve
  - When T1-Tsc is higher than or equal to 2°F/1°C, fan speed increases to medium;
  - When T1-Tsc is higher than or equal to 3°F/1.5°C, fan speed increases to high;
  - When T1-Tsc is higher than or equal to 7°F/4°C, fan speed increases to turbo.

Condenser Temperature Protection



- Off: Compressor stops.
- Decrease: Decrease the running frequency to the lower level at 0.04Hz/s.
- Hold: Keep the current frequency.
- Increase: Increase the running frequency to a higher level at 1Hz/s
- Resume: No limitation for frequency.

Evaporator Temperature Protection



- Off: Compressor stops.
- Decrease: Decrease the running frequency to the lower level per 1 minute.
- Hold: Keep the current frequency.
- Resume: No limitation for frequency.

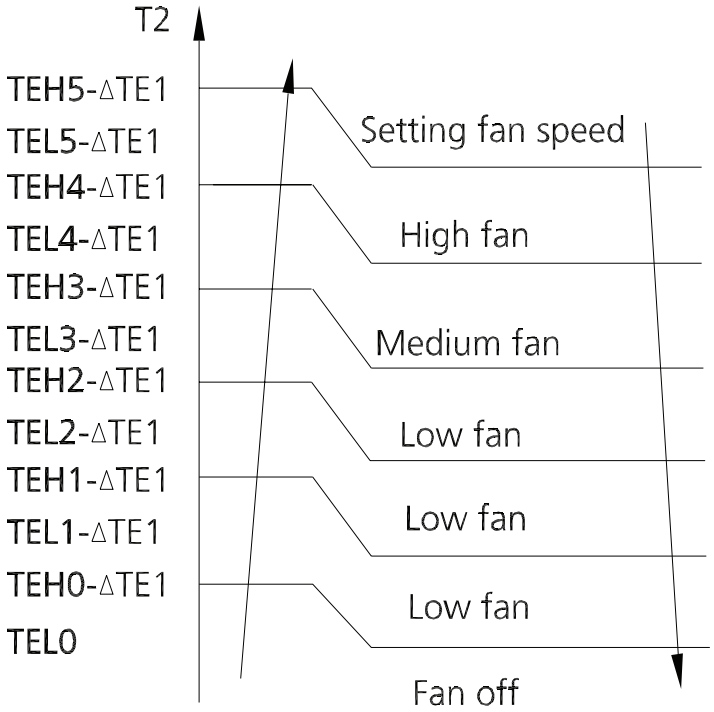
Heating Mode (Heat Pump Units)

Indoor Fan Control:

1. In heating mode, the indoor fan operates continuously. The fan speed can be set to low, medium, high, turbo,

and auto.

- Anti-cold air function
  - The indoor fan is controlled by the indoor temperature T1 and indoor unit coil temperature T2.

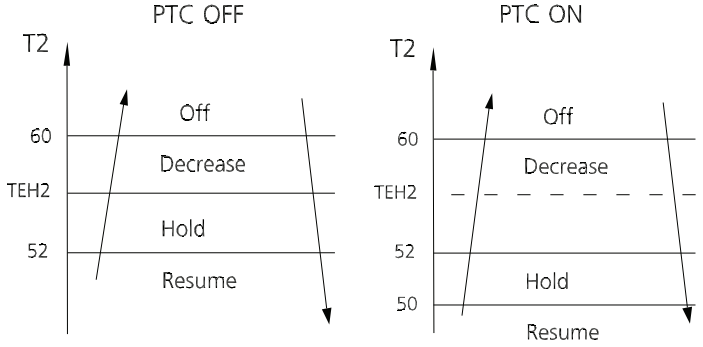


T1 ≤ 66°F (19°C)	ΔTE1=0
59°F (15°C) ≤ 66°F (19°C)	ΔTE1= 66°F-T1 (19°C-T1)
T1< 59°F (15°C)	ΔTE1= 7°F (4°C)

2. Auto fan action in heating mode:

- Rise curve
  - When T1-Tsc is higher than -1.5°C/-3°F, fan speed reduces to high;
  - When T1-Tsc is higher than 0°C/0°F, fan speed reduces to medium;
  - When T1-Tsc is higher than 0.5°C/1°F, fan speed reduces to low;
- Descent curve
  - When T1-Tsc is lower than or equal to 0°C/0°F, fan speed increases to medium;
  - When T1-Tsc is lower than or equal to -1.5°C/-3°F, fan speed increases to high;
  - When T1-Tsc is lower than or equal to -3°C/-5°F, fan speed increases to turbo.

Evaporator Coil Temperature Protection



- Off: Compressor stops
- Decrease: Decrease the running frequency to the lower level per 20 seconds.
- Hold: Keep the current frequency.
- Resume: No limitation for frequency.

Auto Mode

- This mode can be selected with the remote control and the temperature setting can be adjusted between 61°F~86°F (16°C~30°C).
- In auto mode, the machine selects cooling, heating, or fan-only mode based on ΔT (ΔT =T1-TS).

ΔT	Running mode
ΔT> 4°F (2°C)	Cooling
-5°F (-3°C) >ΔT≤ 4°F (2°C)	Fan-only
ΔT≤ -5°F (3°C)	Heating*

Heating*: In auto mode, cooling-only models run the fan

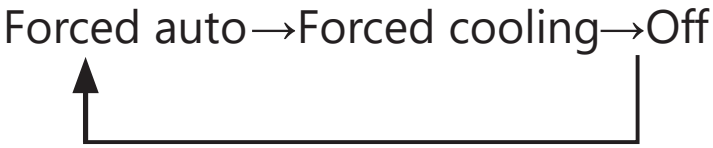
- Indoor fan will run at auto fan speed.
- If the machine switches mode between heating and cooling, the compressor will keep stopping for certain time and then choose mode according to ΔT.

Drying Mode

- In drying mode, the AC operates the same as the auto fan in cooling mode.
- All protections are activated and operate the same as they do that in cooling mode.
- Low Room Temperature Protection
- If the room temperature is lower than 50°F/10°C, the compressor ceases operations and does not resume until the room temperature exceeds 54°F/12°C.

Forced Operation Function

Press the AUTO/COOL button, the AC will run as below sequence:



- Forced cooling mode:

The compressor and outdoor fan continue to run and the indoor fan runs at breeze speed. After running for 30 minutes, the AC will switch to auto mode with a preset temperature of 76°F (24°C).

- Forced auto mode:

Forced auto mode operates the same as normal auto mode with a preset temperature of 76°F (24°C).

- The unit exits forced operation when it receives the following signals:
  - Switch off
  - Receive the remote signal to change the running mode.

Timer Function

- The timing range is 24 hours.
- Timer On. The machine turns on automatically at the preset time.
- Timer Off. The machine turns off automatically at the preset time.
- Timer On/Off. The machine turns on automatically at the preset On Time and then turns off automatically at the preset Off Time.
- Timer Off/On. The machine turns off automatically at the preset Off Time and then turns on automatically at

the preset On Time.

- The timer does not change the unit operation mode. If the unit is off now, it does not start up immediately after the "timer off" function is set. When the setting time is reached, the timer LED switches off and the unit running mode remains unchanged.
- The timer uses relative time, not clock time

Sleep Function

- The sleep function is available in cooling, heating, auto mode or Heat pump + Electric heater.
- The operational process for sleep mode is as follows:
  - When cooling, the set temperature rises by 2°F/1°C (to not higher than 86°F/30°C) every hour. After 2 hours, the temperature stops rising and the indoor fan is fixed at low speed.
  - When heating, the set temperature decreases by 2°F/1°C (to not lower than 61°F/16°C) every hour. After 2 hours, the temperature stops decreasing and the indoor fan is fixed at low speed. Anti-cold wind function takes priority.
  - When in auto mode, the fan speed is also fixed at low speed. After 1 hour, if the actual operation mode is cooling mode, the set temperature will rise by 2°F/1°C, if it is heating mode, the set temperature will decrease by 2°F/1°C, if it is fan mode, the set temperature will not change, and the set temperature will not change after two hours of operation.
- The timer setting is available in this mode.

Auto-Restart Function

- The indoor unit has an auto-restart module that allows the unit to restart automatically. The module automatically stores the current settings and in the case of a sudden power failure, will restore those setting automatically within 3 minutes after power returns.

Troubleshooting

⚠ WARNING

Be sure to turn off all power supplies or disconnect all wires to avoid electric shock. While checking indoor/outdoor PCBs, please equip yourself with antistatic gloves or wrist strap to avoid damage to the board.

⚠ WARNING

Electricity remains in capacitors even when the power supply is off. Ensure the capacitors are fully discharged before troubleshooting.

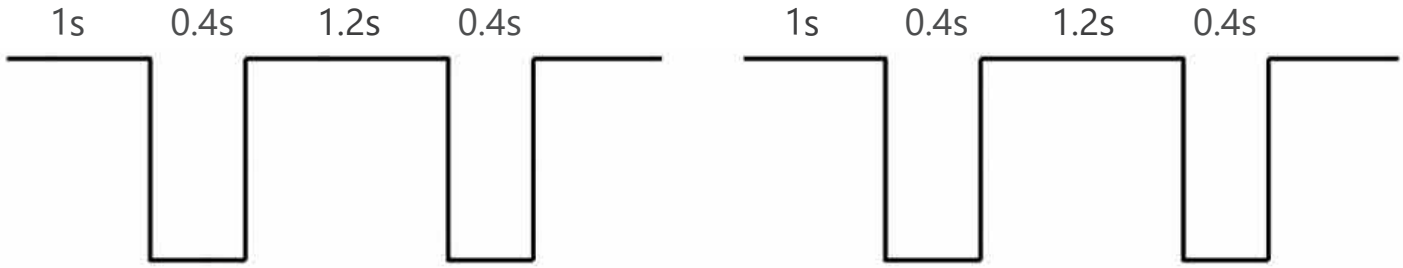
Indoor Unit Diagnostic Guide

For ease of service, systems are equipped with diagnostic code display LEDs on the indoor and outdoor units. Outdoor diagnostics are displayed on the outdoor unit microprocessor board. The indoor unit may display a few error codes that might relate to the outdoor unit's problems. If possible, always check the diagnostic codes displayed on the indoor unit first. The diagnostic codes displayed on the outdoor units are listed in the outdoor unit manual.

Indoor Unit Diagnostic Codes

Display	Error Information	Solution
EC07	ODU fan speed out of control	page 46
EC0d	ODU malfunction	page 59
EC51	ODU EEPROM parameter error	page 44
EC52	ODU coil temp. sensor (T3) error	page 48
EC53	ODU ambient temp. sensor (T4) error	
EC54	COMP. discharge temp. sensor(TP) error	
EC56	IDU coil outlet temp. sensor(T2B) errorMulti-zone)	
ECC1	Other IDU refrigerant sensor detects leakage (Multi-zone)	
EH00	IDU EEPROM malfunction	page 44
EH03	IDU fan speed out of control	page 46
EH0A	IDU EEPROM parameter error	page 44
EH0b	IDU main control board and display board communication error	page 60
EH0E	Water-level alarm malfunction	page 50
EH3A	External fan DC bus voltage is too low protection	page 58
EH3b	External fan DC bus voltage is too high fault	
EH60	IDU room temp. sensor (T1) error	page 48
EH61	IDU coil temp. sensor(T2) error	
EH62/EH66	Evaporator coil inlet temperature sensor T2B is in open circuit or short circuit	
EH65	Evaporator coil temperature sensor T2A is in opencircuit or short circuit	
EHbA	Communication malfunction between indoor unit and external fan module	page 58
EHC1	Refrigerant sensor detects leakage	page 59
EHC2	Refrigerant sensor is out of range and leakage is detected	
EHC3	Refrigerant sensor is out of range	page 58
EL01	IDU & ODU communication error	page 45
EL0C	System lacks refrigerant	page 49
EL 16	Communication malfunction between adapter board and outdoor main board	page 61
FHCC	Refrigerant sensor error	page 58
FL09	Mismatch between the new and old platforms	page 61
PC00	ODU IPM module protection	page 51
PC01	ODU voltage protection	page 52
PC02	Compressor top (or IPM) temp. protection	page 56
PC03	Pressure protection (low or high pressure)	page 54
PC04	Inverter compressor drive error	page 53
PC0L	Low ambient temperature protection	page 56
-----	IDUs mode conflict(Multi-zone)	--

For other errors:
The display board may show a garbled code or a code undefined by the service manual. Ensure that this code is not a temperature reading.
Troubleshooting:
Test the unit using the remote control. If the unit does not respond to the remote, the indoor PCB requires replacement. If the unit responds, the display board requires replacement.
LED flash frequency:



Error Display on Two-Way Communication Wired Controller

Display	Malfunction or Protection	Solution
EH63	Communication malfunction between wire and master control (for KJR-120X/KJR-120M/KJR-120N series wired controller)	page 57

The other error codes displayed on the wire controller are the same as those on the unit.

Engineering Mode

Information Inquiry

To enter the engineering mode, and check the data of the system (data checking mode), Please take the following steps:

1. Make sure that the AC is on standby status, or working normally in a non-locked condition.
2. Press "Power" + "Fan" buttons together for 7s until the remote controller screen shows "0", and "Auto, Cool, Dry, Heat, Battery "icons will be displayed at the same time.
3. Press the "Up" or "Down" button to choose a different channel number that you want to check (from 0-30) on the remote controller, and then the display will show the parameter value.

Channel	Code	Meaning	Remark
0		Error code	Refer to next list of error code Empty means no error
1	T1	Room temperature	Actual data, °C/°F
2	T2	Indoor coil temperature	Actual data,°C/°F
3	T3	Outdoor coil temperature	Actual data, °C/°F
4	T4	Ambient temperature	Actual data, °C/°F
5	TP	Discharge temperature	Actual data,°C/°F
6	FT	Targeted frequency	Actual data
7	Fr	Actual frequency	Actual data
8	dL	Running current	3.2A=3
9	AC	AC voltage	
10	Sn	Reserved	
11	nA	Reserved	
12	Pr	Indoor air flow	Actual data/10
13	Lr	EXV opening steps	Actual data/8
14	Ir	Indoor fan speed	Actual data/8
15	HU	Humidity (if a sensor there)	Actual data, %
16	TT	Set temperature including compensation	Actual data, °C
17	nA	Reserved	
18	nA	Reserved	
19	Uo	Outdoor DC bus voltage	
20	oT	Target Frequency calculated by indoor	Without limitation
21	TA	Evaporator coil inlet temperature	Actual data,°C/°F
22	Tb	Evaporator coil inlet temperature	Actual data,°C/°F
23~30	nA	Reserved	

Please note that:

- The Channel number indicates a certain parameter value (Check the table below).
- The indoor unit display will show the code for 2s, and then the parameter value.
- In the engineering mode, the other keys or operations are invalid except for the following buttons "Power", "Up", "Down" , and "Ok".
- In order to exit from the engineering mode, press "Power" + "Fan" buttons together for 2s to quit Checking and back to the home screen.
- The engineering mode will be exited if there is no valid input data for the 60s. Error code of engineer mode.

Parameter Values

Display	Error Information
EH00	IDU EEPROM malfunction
EH0A	IDU EEPROM parameter error
EL01	IDU & ODU communication error
EH6A	Communication error between indoor unit and external fan module
EH30	Parameters error of indoor external fan
EH35	Phase failure of indoor external fan
EH36	Indoor external fan current sampling bias fault
EH37	Indoor external fan zero speed failure
EH38	Indoor external fan stall failure
EH39	Out of step failure of indoor external fan
EH3A	Low voltage protection of indoor external fan DC bus
EH3b	Indoor external fan DC bus voltage is too high fault
EH3E	Indoor external fan overcurrent fault
EH3F	Indoor external fan module protection/hardware overcurrent protection
EH03	IDU fan speed out of control
EC51	ODU EEPROM parameter error
EC52	ODU coil temp. sensor (T3) error
EC53	ODU ambient temp. sensor (T4) error
EC54	COMP. discharge temp. sensor(TP) error
EC55	IGBT temperature sensor TH is in open circuit or short circuit
EC0d	Outdoor unit malfunction
EH60	IDU room temp. sensor (T1) error
EH61	IDU coil temp. sensor(T2) error
EC71	Outdoor external fan overcurrent fault
EC75	Outdoor external fan module protection/hardware overcurrent protection
EC72	Outdoor external fan phase failure
EC74	Outdoor external fan current sampling bias fault
EC73	Zero speed failure of outdoor unit DC fan
EC07	ODU fan speed out of control(
EH65	Intelligent eye communication failure
EL0C	Refrigerant leak detected
EH0E	Water-level alarm malfunction
EH0F	Intelligent eye malfunction
FH07	Communication malfunction between indoor unit and auto-lifting panel
PC00	ODU IPM module protection
PC 10	Over low voltage protection
PC 11	Over voltage protection
PC 12	DC voltage protection
PC02	Top temperature protection of compressor or High temperature protection of IPM module
PC40	Communication error between outdoor main chip and compressor driven chip

Parameter Values (continued)

Display	Error Information
PC41	Current Input detection protection
PC42	Compressor start error
PC43	Lack of phase (3 phase) protection
PC44	Outdoor unit zero speed protection
PC45	341PWM error
PC46	Compressor speed malfunction
PC49	Compressor over current protection
PC06	Compressor discharge temperature protection
PC08	Outdoor current protection
PH09	Anti-cold air in heating mode
PC0F	PFC module malfunction
PC30	System overpressure protection
PC31	System pressure is too low protection
PC03	Pressure protection
PC0L	Outdoor low ambient temperature protection
PH90	Evaporator coil temperature over high protection
PH91	Evaporator coil temperature over low Protection
PC0A	Condenser high temperature protection
PH0C	Indoor unit humidity sensor failure
LH00	Frequency limit caused by T2
LH30	Indoor external fan current limit
LH31	Indoor external fan voltage limit
LC01	Frequency limit caused by T3
LC02	Frequency limit caused by TP
LC05	Frequency limit caused by voltage
LC03	Frequency limit caused by current
LC06	Frequency limit caused by PFC
LC30	Frequency limit caused by high pressure
LC31	Frequency limit caused by low pressure
LH07	Frequency limit caused by remote controller
--	IDUs mode conflict(match with multi outdoor unit)
nA	No malfunction and protection

Advanced Function Setting
To enter the engineering mode, and check the advanced function settings, please take the following steps:

If you want to check the current functions set value (Presetting Page):

1. Firstly, you need to disconnect the power supply from the unit and wait for 1 minute.
2. Then connect the power supply again to the unit (the unit should be under the standby state).
3. Press "Power" + "Fan" buttons together for 7s until the remote controller screen shows "0", and "Auto, Cool, Dry, Heat, Battery "icons will be displayed at the same time.
4. Press "Up" or "Down" button to choose different channel number that you want to check (from 0-30) on the remote controller.
5. Then Press the "Power" button for 2s until the remote controller screen shows "Ch".
6. Press "OK" button to query the current function set value while the remote controller shows "CH", and the function set value will be shown on the indoor unit display.

If you want to change the current functions set value:

1. Firstly, you need to disconnect the power supply from the unit and wait for 1 minute.
2. Then connect the power supply again to the unit (the unit should be under the standby state).
3. Press "Power" + "Fan" buttons together for 7s until the remote controller screen shows "0", and "Auto, Cool, Dry, Heat, Battery "icons will be displayed at the same time.
4. Press the "Up" or "Down" button to choose different channel number that you want to change (from 0-30) on the remote controller.
5. Then Press the "Power" button for 2s until the remote controller screen shows "Ch".
6. Press the "Up" or "Down" button to choose the desired set value from the screen of the remote control.
7. Then Press "OK" to send the new set value to the indoor unit, and the indoor unit will display "CS", which means that the new set value is uploaded successfully.
8. Finally, disconnect the power supply from the unit, and wait for 10 minutes, then connect it again.

Please note that:

1. The Channel number indicates a certain function, and each number will be shown on the indoor unit screen indicates the current function set value (Check the table below).
2. In the engineering mode, the other keys or operations are invalid except for the following buttons "Power", "Up", "Down", and "Ok".
3. To set a new set value successfully, you need to finish the steps (from 2 to 7) within 1 minute only.
4. The engineering mode will be exited if there is no valid input data for the 60s.
5. To exit from the engineering mode, please follow the following steps:
   - Press the "Power" button for 2s press until the remote controller screen shows "0".
   - Then Press "Power" + "Fan" buttons together for 2s to quit the engineering mode and back to the home screen.

Advanced Function Parameter Definitions

Channel	Function	Parameter Value Meaning	Remark
0	Capacity setting (Btu/h)	1-100K	
1	Auto-restart function	0 – Inactive 1 – Active	
2	Fan control when Ts reached	1- Fan stop 2 - Fan runs at lowest RPM 3 - Fan runs at setting RPM 4 - Fan stops for 4 mins and runs for 1mins 5 - Fan stops for 8 mins and runs for 1mins 6 - Fan stops for 16 mins and runs for 1mins 7 - Fan stops for 24 mins and runs for 1mins 8 - Fan stops for 48 mins and runs for 1mins 9 - Fan stops for 15 mins and runs for 2.5mins 10 - Fan stops for 30 mins and runs for 2.5mins 11 - Fan stops for 60 mins and runs for 2.5 12- Fan runs at setting RPM, but stop if choose Automatic speed 13- Fan runs at the lowest speed, but stop if choose Automatic speed	
3	Mode lock	CH–Cooling and heating (all modes) HH–Heating only (Heating + Fan only) CC–Cooling only (Cooling + Drying + Fan only) nU–Cooling and heating without Auto	Remote controller will change as well.

Advanced Function Parameter Definitions (continued)

Channel	Function	Parameter Value Meaning	Remark
4	Lowest setting temperature	16-24	Remote controller will change as well.
5	Highest setting temperature	25-30	Remote controller will change as well.
6	Reserved	Nothing to set	
7	/	Nothing to set	
8	/	Nothing to set	
9	/	Nothing to set	
10	/	Nothing to set	
11	Min. frequency limitation in cooling mode	10, 11, 12, ..., 49, 50, -- (Cancel)	
12	Min. frequency limitation in heating mode	10, 11, 12, ..., 49, 50, -- (Cancel)	
13	Max frequency selection in T4 limitation of Zone6	20, 21, 22, ..., 149, 150, -- (Cancel)	
14	/	Nothing to set	
15	Frequency selection of outdoor forced-operation	10, 11, 12, ..., 249, 250, -- (Cancel)	
16	One button reset	rS – Reset	
17	nA	Nothing to set	
18	Capacity setting(kW)	23,26,32,35,51,72,120,-- (Cancel)	
19	Max. frequency selection in cooling mode	40, 41, 42, ..., 83, 84, -- (Cancel)	
20	Max. frequency selection in heating mode	40, 41, 42, ..., 83, 84, -- (Cancel)	Without limitation
21	Cooling temperature compensation	-3.0, -2.5, -2.0, ..., 3.0, 3.5, -- (Cancel)	
22	Heating temperature compensation	-6.5, -6.0, -5.5, ..., 0.5, 1.0, 1.5, ..., 7.0, 7.5, -- (Cancel)	
23	Fan volume selection in cooling	Fan volume will add set data*20cfm.	
24	Reserved	Nothing to set	
25	Fan volume selection in heating	Fan volume will add set data*20cfm.	
26	Reserved	Nothing to set	
27	Defrosting type	A0–Normal defrosting A1-Enhanced defrosting	
28	Anti-cold air Stop Fan Temperature	16~28	
29	Reserved	Nothing to set	
30	Reserved	Nothing to set	

Error Diagnosis and Troubleshooting Without Error Code

⚠ WARNING

Be sure to turn off the unit before any maintenance to prevent damage or injury.

Remote maintenance

SUGGESTION: When troubles occur, please check the following points with customers before field maintenance.

No.	Problem	Solution
1	The unit will not start	page 39
2	The power switch is on, but the fans will not start	
3	The temperature on the display board cannot be set	
4	The unit is on, but the wind is not cold (hot)	
5	The unit runs but shortly stops	
6	The unit starts up and stops frequently	
7	Unit runs continuously but insufficient cooling (heating)	
8	Cool cannot change to heat	
9	The unit is noisy	

Field maintenance

No.	Problem	Solution
1	Unit will not start	page 41
2	Compressor will not start but fans run	
3	Compressor and condenser (outdoor) fan will not start	
4	Evaporator (indoor) fan will not start	
5	Condenser (Outdoor) fan will not start	
6	Unit runs, but shortly stops	
7	Compressor short-cycles due to overload	
8	High discharge pressure	
9	Low discharge pressure	
10	High suction pressure	
11	Low suction pressure	
12	Unit runs continuously but insufficient cooling	
13	Too cool	
14	Compressor is noisy	
15	Horizontal louver can not revolve	

Remote Troubleshooting

1.Remote Maintenance	Electrical Circuit							Refrigerant Circuit						
Possible causes of trouble	Power failure	The main power tripped	Loose connections	Faulty transformer	The voltage is too high or too low	The remote control is powered off	Broken remote control	Dirty air filter	Dirty condenser fins	The setting temperature is higher/lower than the room's(cooling/heating)	The ambient temperature is too high/ low when the mode is cooling/heating	Fan mode	SILENCE function is activated(optional function)	Frosting and defrosting frequently
Unit will not start	☆	☆	☆	☆										
The power switch is on but fans will not start			☆	☆	☆									
The temperature on the display board cannot be set						☆	☆							
Unit is on but the wind is not cold(hot)										☆	☆	☆		
Unit runs, but shortly stops					☆					☆	☆			
The unit starts up and stops frequently					☆						☆			☆
Unit runs continuously but insufficient cooling(heating)								☆	☆	☆	☆		☆	
Cool can not change to heat														
Unit is noisy														
Test method / remedy	Test voltage	Close the power switch	Inspect connections - tighten	Change the transformer	Test voltage	Replace the battery of the remote control	Replace the remote control	Clean or replace	Clean	Adjust the setting temperature	Turn the AC later	Adjust to cool mode	Turn off SILENCE function.	Turn the AC later

Remote Troubleshooting (continued)

1.Remote Maintenance	Others					
Possible causes of trouble	Heavy load condition	Loosen hold down bolts and / or screws	Bad airproof	The air inlet or outlet of either unit is blocked	Interference from cell phone towers and remote boosters	Shipping plates remain attached
Unit will not start						
The power switch is on but fans will not start					☆	
The temperature on the display board cannot be set						
Unit is on but the wind is not cold(hot)						
Unit runs, but shortly stops						
The unit starts up and stops frequently				☆		
Unit runs continuously but insufficient cooling(heating)	☆		☆	☆		
Cool can not change to heat						
Unit is noisy		☆				☆
Test method / remedy	Check heat load	Tighten bolts or screws	Close all the windows and doors	Remove the obstacles	Reconnect the power or press ON/OFF button on remote control to restart operation	Remove them

Field Troubleshooting

2.Field Maintenance	Refrigerant Circuit																			Others				
Possible causes of trouble	Compressor stuck	Shortage of refrigerant	Restricted liquid line	Dirty air filter	Dirty evaporator coil	Insufficient air through evaporator coil	Overcharge of refrigerant	Dirty or partially blocked condenser	Air or incompressible gas in refrigerant cycle	Short cycling of condensing air	High temperature condensing medium	Insufficient condensing medium	Broken compressor internal parts	Inefficient compressor	Expansion valve obstructed	Expansion valve or capillary tube closed completely	Leaking power element on expansion valve	Poor installation of feeler bulb	Heavy load condition	Loosen hold down bolts and / or screws	Shipping plates remain attached	Poor choices of capacity	Contact of piping with other piping or external plate
Unit will not start																								
Compressor will not start but fans run	☆																							
Compressor and condenser (outdoor) fan will not start																								
Evaporator (indoor) fan will not start																								
Condenser (Outdoor) fan will not start																								
Unit runs, but shortly stops		☆	☆				☆	☆								☆	☆							
Compressor short-cycles due to overload		☆					☆	☆																
High discharge pressure							☆	☆	☆	☆	☆	☆												
Low discharge pressure		☆												☆										
High suction pressure							☆							☆				☆	☆					
Low suction pressure		☆	☆	☆	☆	☆									☆	☆	☆							
Unit runs continuously but insufficient cooling		☆	☆	☆	☆	☆		☆	☆	☆				☆					☆			☆		
Too cool																								
Compressor is noisy							☆						☆							☆	☆		☆	
Horizontal louver can not revolve																								
Test method / remedy	Replace the compressor	Leak test	Replace restricted part	Clean or replace	Clean coil	Check fan	Change charged refrigerant volume	Clean condenser or remove obstacle	Purge, evacuate and recharge	Remove obstruction to air flow	Remove obstruction in air or water flow	Remove obstruction in air or water flow	Replace compressor	Test compressor efficiency	Replace valve	Replace valve	Replace valve	Fix feeler bulb	Check heat load	Tighten bolts or screws	Remove them	Choose AC of lager capacity or add the number of AC	Rectify piping so as not to contact each other or with external plate

Field Troubleshooting (continued)

2.Field Maintenance	Electrical Circuit														
Possible causes of trouble	Power failure	Blown fuse or varistor	Loose connections	Shorted or broken wires	Safety device opens	Faulty thermostat / room temperature sensor	Wrong setting place of temperature sensor	Faulty transformer	Shorted or open capacitor	Faulty magnetic contactor for compressor	Faulty magnetic contactor for fan	Low voltage	Faulty stepping motor	Shorted or grounded compressor	Shorted or grounded fan motor
Unit will not start	☆	☆	☆	☆	☆			☆							
Compressor will not start but fans run				☆		☆			☆	☆				☆	
Compressor and condenser (outdoor) fan will not start				☆		☆				☆					
Evaporator (indoor) fan will not start				☆					☆		☆				☆
Condenser (Outdoor) fan will not start				☆		☆			☆		☆				☆
Unit runs, but shortly stops										☆		☆			
Compressor short-cycles due to overload										☆		☆			
High discharge pressure															
Low discharge pressure															
High suction pressure															
Low suction pressure															
Unit runs continuously but insufficient cooling															
Too cool						☆	☆								
Compressor is noisy															
Horizontal louver can not revolve			☆	☆									☆		
Test method / remedy	Test voltage	Inspect fuse type & size	Inspect connections - tighten	Test circuits with tester	Test continuity of safety device	Test continuity of thermostat / sensor & wiring	Place the temperature sensor at the central of the air inlet grille	Check control circuit with tester	Check capacitor with tester	Test continuity of coil & contacts	Test continuity of coil & contacts	Test voltage	Replace the stepping motor	Check resistance with multimeter	Check resistance with multimeter

Quick Maintenance by Error Code

If you do not have the time to test which specific parts are faulty, you can directly change the required parts according to the error code.
You can find the parts to be replaced by the error code in the following table.

Part Requiring Replacement	Error Code										
	EH00/ EH0A	EL01	EH03	EH60	EH61	EH62/ EH66	EH65	EL0C	EHC1/ EHC2	EH0E	EH0B
Indoor PCB	√	√	√	√	√	√	√	√	x	√	√
Outdoor PCB	x	√	x	x	x	x	x	x	x	x	x
Indoor fan motor	x	x	√	x	x	x	x	x	x	x	x
T1 sensor	x	x	x	√	x	x	x	x	x	x	x
T2 sensor	x	x	x	x	√	x	x	√	x	√	x
T2B sensor	x	x	x	x	x	√	x	x	x	x	x
T2A sensor	x	x	x	x	x	x	√	x	x	x	x
Magnet ring	x	√	x	x	x	x	x	x	x	x	x
Compressor	x	x	x	x	x	x	x	x	x	x	x
Additional refrigerant	x	x	x	x	x	x	x	√	√	√	x
Water-level switch	x	x	x	x	x	x	x	x	x	√	x
Water pump	x	x	x	x	x	x	x	x	x	√	x
Display board	x	x	x	x	x	x	x	x	x	x	√

Part Requiring Replacement	Error Code											
	EC54	EC51	EC52	EC53	EC56	EC07	PC00	PC01	PC02	PC04	PC03	FHCC/ EHC3
Indoor PCB	x	x	x	x	x	x	x	x	x	x	x	√
Outdoor PCB	√	√	√	√	√	√	√	√	√	√	√	x
Outdoor fan motor	x	x	x	x	x	√	√	x	√	√	x	x
T3 sensor	x	x	√	x	x	x	x	x	x	x	x	x
T4 sensor	x	x	x	√	x	x	x	x	x	x	x	x
TP sensor	√	x	x	x	x	x	x	x	x	x	x	x
T2B sensor	x	x	x	x	√	x	x	x	x	x	x	x
Refrigerant sensor	x	x	x	x	x	x	x	x	x	x	x	√
Reactor sensor	x	x	x	x	x	x	x	√	x	x	x	x
Compressor	x	x	x	x	x	x	√	x	x	√	x	x
IPM module board	x	x	x	x	x	x	√	√	√	√	x	x
Pressure protector	x	x	x	x	x	x	x	x	x	x	√	x
Additional refrigerant	x	x	x	√	x	x	x	x	x	x	√	x

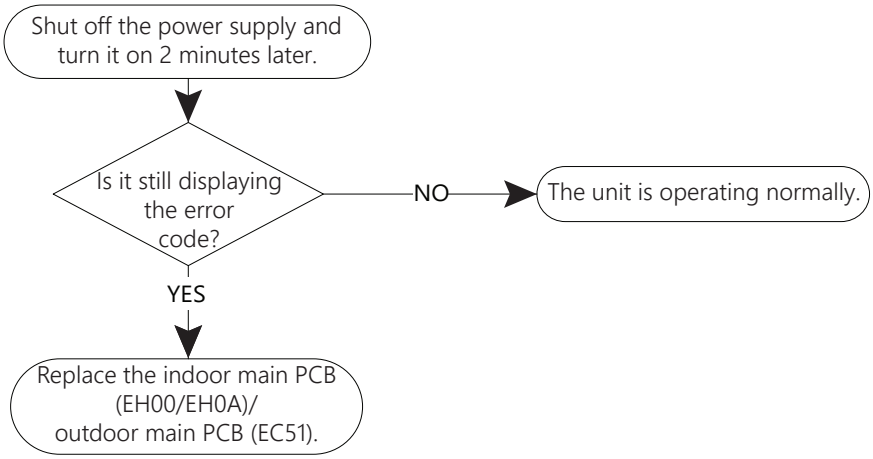
Troubleshooting by Error Code

EH00/ EH0A / EC51 (EEPROM Malfunction Error Diagnosis and Solution)

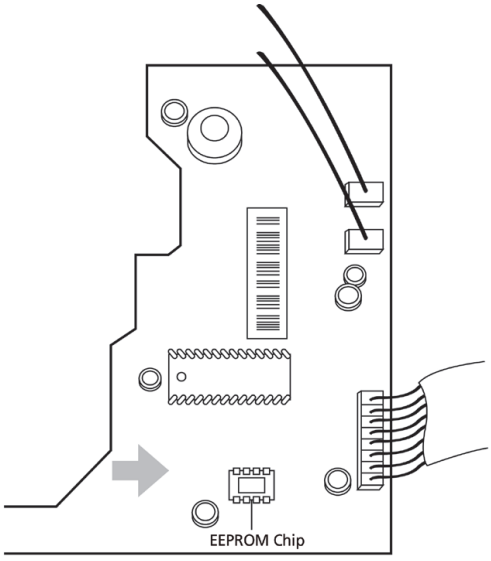
Description: The indoor or outdoor PCB main chip does not receive feedback from the EEPROM chip. Recommended parts to prepare:

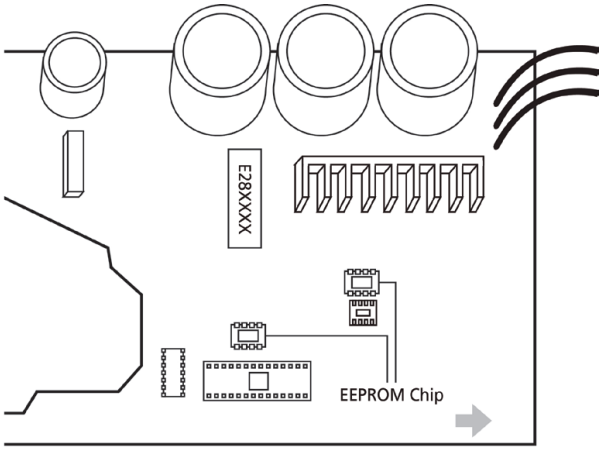
- Indoor PCB
- Outdoor PCB

Troubleshooting and repair:



EEPROM Definition: A read-only memory whose contents can be erased and reprogrammed using a pulsed voltage. The location of the EEPROM chip on the indoor and outdoor PCB is shown in the following two images:





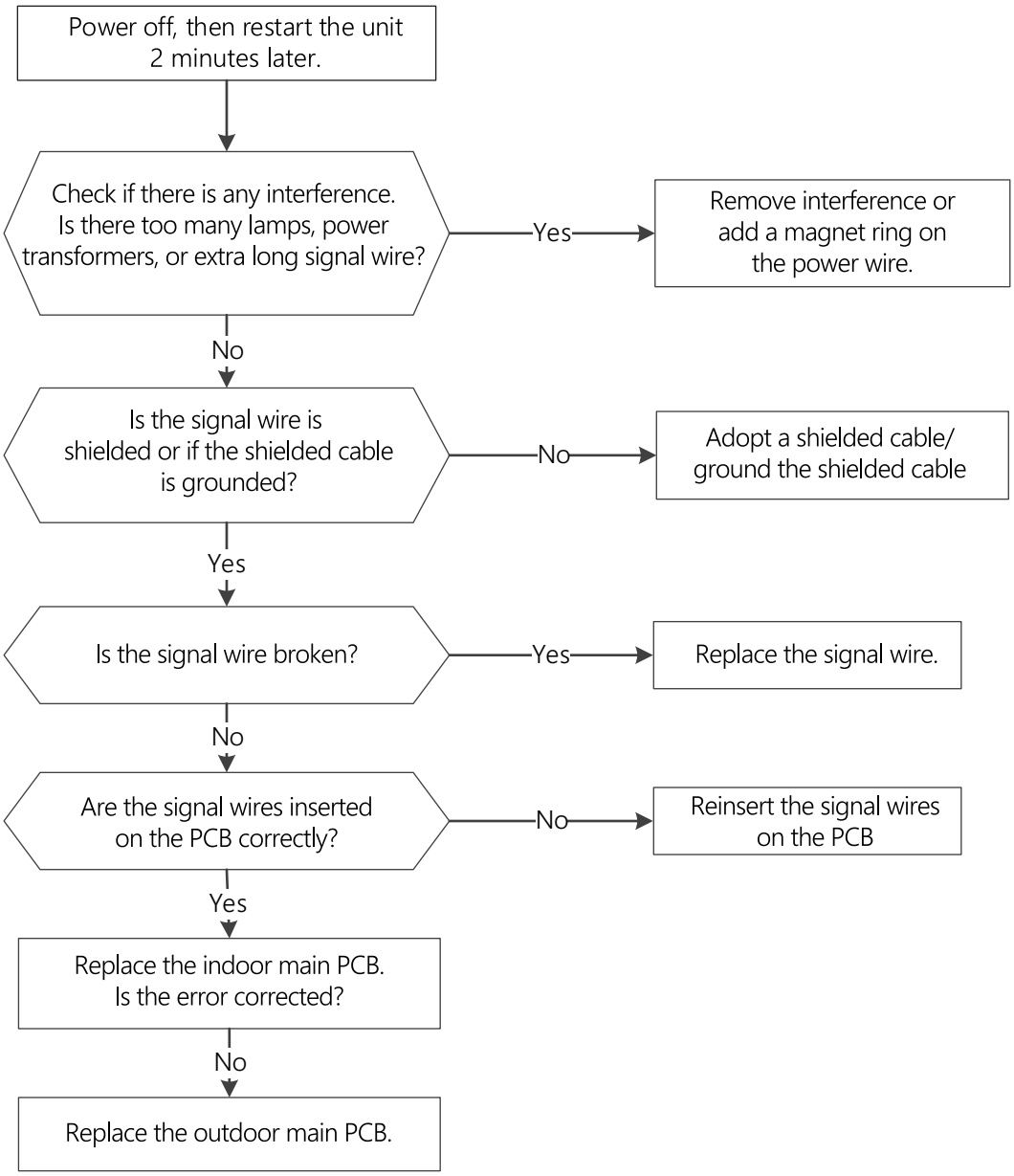
These pictures are only for reference, actual appearance may vary.

Troubleshooting and repair of compressor driven chip EEPROM parameter error and communication error between outdoor main chip and compressor driven chip are same as EC51.

EL01 (Indoor and Outdoor Unit Communication Error Diagnosis and Solution)
Description: The indoor unit cannot communicate with the outdoor unit
Recommended parts to prepare:

- Signal wires
- Magnet ring
- Indoor PCB
- Outdoor PCB

Troubleshooting and repair:



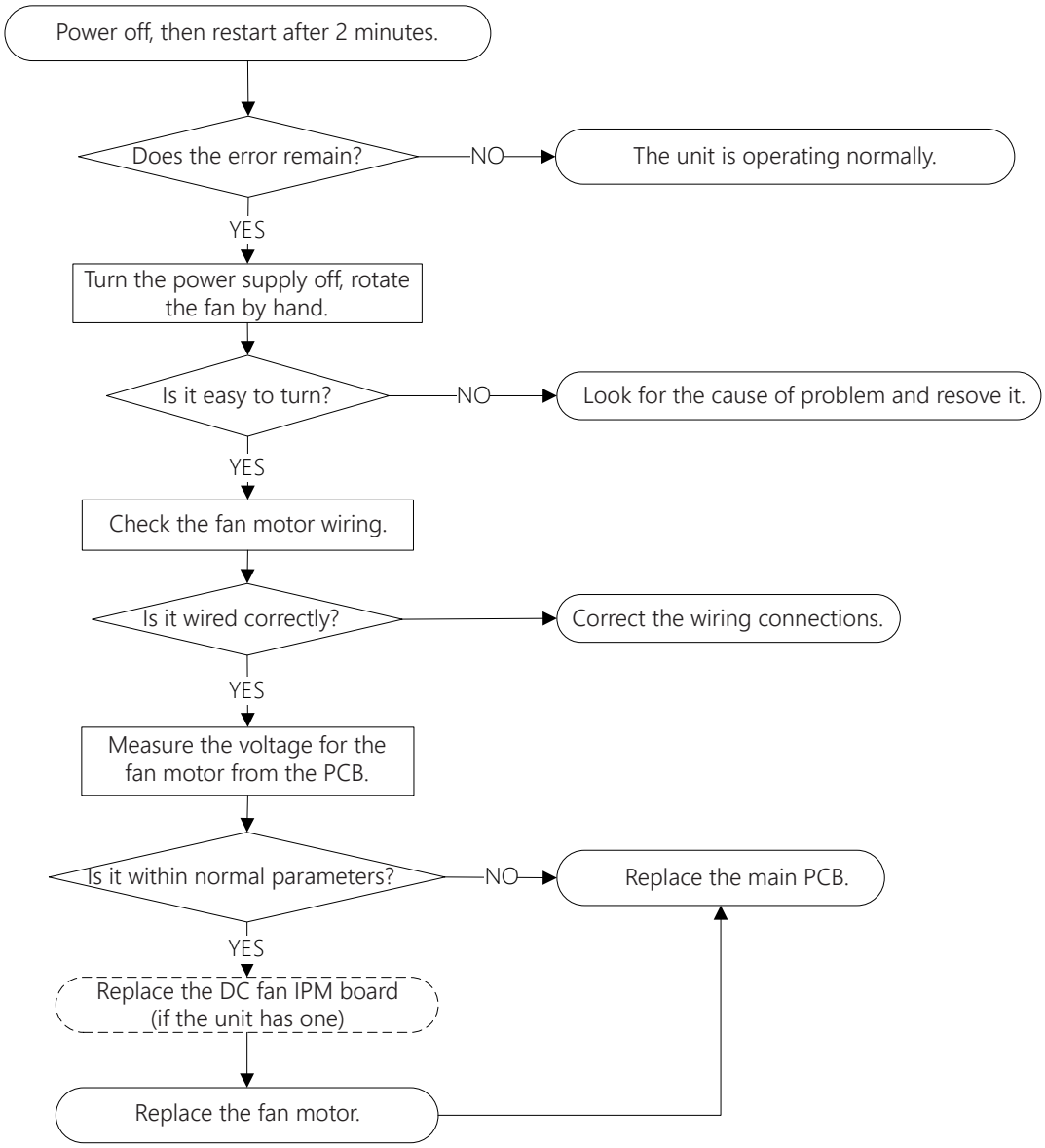
EH03 / EC07 (Fan Speed Is Operating Outside of Normal Range Diagnosis and Solution)

Description: When indoor/outdoor fan speed is kept too low or too high for a certain time, the unit ceases operation and the LED displays the failure.

Recommended parts to prepare:

- Connection wires
- Fan assembly
- Fan motor
- PCB

Troubleshooting and repair:

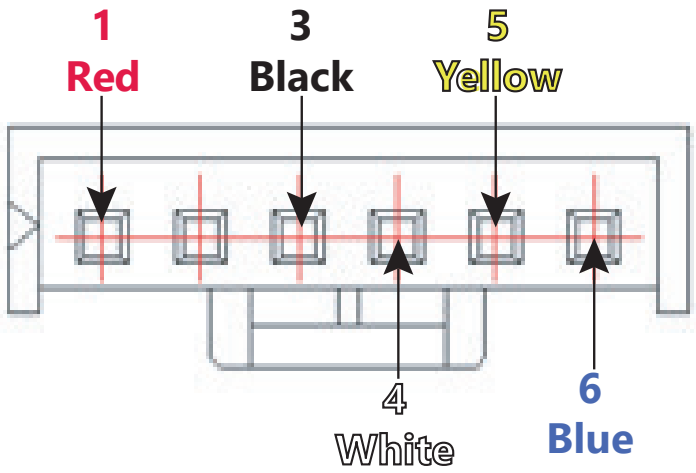


Index:

1. **Indoor or Outdoor DC Fan Motor (control chip is in the fan motor)**

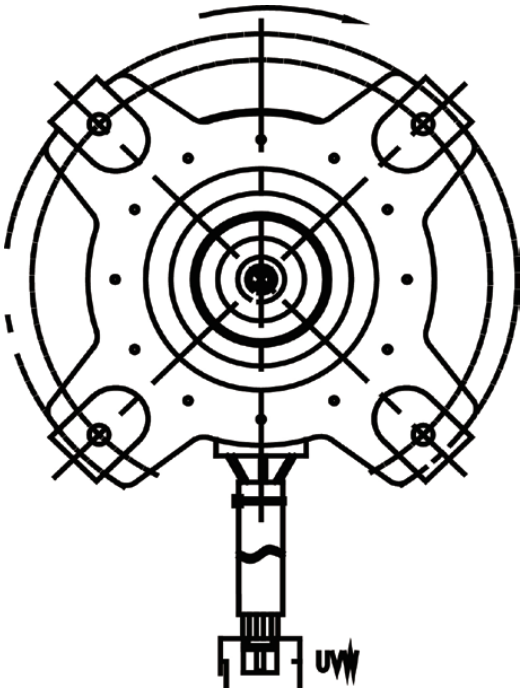
Power on and when the unit is on standby, measure the voltage of pin1-pin3, and pin4-pin3 in the fan motor connector. If the voltage value is not in the range shown in the table below, the PCB must have problems and need to be replaced.

No.	Color	Signal	Voltage
1	Red	VS/VM	192 V~380 V
2	---	---	---
3	Black	GND	0 V
4	White	VCC	13.5~16.5 V
5	Yellow	VSP	0~6.5 V
6	Blue	FG	13.5~16.5 V



2. **Outdoor DC Fan Motor (control chip is in outdoor PCB)**

Release the UVW connector. Measure the resistance of U-V, U-W, and V-W. If the resistance is not equal, the fan motor must have problems and must be replaced. Otherwise, the PCB must have problems and need to be replaced.



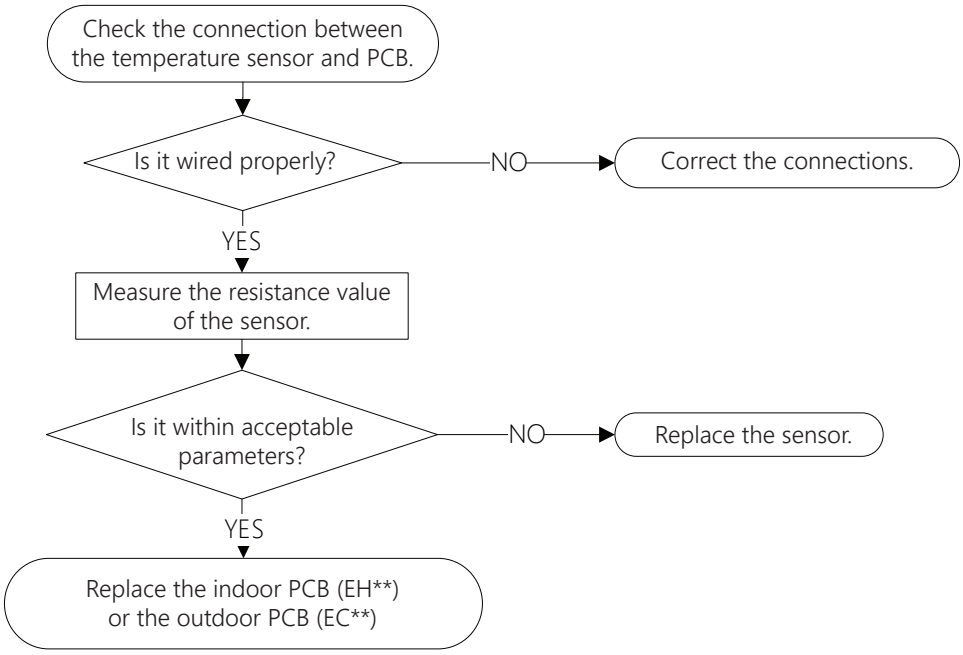
EH60/EH61/EH62/EH66/EH65/EC53/EC52/EC54/EC56 (Open Circuit or Short Circuit of Temperature Sensor Diagnosis and Solution)

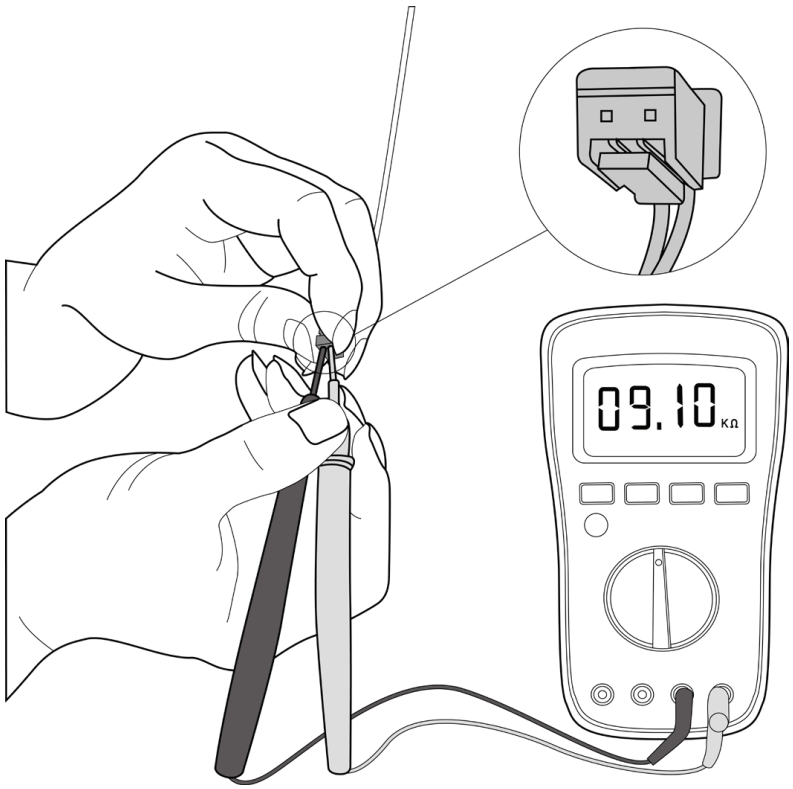
Description: If the sampling voltage is lower than 0.06V or higher than 4.94V, the LED displays failure.

Recommended parts to prepare:

- Connection wires
- Sensors
- PCB

Troubleshooting and repair:





This picture and the value on the display are only for reference, actual appearance and value may vary.

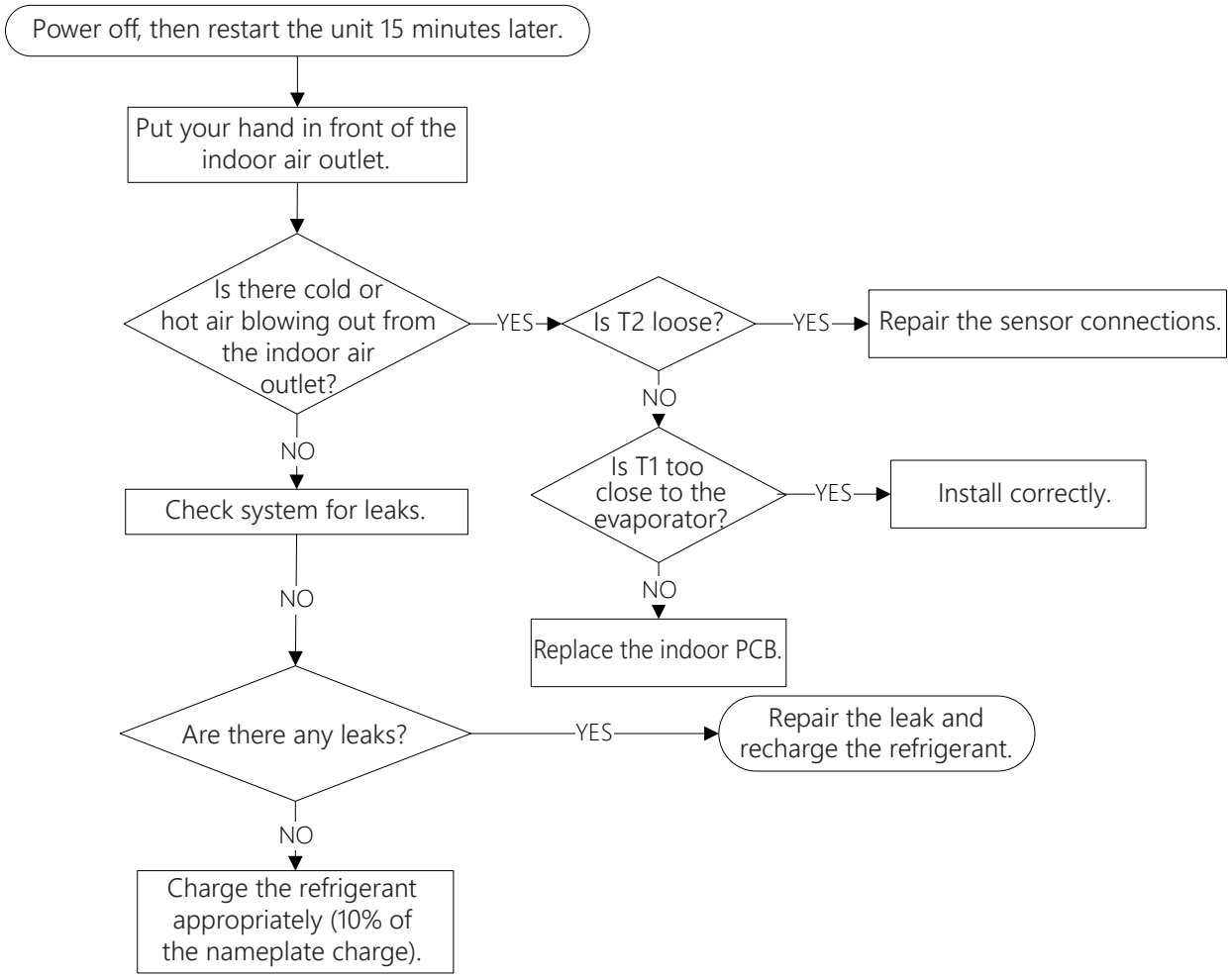
EL0C (System lacks refrigerant Diagnosis and Solution)

Description: Judging the abnormality of the refrigeration system according to the number of compressor stops and the changes in operating parameters caused by excessive exhaust temperature.

Recommended parts to prepare:

- Indoor PCB
- Additional refrigerant

Troubleshooting and repair:

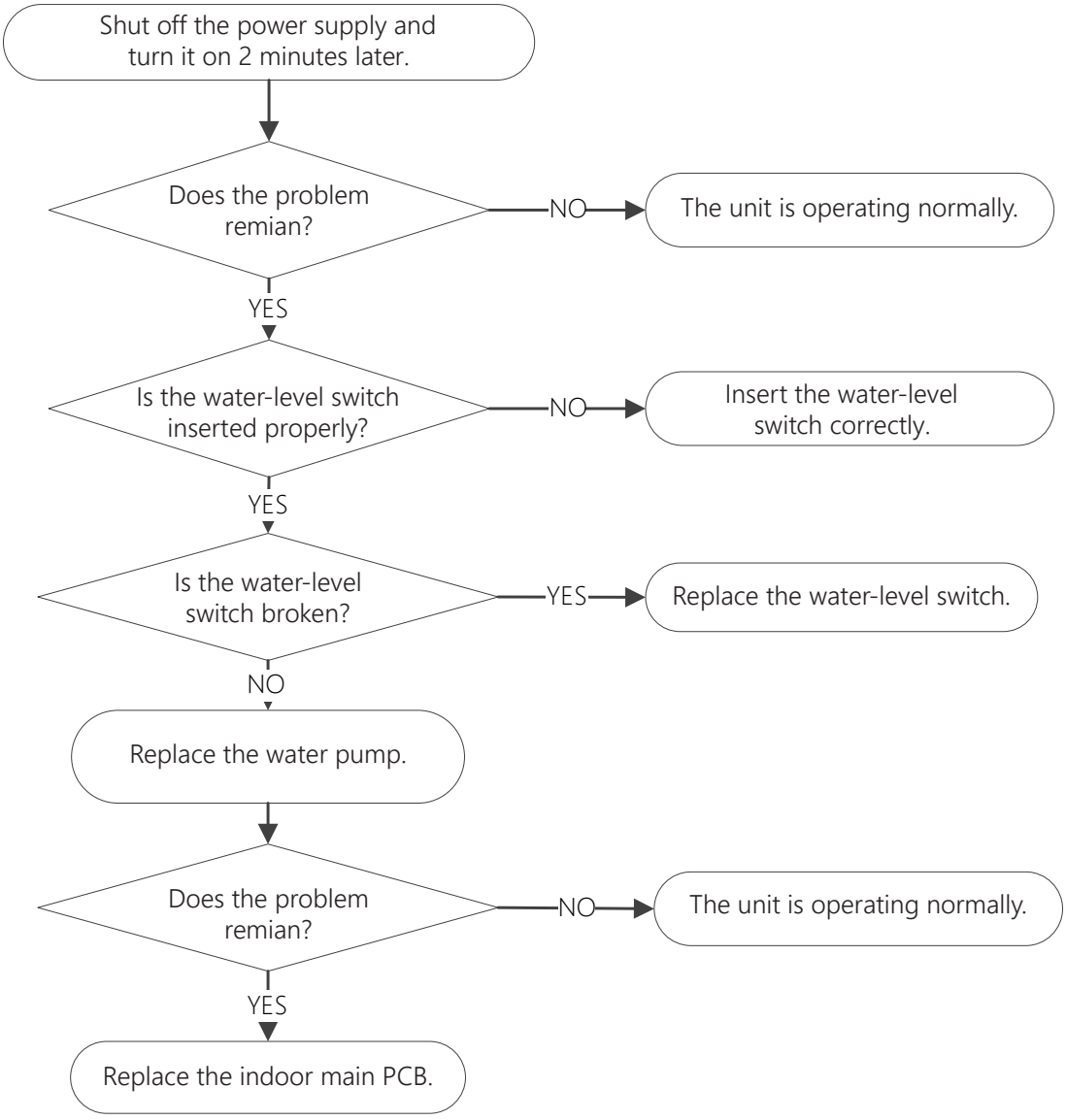


EH0E (Water-Level Alarm Malfunction Diagnosis and Solution)

Description: If the sampling voltage is not 5V, the LED displays the failure code. Recommended parts to prepare:

- Connection wires
- Water-level switch
- Water pump
- Indoor PCB

Troubleshooting and repair:



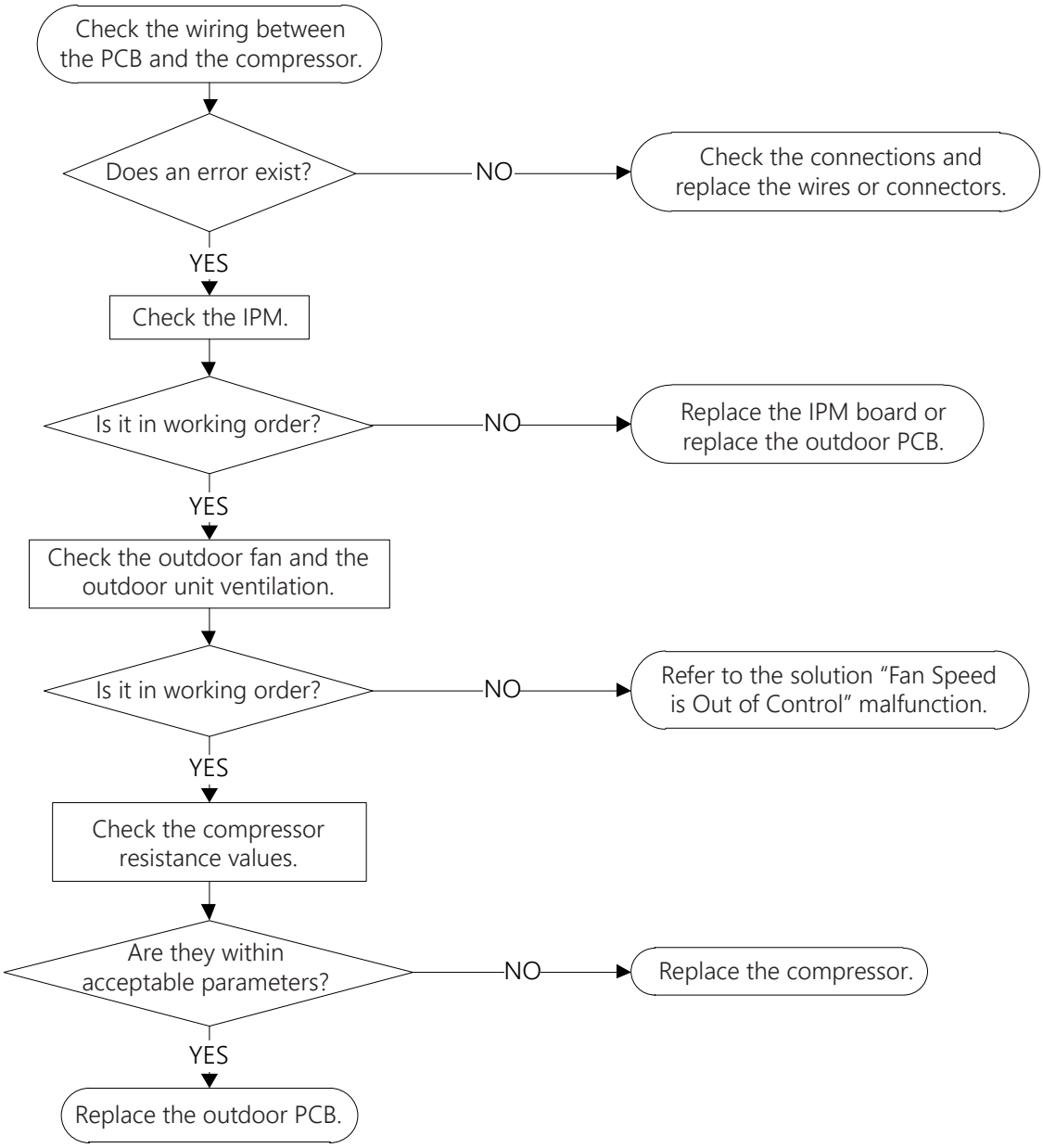
PC00 (ODU IPM module protection Diagnosis and Solution)

Description: When the voltage signal to the IPM sent to the compressor drive chip is abnormal, the display LED shows "PC00" and the AC turns off.

Recommended parts to prepare:

- Connection wires
- IPM module board
- Outdoor fan assembly
- Compressor
- Outdoor PCB

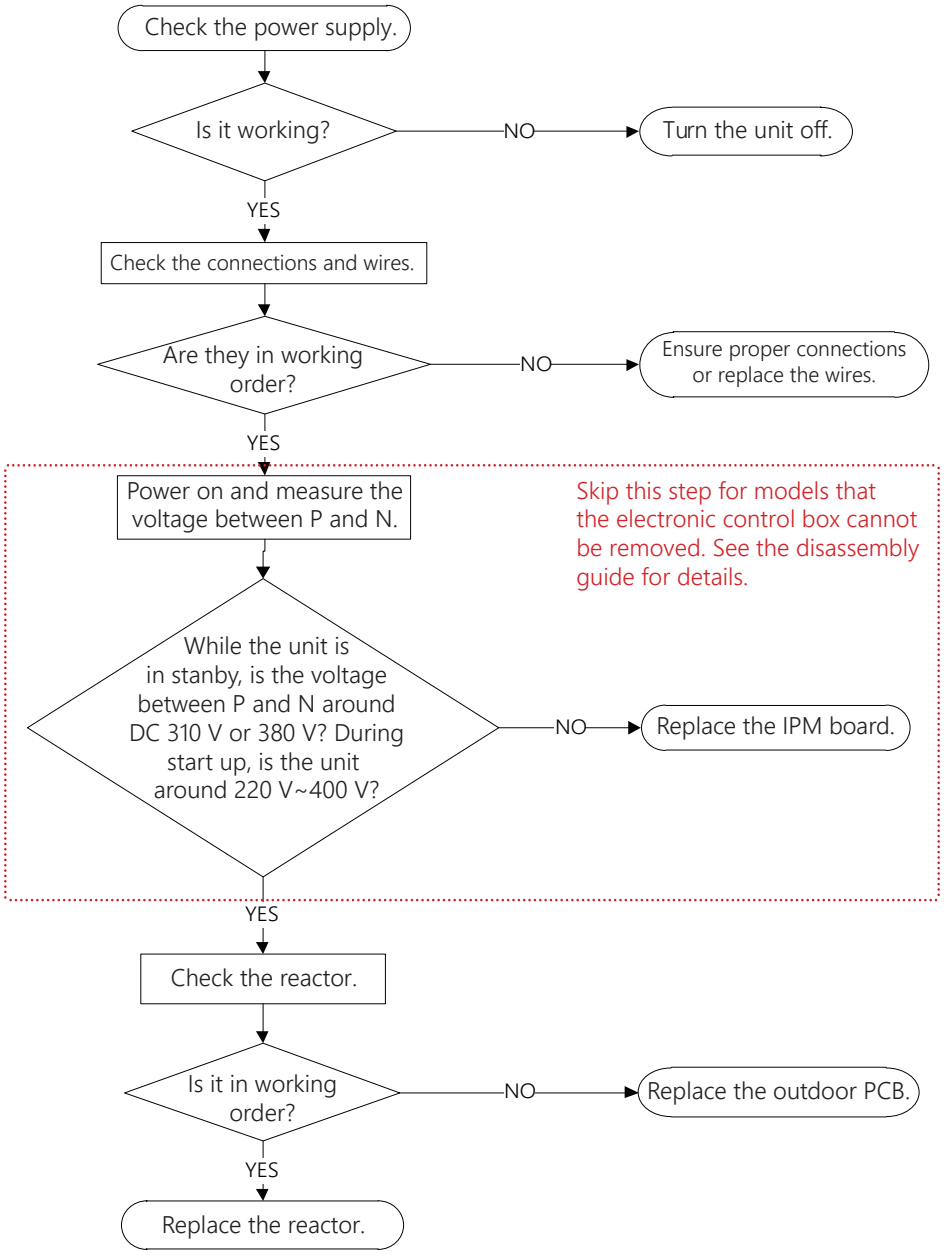
Troubleshooting and repair:



PC01 (ODU voltage protection Diagnosis and Solution)
Description: Abnormal voltage increases or decreases are detected by checking the specified voltage detection circuit.
Recommended parts to prepare:

- Power supply wires
- IPM module board
- PCB
- Reactor

Troubleshooting and repair:



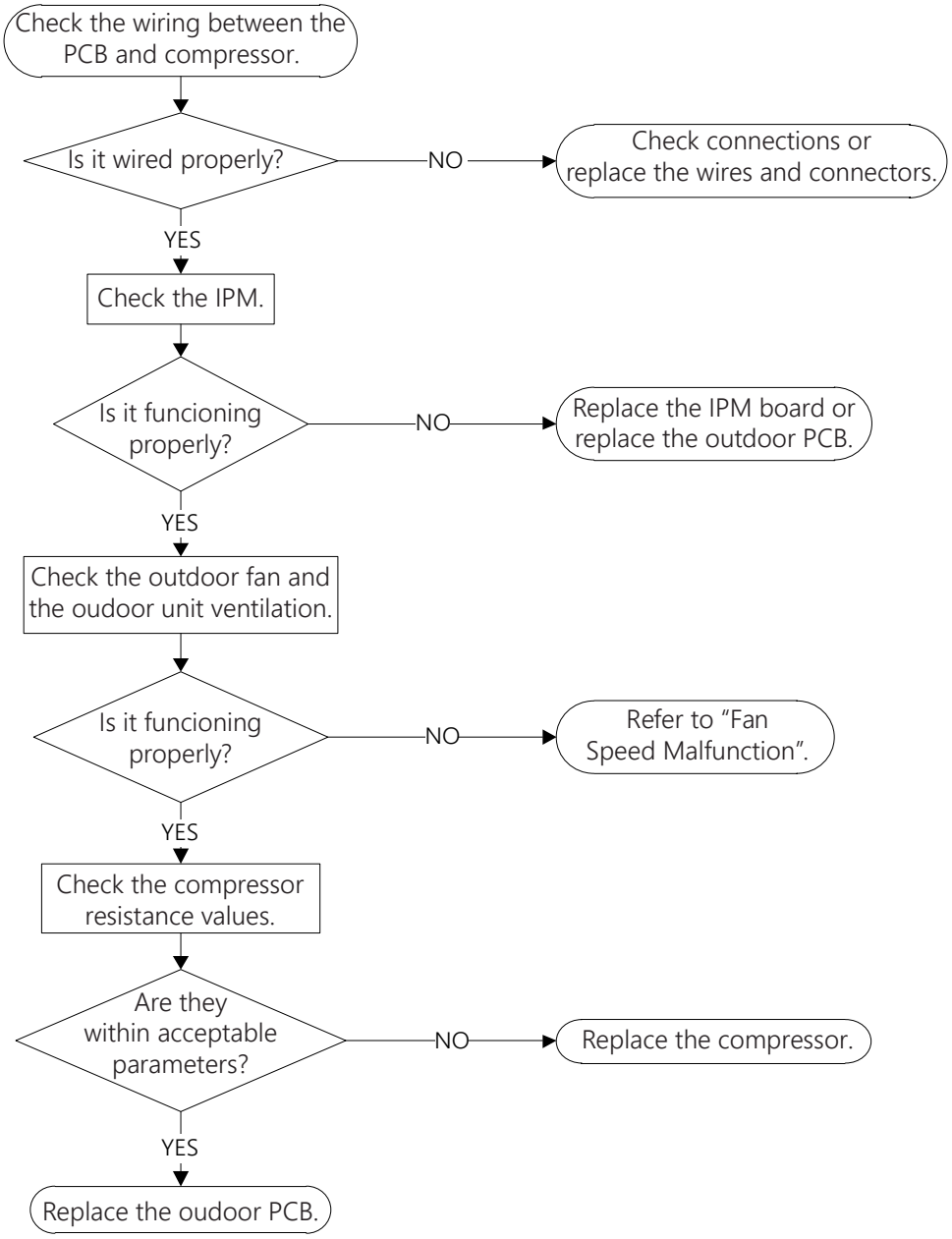
PC04 (Inverter compressor drive error Diagnosis and Solution)

Description: An abnormal inverter compressor drive is detected by a special detection circuit, including communication signal detection, voltage detection, compressor rotation speed signal detection, and so on.

Recommended parts to prepare:

- Connection wires
- IPM module board
- Outdoor fan assembly
- Compressor
- Outdoor PCB

Troubleshooting and repair:



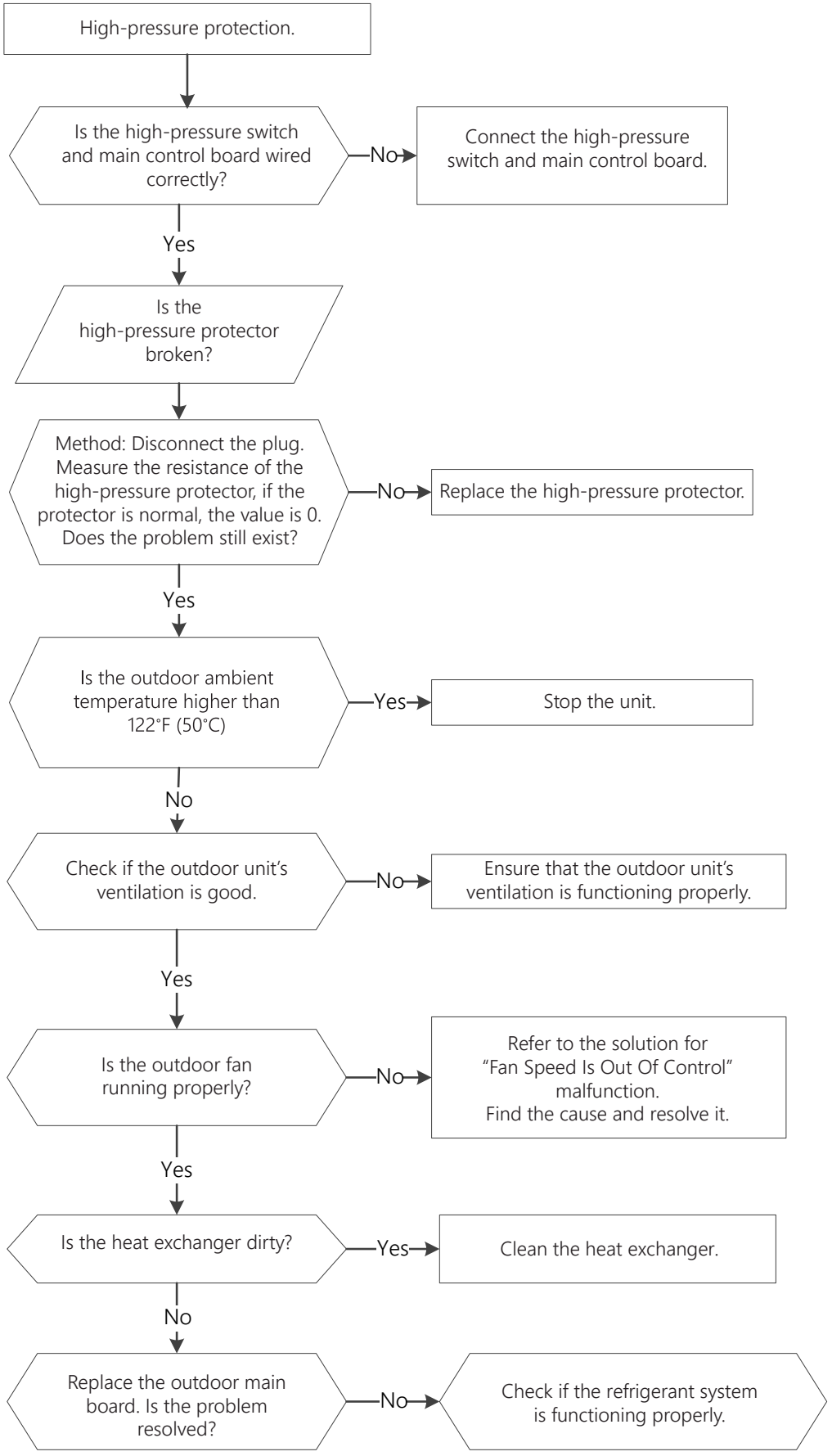
PC03 (Pressure protection (low or high pressure) Diagnosis and Solution)

Description: The outdoor pressure switch cut off the system because the high pressure is higher than 4.4 MPa or the outdoor pressure switch cut off the system because the low pressure is lower than 0.13 MPa, the LED displays the failure code.

Recommended parts to prepare:

- Connection wires
- Pressure switch
- Outdoor fan
- Outdoor main PCB
- Refrigerant

Troubleshooting and repair:



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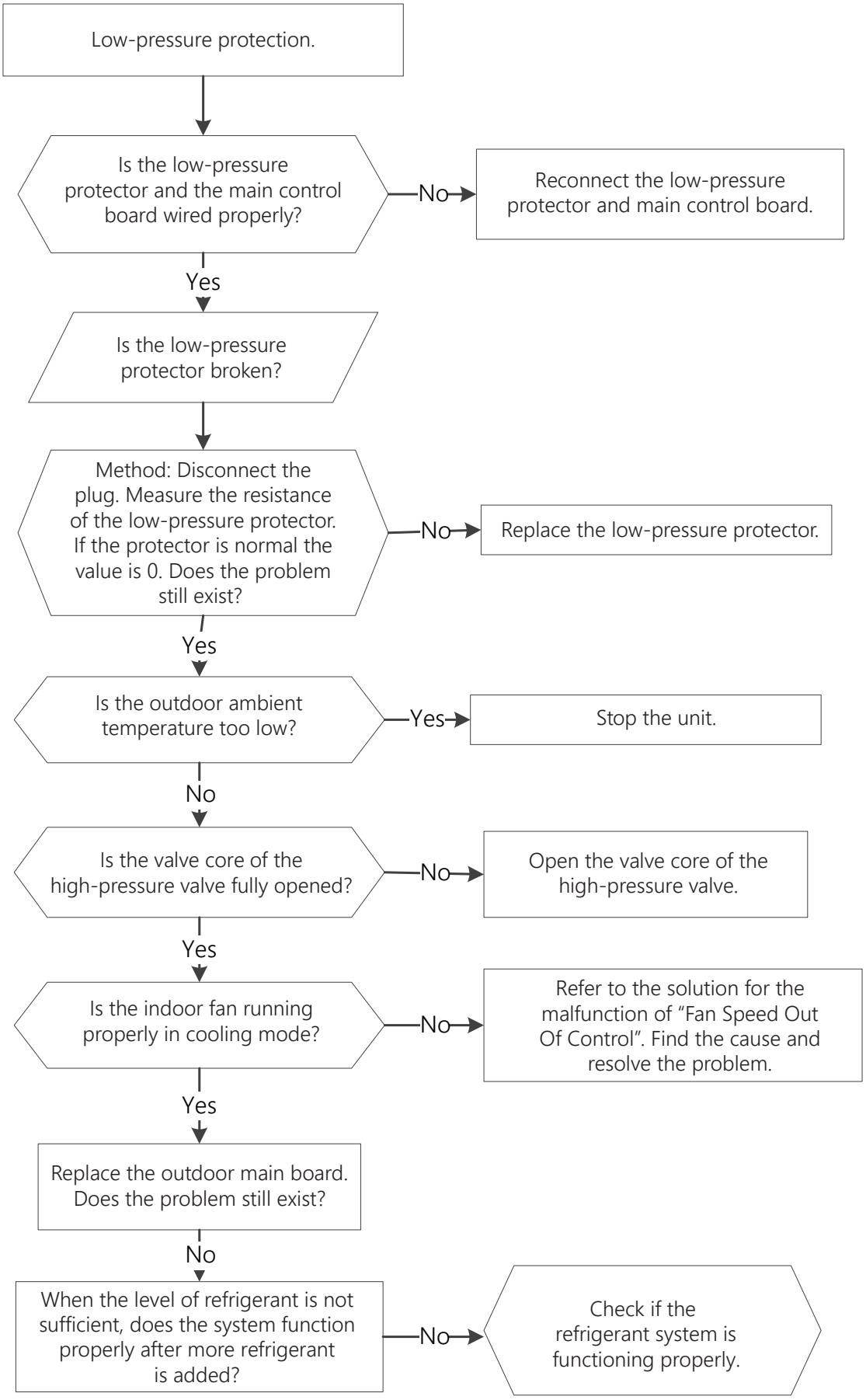


PC02(Compressor top (or IPM) temp. protection diagnosis and solution)

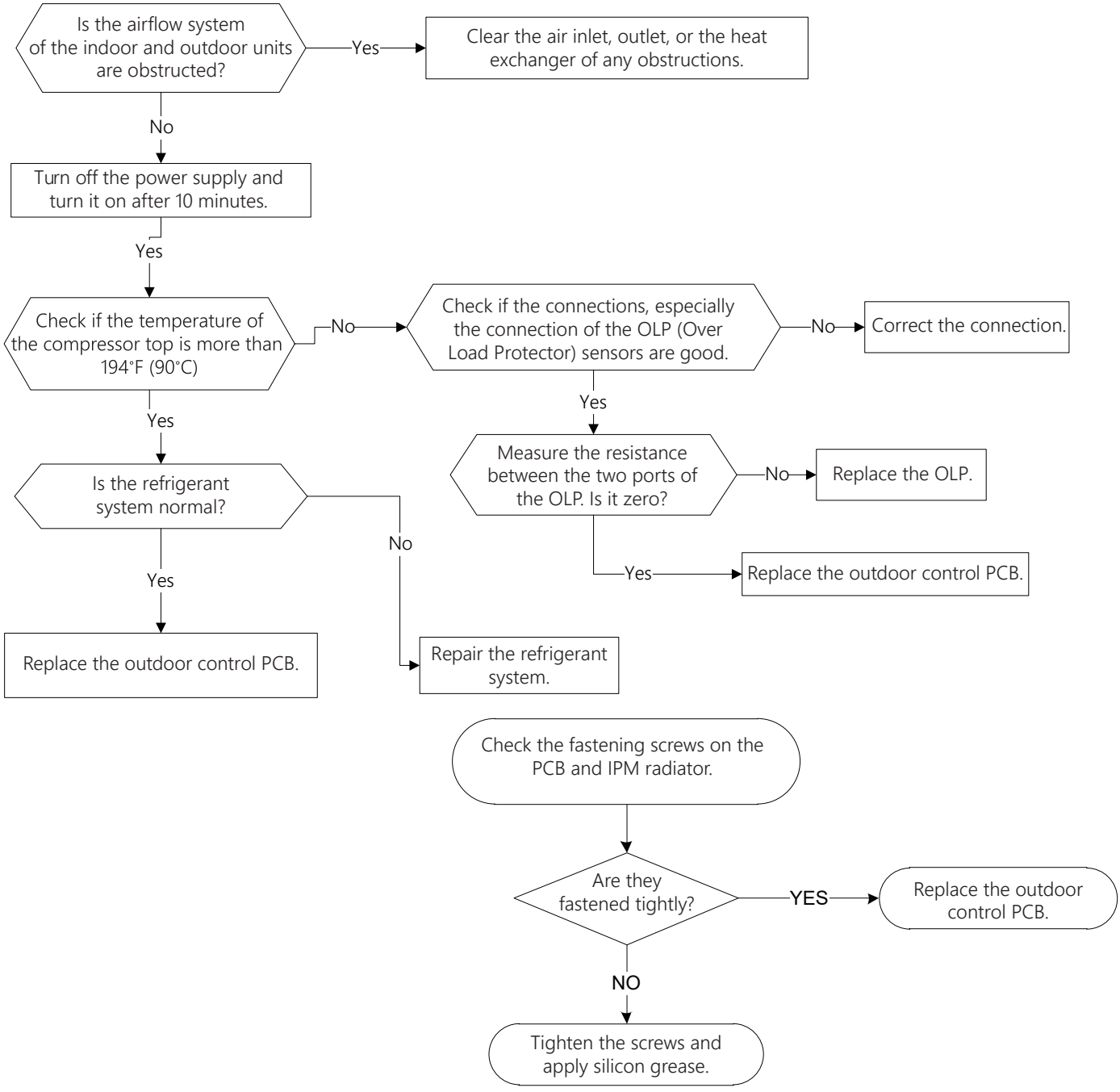
Description: For some models with overload protection, If the sampling voltage is not 5 V, the LED will display the failure. If the temperature of the IPM module is higher than a certain value, the LED displays the failure code.

Models without overload protection should be diagnosed according to the second flowchart.

Recommended parts to prepare:

- Connection wires
- Outdoor PCB
- IPM module board
- High-pressure protector
- System blockages

Troubleshooting and repair:



PC0L (Low ambient temperature protection)

Description: It is a protection function. When the compressor is off, the outdoor ambient temperature (T4) is lower than -31°F (-35°C) for 10 seconds, the AC will stop and display the failure code.

When the compressor is on, the outdoor ambient temperature (T4) is lower than -40°F (-40°C) for 10 seconds, the AC will stop and display the failure code.

When the outdoor ambient temperature (T4) is no lower than -25.6°F (-32°C) for 10 seconds, the unit will exit protection.

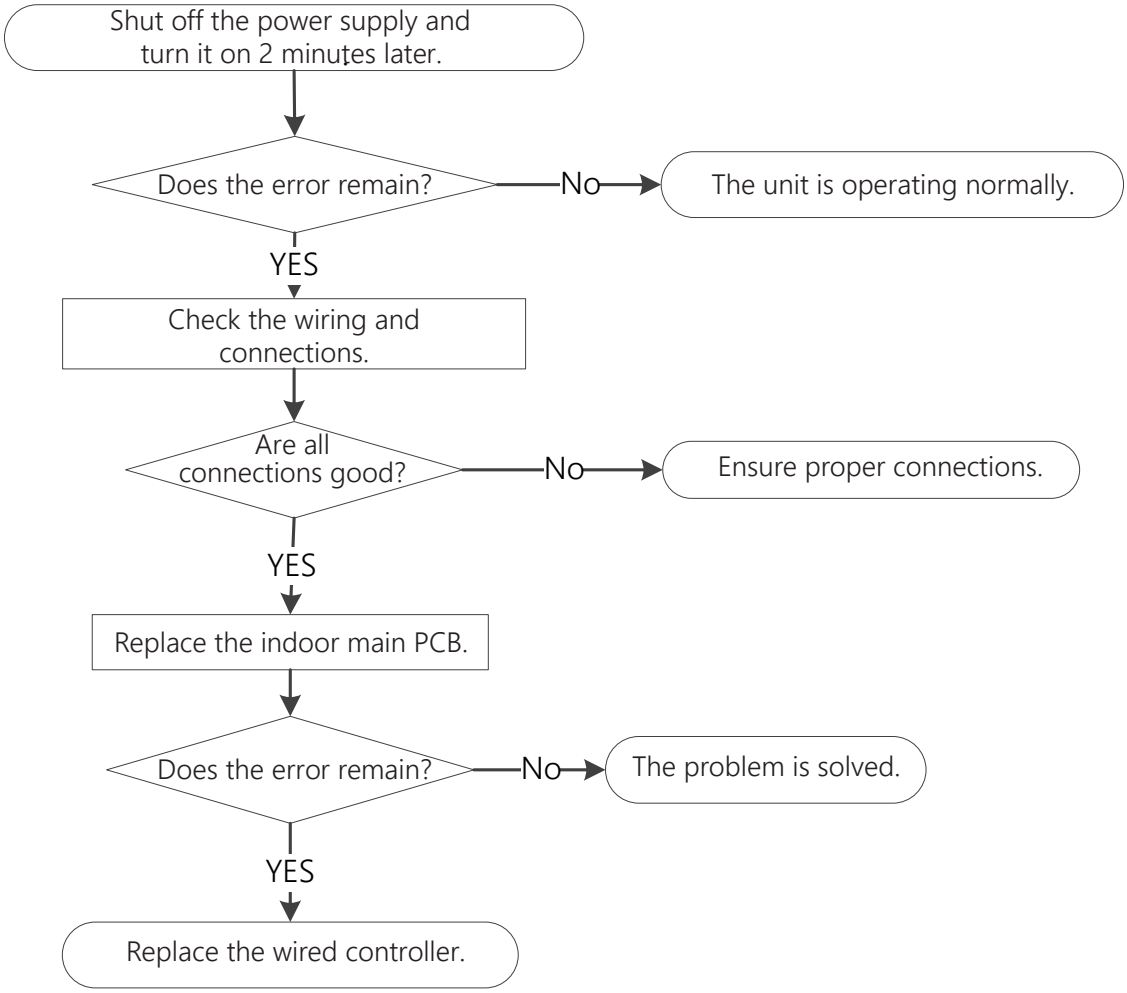
EHb3 (Communication malfunction between the wire and master control) Diagnosis and Solution

Description: If Indoor PCB does not receive feedback from the wired controller, the error is displayed on the wired controller

Recommended parts to prepare:

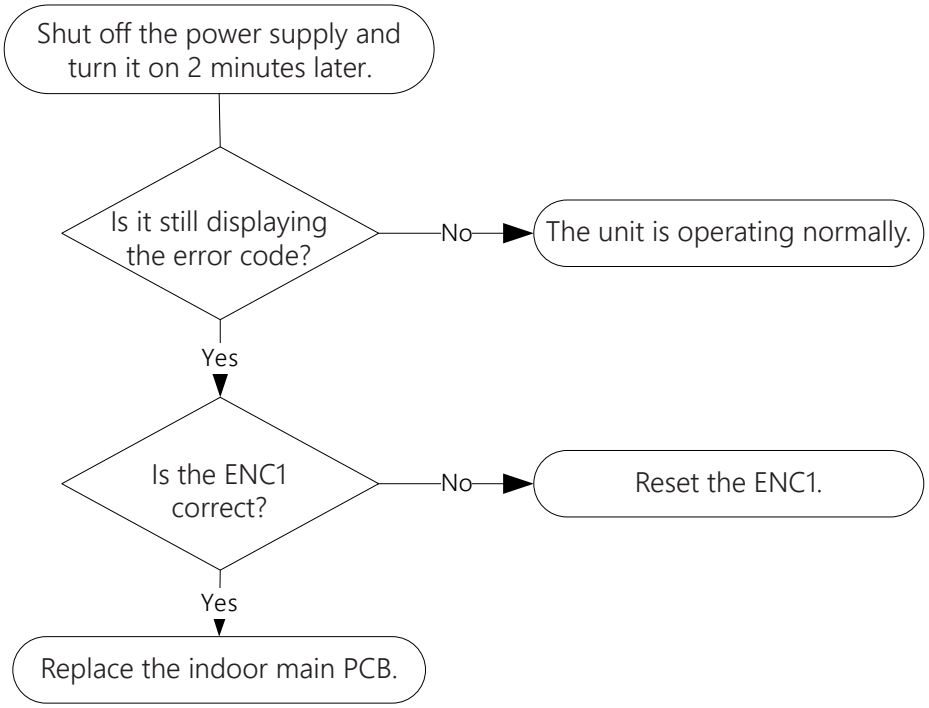
- Connection wires
- Indoor PCB
- Wired controller

Troubleshooting and repair:



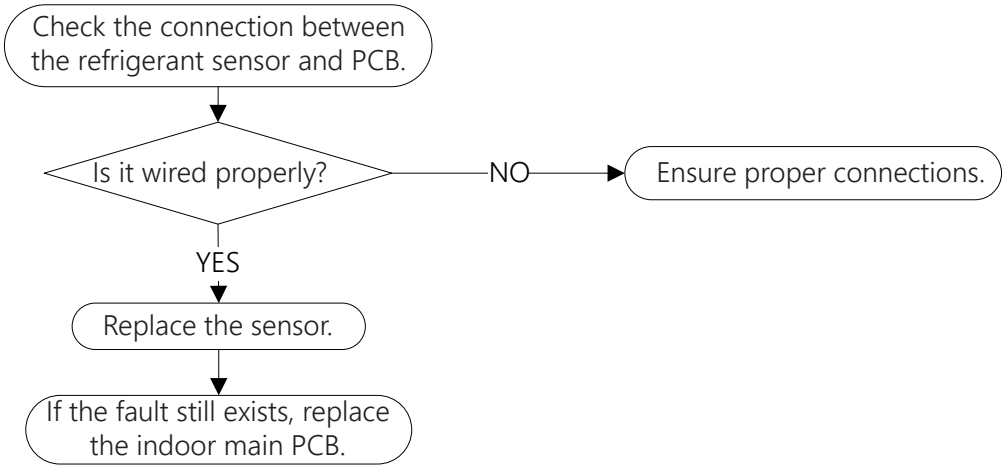
EHbA (Communication malfunction between indoor unit and external fan module)/ EH3A (External fan DC bus voltage is too low protection)/ EH3b (External fan DC bus voltage is too high fault) diagnosis and solution
Description: The indoor unit does not receive feedback from the external fan module for 150 seconds. or Indoor unit receives abnormal increases or decreases in voltage from external fan module.
Recommended parts to prepare:
- Indoor main PCB

Troubleshooting and repair:



FHCC (Refrigerant sensor error) or EHC3 (Refrigerant sensor is out of range) diagnosis and solution
Description: The indoor unit receives fault signal for 10 seconds or indoor unit does not receive feedback from the refrigerant sensor for 150 seconds.
Recommended parts to prepare:
- Connection wires
- Sensors
- Indoor main PCB

Troubleshooting and repair:



EHC1 (Refrigerant sensor detects leakage) or EHC2 (Refrigerant sensor is out of range and leakage is detected) diagnosis and solution

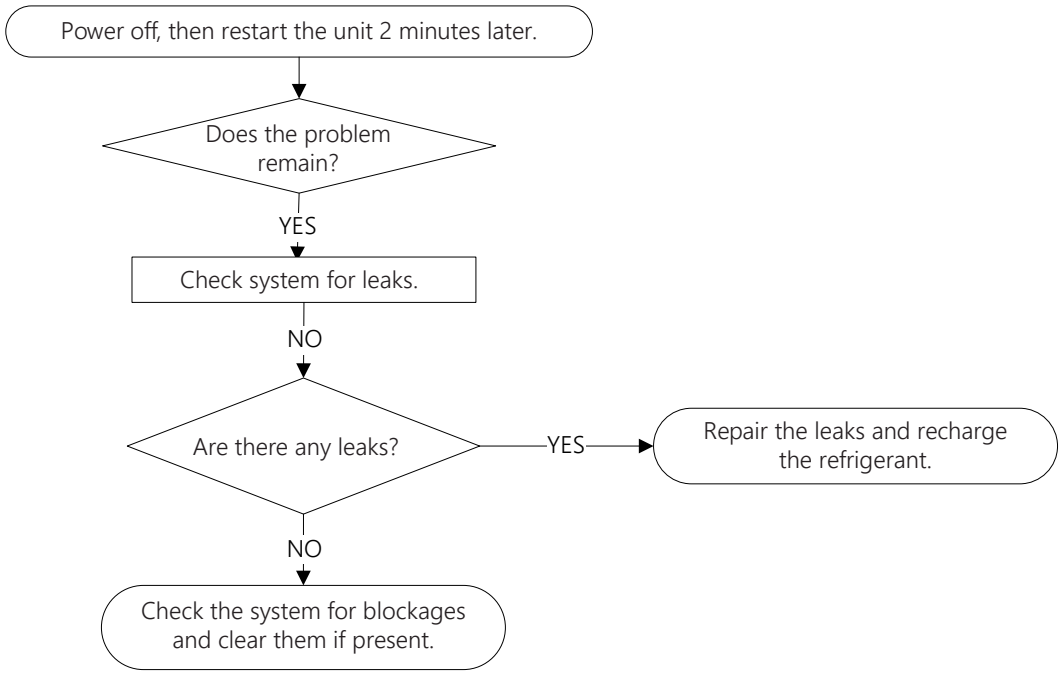
Description:

The refrigerant sensor detects a concentration higher than or equal to 10%*LFL for 10 seconds or the refrigerant sensor detects a concentration higher than or equal to 20%*LFL or the multi-model receives the refrigerant leakage protection fault sent by the outdoor unit.

Recommended parts to prepare:

- Additional refrigerant

Troubleshooting and repair:



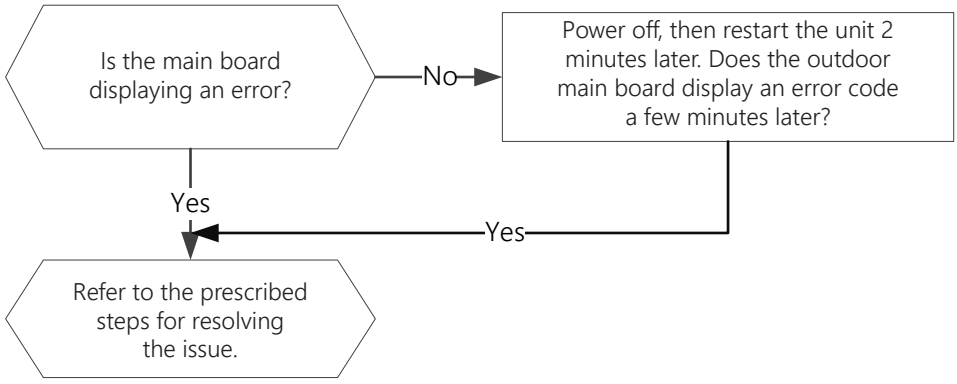
EC0d (ODU malfunction Diagnosis and Solution)

Description: The indoor unit detects the outdoor unit has an error.

Recommended parts to prepare:

- Outdoor unit

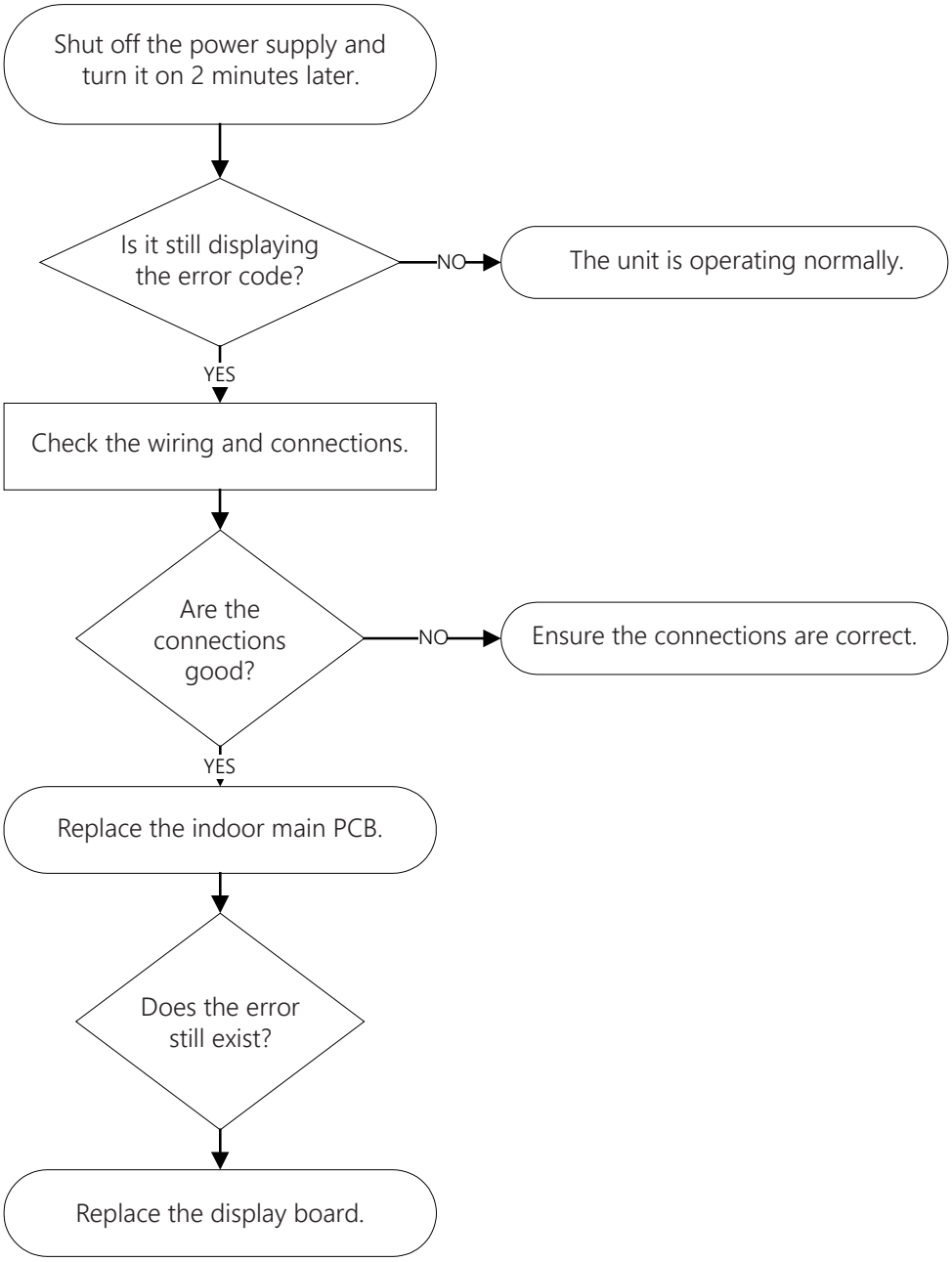
Troubleshooting and repair:



EH0b (IDU main control board and display board communication error diagnosis and solution)
Description: Indoor PCB does not receive feedback from the display board.
Recommended parts to prepare:

- Communication wire
- Indoor PCB
- Display board

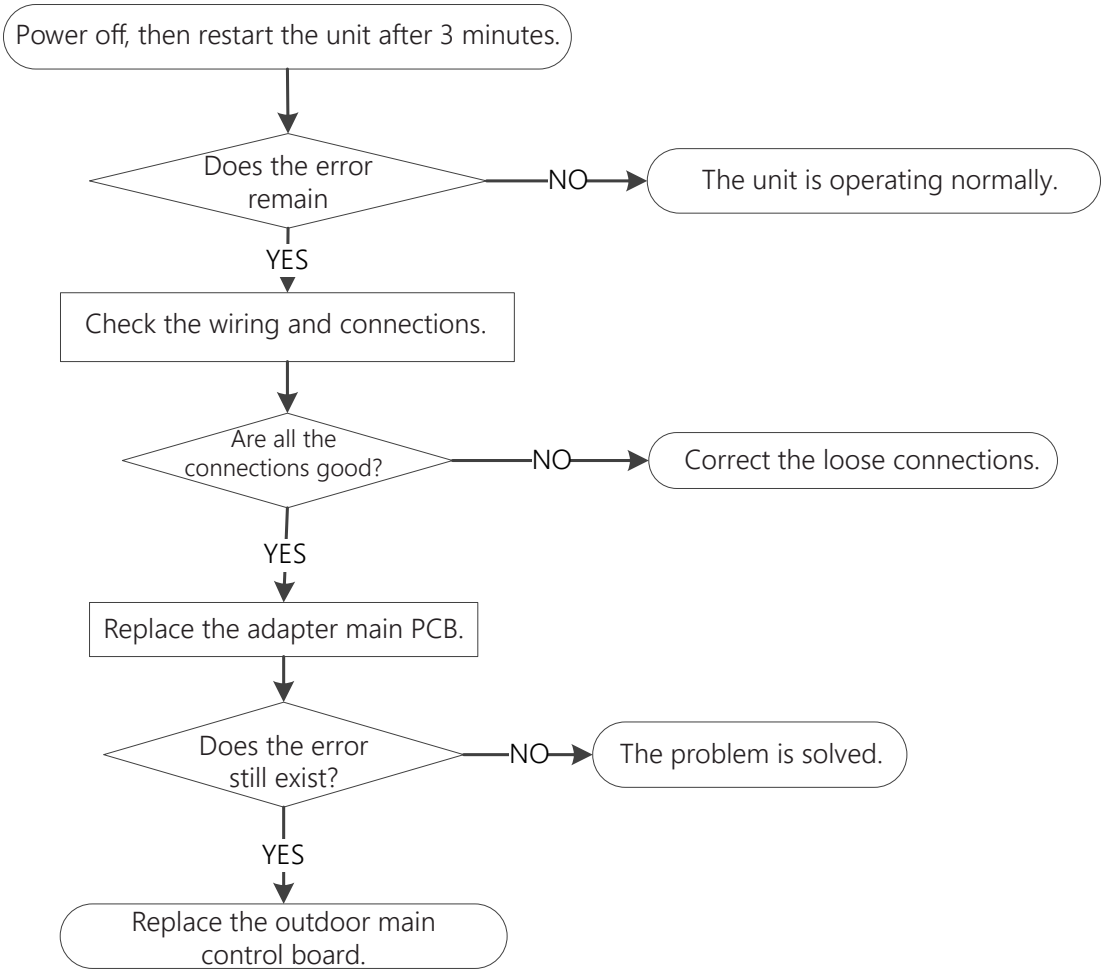
Troubleshooting and repair:



EL16 (Communication malfunction between adapter board and outdoor main board diagnosis and solution)
Description: The adapter PCB cannot detect the main control board.
Recommended parts to prepare:

- Connection wires
- Adapter board
- Outdoor main PCB

Troubleshooting and repair:



FL09 (Mismatch between the new and old platforms diagnosis and solution)
Description: The indoor and outdoor units are mismatched, the LED displays this code. Please replace the matching indoor or outdoor unit.

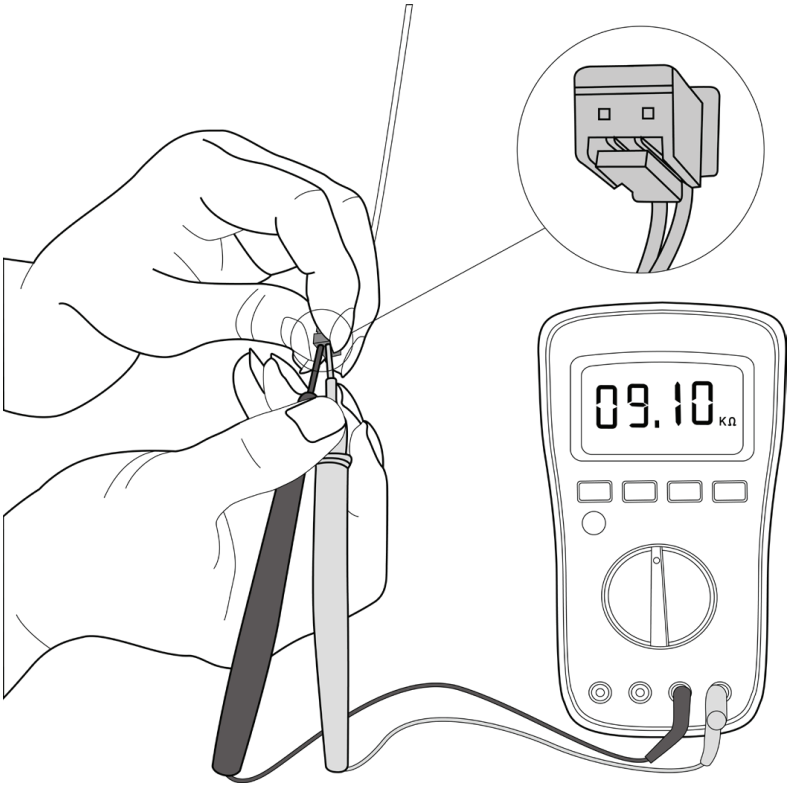
Check Proceedures

Temperature Sensor Check

⚠ WARNING

Be sure to turn off all power supplies or disconnect all wires to avoid electric shock. Operate after the compressor and coil have returned to normal temperature in case of injury.

1. Disconnect the temperature sensor from the PCB (Refer to Indoor Disassembly and Outdoor Disassembly).
2. Measure the resistance value of the sensor using a multimeter.
3. Check the corresponding temperature sensor resistance value table in the Appendix.



This picture and the value on the display are only for reference, actual appearance and value may vary.

Appendix

Temperature Sensor Resistance Value Table for TP (°C --K)

°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm
-20	-4	542.7	20	68	68.66	60	140	13.59	100	212	3.702
-19	-2	511.9	21	70	65.62	61	142	13.11	101	214	3.595
-18	0	483	22	72	62.73	62	144	12.65	102	216	3.492
-17	1	455.9	23	73	59.98	63	145	12.21	103	217	3.392
-16	3	430.5	24	75	57.37	64	147	11.79	104	219	3.296
-15	5	406.7	25	77	54.89	65	149	11.38	105	221	3.203
-14	7	384.3	26	79	52.53	66	151	10.99	106	223	3.113
-13	9	363.3	27	81	50.28	67	153	10.61	107	225	3.025
-12	10	343.6	28	82	48.14	68	154	10.25	108	226	2.941
-11	12	325.1	29	84	46.11	69	156	9.902	109	228	2.86
-10	14	307.7	30	86	44.17	70	158	9.569	110	230	2.781
-9	16	291.3	31	88	42.33	71	160	9.248	111	232	2.704
-8	18	275.9	32	90	40.57	72	162	8.94	112	234	2.63
-7	19	261.4	33	91	38.89	73	163	8.643	113	235	2.559
-6	21	247.8	34	93	37.3	74	165	8.358	114	237	2.489
-5	23	234.9	35	95	35.78	75	167	8.084	115	239	2.422
-4	25	222.8	36	97	34.32	76	169	7.82	116	241	2.357
-3	27	211.4	37	99	32.94	77	171	7.566	117	243	2.294
-2	28	200.7	38	100	31.62	78	172	7.321	118	244	2.233
-1	30	190.5	39	102	30.36	79	174	7.086	119	246	2.174
0	32	180.9	40	104	29.15	80	176	6.859	120	248	2.117
1	34	171.9	41	106	28	81	178	6.641	121	250	2.061
2	36	163.3	42	108	26.9	82	180	6.43	122	252	2.007
3	37	155.2	43	109	25.86	83	181	6.228	123	253	1.955
4	39	147.6	44	111	24.85	84	183	6.033	124	255	1.905
5	41	140.4	45	113	23.89	85	185	5.844	125	257	1.856
6	43	133.5	46	115	22.89	86	187	5.663	126	259	1.808
7	45	127.1	47	117	22.1	87	189	5.488	127	261	1.762
8	46	121	48	118	21.26	88	190	5.32	128	262	1.717
9	48	115.2	49	120	20.46	89	192	5.157	129	264	1.674
10	50	109.8	50	122	19.69	90	194	5	130	266	1.632
11	52	104.6	51	124	18.96	91	196	4.849			
12	54	99.69	52	126	18.26	92	198	4.703			
13	55	95.05	53	127	17.58	93	199	4.562			
14	57	90.66	54	129	16.94	94	201	4.426			
15	59	86.49	55	131	16.32	95	203	4.294			
16	61	82.54	56	133	15.73	96	205	4.167			
17	63	78.79	57	135	15.16	97	207	4.045			
18	64	75.24	58	136	14.62	98	208	3.927			
19	66	71.86	59	138	14.09	99	210	3.812			

Other Temperature Sensors Resistance Value Table (°C – K)

°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm
-20	-4	115.266	20	68	12.643	60	140	2.358	100	212	0.630
-19	-2	108.146	21	70	12.056	61	142	2.272	101	214	0.611
-18	0	101.517	22	72	11.5	62	144	2.191	102	216	0.594
-17	1	96.342	23	73	10.973	63	145	2.112	103	217	0.577
-16	3	89.587	24	75	10.474	64	147	2.037	104	219	0.560
-15	5	84.219	25	77	10	65	149	1.965	105	221	0.544
-14	7	79.311	26	79	9.551	66	151	1.896	106	223	0.529
-13	9	74.536	27	81	9.124	67	153	1.830	107	225	0.514
-12	10	70.170	28	82	8.720	68	154	1.766	108	226	0.500
-11	12	66.090	29	84	8.336	69	156	1.705	109	228	0.486
-10	14	62.276	30	86	7.971	70	158	1.647	110	230	0.473
-9	16	58.708	31	88	7.624	71	160	1.591	111	232	0.460
-8	18	56.369	32	90	7.295	72	162	1.537	112	234	0.447
-7	19	52.244	33	91	6.981	73	163	1.485	113	235	0.435
-6	21	49.316	34	93	6.684	74	165	1.435	114	237	0.423
-5	23	46.573	35	95	6.400	75	167	1.387	115	239	0.412
-4	25	44	36	97	6.131	76	169	1.341	116	241	0.401
-3	27	41.588	37	99	5.874	77	171	1.291	117	243	0.390
-2	28	39.824	38	100	5.630	78	172	1.254	118	244	0.380
-1	30	37.199	39	102	5.397	79	174	1.213	119	246	0.370
0	32	35.202	40	104	5.175	80	176	1.174	120	248	0.360
1	34	33.327	41	106	4.964	81	178	1.136	121	250	0.350
2	36	31.564	42	108	4.763	82	180	1.100	122	252	0.341
3	37	29.906	43	109	4.571	83	181	1.064	123	253	0.332
4	39	28.346	44	111	4.387	84	183	1.031	124	255	0.324
5	41	26.878	45	113	4.213	85	185	0.998	125	257	0.316
6	43	25.495	46	115	4.046	86	187	0.967	126	259	0.308
7	45	24.193	47	117	3.887	87	189	0.937	127	261	0.300
8	46	22.566	48	118	3.735	88	190	0.908	128	262	0.292
9	48	21.809	49	120	3.590	89	192	0.880	129	264	0.285
10	50	20.718	50	122	3.451	90	194	0.852	130	266	0.278
11	52	19.689	51	124	3.318	91	196	0.826	131	268	0.271
12	54	18.718	52	126	3.192	92	198	0.801	132	270	0.264
13	55	17.801	53	127	3.071	93	199	0.777	133	271	0.258
14	57	16.934	54	129	2.959	94	201	0.754	134	273	0.251
15	59	16.116	55	131	2.844	95	203	0.731	135	275	0.245
16	61	15.342	56	133	2.738	96	205	0.709	136	277	0.239
17	63	14.618	57	135	2.637	97	207	0.688	137	279	0.233
18	64	13.918	58	136	2.540	98	208	0.668	138	280	0.228
19	66	13.263	59	138	2.447	99	210	0.649	139	282	0.222

System Pressure Table-R454B

Pressure			Temperature		Pressure			Temperature	
Kpa	bar	PSI	°C	°F	Kpa	bar	PSI	°C	°F
58.196	0.58	8.44	-60	-76	935.23	9.35	135.64	8	46.4
61.517	0.62	8.92	-59	-74.2	963.75	9.64	139.78	9	48.2
64.988	0.65	9.43	-58	-72.4	992.93	9.93	144.01	10	50
68.615	0.69	9.95	-57	-70.6	1,022.8	10.23	148.34	11	51.8
72.402	0.72	10.50	-56	-68.8	1,053.3	10.53	152.76	12	53.6
76.354	0.76	11.07	-55	-67	1,084.5	10.85	157.29	13	55.4
80.478	0.80	11.67	-54	-65.2	1,116.4	11.16	161.91	14	57.2
84.776	0.85	12.30	-53	-63.4	1149	11.49	166.64	15	59
89.256	0.89	12.95	-52	-61.6	1,182.3	11.82	171.47	16	60.8
93.923	0.94	13.62	-51	-59.8	1,216.3	12.16	176.40	17	62.6
98.781	0.99	14.33	-50	-58	1,251.1	12.51	181.45	18	64.4
103.84	1.04	15.06	-49	-56.2	1,286.6	12.87	186.60	19	66.2
109.1	1.09	15.82	-48	-54.4	1,322.8	13.23	191.85	20	68
114.56	1.15	16.61	-47	-52.6	1,359.9	13.60	197.23	21	69.8
120.25	1.20	17.44	-46	-50.8	1,397.7	13.98	202.71	22	71.6
126.15	1.26	18.30	-45	-49	1,436.3	14.36	208.31	23	73.4
132.28	1.32	19.18	-44	-47.2	1,475.7	14.76	214.02	24	75.2
138.64	1.39	20.11	-43	-45.4	1,515.9	15.16	219.85	25	77
145.24	1.45	21.06	-42	-43.6	1557	15.57	225.82	26	78.8
152.09	1.52	22.06	-41	-41.8	1,598.9	15.99	231.89	27	80.6
159.18	1.59	23.09	-40	-40	1,641.6	16.42	238.09	28	82.4
166.54	1.67	24.15	-39	-38.2	1,685.2	16.85	244.41	29	84.2
174.15	1.74	25.26	-38	-36.4	1,729.7	17.30	250.86	30	86
182.04	1.82	26.40	-37	-34.6	1775	17.75	257.43	31	87.8
190.2	1.90	27.59	-36	-32.8	1,821.3	18.21	264.15	32	89.6
198.65	1.99	28.81	-35	-31	1,868.4	18.68	270.98	33	91.4
207.39	2.07	30.08	-34	-29.2	1,916.5	19.17	277.95	34	93.2
216.42	2.16	31.39	-33	-27.4	1,965.6	19.66	285.08	35	95
225.76	2.26	32.74	-32	-25.6	2,015.5	20.16	292.31	36	96.8
235.41	2.35	34.14	-31	-23.8	2,066.5	20.67	299.71	37	98.6
245.37	2.45	35.59	-30	-22	2,118.4	21.18	307.24	38	100.4
255.67	2.56	37.08	-29	-20.2	2,171.3	21.71	314.91	39	102.2
266.29	2.66	38.62	-28	-18.4	2,225.2	22.25	322.73	40	104
277.25	2.77	40.21	-27	-16.6	2,280.2	22.80	330.70	41	105.8
288.56	2.89	41.85	-26	-14.8	2,336.1	23.36	338.81	42	107.6
300.22	3.00	43.54	-25	-13	2,393.2	23.93	347.09	43	109.4
312.24	3.12	45.28	-24	-11.2	2,451.3	24.51	355.52	44	111.2
324.63	3.25	47.08	-23	-9.4	2,510.4	25.10	364.09	45	113
337.39	3.37	48.93	-22	-7.6	2,570.7	25.71	372.84	46	114.8
350.54	3.51	50.84	-21	-5.8	2,632.1	26.32	381.74	47	116.6
364.08	3.64	52.80	-20	-4	2,694.7	26.95	390.82	48	118.4
378.02	3.78	54.83	-19	-2.2	2,758.3	27.58	400.04	49	120.2
392.37	3.92	56.91	-18	-0.4	2,823.2	28.23	409.46	50	122
407.13	4.07	59.05	-17	1.4	2,889.3	28.89	419.04	51	123.8
422.31	4.22	61.25	-16	3.2	2,956.5	29.57	428.79	52	125.6
437.92	4.38	63.51	-15	5	3025	30.25	438.72	53	127.4

System Pressure Table-R454B (continued)

Pressure			Temperature		Pressure			Temperature	
Kpa	**bar**	**PSI**	**°C**	**°F**	**Kpa**	**bar**	**PSI**	**°C**	**°F**
453.98	4.54	65.84	-14	6.8	3,094.7	30.95	448.83	54	129.2
470.47	4.70	68.23	-13	8.6	3,165.7	31.66	459.13	55	131
487.43	4.87	70.69	-12	10.4	3,238.1	32.38	469.63	56	132.8
504.84	5.05	73.22	-11	12.2	3,311.7	33.12	480.30	57	134.6
522.73	5.23	75.81	-10	14	3,386.7	33.87	491.18	58	136.4
541.1	5.41	78.48	-9	15.8	3,463	34.63	502.25	59	138.2
559.95	5.60	81.21	-8	17.6	3,540.7	35.41	513.52	60	140
579.31	5.79	84.02	-7	19.4	3,619.9	36.20	525.00	61	141.8
599.16	5.99	86.90	-6	21.2	3,700.5	37.01	536.69	62	143.6
619.54	6.20	89.85	-5	23	3,782.7	37.83	548.61	63	145.4
640.43	6.40	92.88	-4	24.8	3,866.3	38.66	560.74	64	147.2
661.86	6.62	95.99	-3	26.6	3,951.5	39.52	573.10	65	149
683.82	6.84	99.18	-2	28.4	4,038.3	40.38	585.69	66	150.8
706.34	7.06	102.44	-1	30.2	4,126.8	41.27	598.52	67	152.6
729.41	7.29	105.79	0	32	4,217	42.17	611.60	68	154.4
753.06	7.53	109.22	1	33.8	4,309	43.09	624.95	69	156.2
777.28	7.77	112.73	2	35.6	4,402.9	44.03	638.56	70	158
802.08	8.02	116.33	3	37.4	4,498.7	44.99	652.46	71	159.8
827.48	8.27	120.01	4	39.2	4,596.5	45.97	666.64	72	161.6
853.49	8.53	123.78	5	41	4,696.5	46.97	681.15	73	163.4
880.11	8.80	127.64	6	42.8	4,798.9	47.99	696.00	74	165.2
907.35	9.07	131.60	7	44.6	4,904.1	49.04	711.25	75	167

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Important!
Product Warranty Information

The Warranty Registration below is a requirement to print a warranty certificate. You're not mandated to register your products to enjoy the Midea Standard Warranty; however, registration is highly recommended. Registering your warranty within 60 days ensures easy access to support and service when needed.

The design and specifications may change without prior notice in order to enhance the product. For detailed information, please consult your sales agency or the manufacturer. Any updates to the manual will be posted on the service website, so be sure to check for the latest version.

United States

https://www.mideacomfort.us/registration.html

Canada

https://www.mideacomfortna.ca/registration.html

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