

This product utilizes R-454B refrigerant

MRCOOL® DIY® Series Hybrid Air Handler

INSTALLATION & OWNER'S MANUAL

MODELS:

DIY-*-HP-MUAH-230D25-O



Read this manual carefully before installation and keep it where the operator can easily find it for future reference.

Due to updates and constantly improving performance, the information and instructions within this manual are subject to change without notice.

Version Date: October 3, 2025

Please visit www.mrcool.com/documentation to ensure you have the latest version of this manual.



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Safety Precautions

Read Before Using

Incorrect usage may cause serious damage or injury.

The symbols below are used throughout this manual to indicate instructions that should be followed closely or actions that should be avoided to prevent death, injury, and/or property damage.



Indicates the possibility of personal injury or loss of life.



Indicates the possibility of property damage or serious consequences.



WARNING FOR PRODUCT INSTALLATION

INSTALLATION MUST BE PERFORMED BY AN AUTHORIZED DEALER OR SPECIALIST. DEFECTIVE INSTALLATION CAN CAUSE WATER LEAKAGE, ELECTRICAL SHOCK, OR FIRE.

******ELECTRICAL WORK MUST BE COMPLETED BY A QUALIFIED ELECTRICAL TECHNICIAN******

⚠ DO NOT install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it could cause fire.

⚠ DO NOT turn on the power until the installation and all work has been completed.

1. Installation must be performed according to the installation instructions. Improper installation could cause water leakage, electrical shock, or fire.
2. Contact an authorized service technician for repair or maintenance of this unit.
3. This appliance must be installed in accordance with national wiring regulations.
4. Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and/or failure of the unit.
5. Install the unit in a firm location that can support the unit's weight. If the location cannot support the unit's weight, or the installation is not done properly, the unit may drop and cause serious injury and damage.
6. Install the drainage piping according to the instructions in this manual. Improper drainage could cause water damage to your home and/or property.
7. When moving or relocating the air conditioner, consult experienced service technicians for disconnection and re-installation of the unit.
8. For detailed information of how to install the indoor and outdoor units to their respective supports, please refer to the indoor unit installation and outdoor unit installation sections of this manual.
9. USB device access, replacement, and maintenance operations must be carried out by professional staff.



WARNING FOR CLEANING & MAINTENANCE

1. **DO NOT** clean the unit with excessive amounts of water.
2. **DO NOT** clean the unit with combustible cleaning agents, as these could cause deformation and/or fire.
3. Turn off the device and disconnect the power before cleaning. Failure to do this could result in electrical shock.

TAKE NOTE OF FUSE SPECIFICATIONS

- The unit's circuit board (PCB) is designed with a fuse to provide over-current protection.
- The specifications of the fuse are printed on the circuit board; examples of such are T5A/250VAC and T10A/250VAC.

Note: Only a blast-proof ceramic fuse can be used.



WARNING FOR PRODUCT USE

- ⓘ **DO NOT** insert fingers, rods, or other objects into the air inlet or outlet. This could cause injury, since the fan may be rotating at high speeds.
 - ⓘ **DO NOT** use flammable sprays such as hair spray, lacquer, or paint near the unit, as this could cause fire and/or an explosion.
 - ⓘ **DO NOT** operate the unit in places near or around combustible gases. Emitted gas may collect around the unit and cause an explosion.
 - ⓘ **DO NOT** allow children to play with the appliance. Children must be supervised around the unit at all times.
 - ⓘ **DO NOT** operate the unit in a room where it could be exposed to excessive amounts of water, such as a bathroom or laundry room. Exposure to excessive water amounts can cause the electrical components to short circuit.
 - ⓘ **DO NOT** expose your body directly to direct cool airflow from the unit for a prolonged period of time.
1. If the unit operates abnormally (emits strange noises or a burning smell), immediately turn off the unit and disconnect the power in order to avoid electric shock, fire, and/or injury. Call your local dealer, or MRCOOL® tech support at (270) 366-0457, for further assistance.
 2. If the air conditioner is used together with burners or other heating devices, thoroughly ventilate the room in order to avoid an oxygen deficiency.
 3. In certain functional environments (such as kitchens and server rooms etc.), the use of specially designed heating and air units is highly recommended.
 4. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
 5. Turn off the unit and disconnect the power before performing any cleaning, installation, or repairs. Failure to do so can cause electric shock.



CAUTION

- ⓘ **DO NOT** allow the unit to operate for extended periods of time with the doors or windows open, or in very high humidity.
 - ⓘ **DO NOT** operate the unit with wet hands, as this could cause electric shock.
 - ⓘ **DO NOT** use device for any other purpose than its intended use.
 - ⓘ **DO NOT** climb onto or place objects on top of the outdoor unit.
1. Make sure that water condensation can drain smoothly and unhindered from the unit.
 2. Turn off the unit and disconnect the power if the unit will not be used for an extended period of time.
 3. Turn off and unplug the unit during storms.



ELECTRICAL WARNINGS

******ELECTRICAL WORK MUST BE COMPLETED BY A QUALIFIED ELECTRICAL TECHNICIAN******

- ⓘ **DO NOT** share the power supply with other appliances. An improper or insufficient power supply could cause fire and/or electrical shock.
1. Only use the specified wire. If the wire is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
 2. The product must be properly grounded during installation or electrical shock could occur.
 3. Appropriate wiring standards, regulations, and the installation manual must be followed for all electrical work.
 4. If connecting power to fixed wiring, an all-pole disconnection device must be incorporated in the fixed wiring in accordance with the wiring rules and must meet the following requirements: at least .3 cm (3 mm) of clearances in all poles, a leakage current that may exceed 10 mA, and a residual current device (RCD) having a rated residual operating current not exceeding 30 mA.
 5. Connect cables tightly and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections could overheat, causing fire and/or electrical shock.

**ELECTRICAL WARNINGS**

6. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
7. All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not properly closed, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.
8. Disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.

**FLAMMABLE REFRIGERANT WARNINGS**

1. The installation of pipe-work should be kept to a minimum and should be protected from physical damage.
2. Refrigerant pipes should comply with national gas regulations.
3. All mechanical connections and ventilation openings should be kept clear of obstruction.
4. Utilize proper disposal processes based on national regulations.
5. Any person 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.
6. 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.
7. Do not use any means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
8. 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).
9. Do not allow foreign matter (oil, water, etc.) to enter the piping, and securely seal the opening by pinching, taping, etc.
10. Do not pierce or burn.
11. Refrigerants may not contain an odor.
12. Working procedures that affect safety should only be carried out by competent persons.
13. The unit should be stored in a well-ventilated area where the room size corresponds to the room area as specific for operation, and should be stored so as to prevent potential mechanical damage from occurring.
14. Joints should 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 under a pressure of at least these standstill or operation conditions after installation. Detachable joints should NOT be used in the indoor side of the unit (brazed, welded joint could be used).
15. A leak detection system is installed. The unit must be powered except for service. For units with a refrigerant sensor, 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 should only be replaced with the sensor specified by the manufacturer.
16. When a flammable refrigerant is used, the requirements for installation space of the appliance and/or ventilation requirements are determined according to:
 - The mass charge amount (M) used in the unit.
 - The installation location.
 - The type of ventilation of the location of the unit.
 - Piping material, pipe routing, and installation must include protection from physical damage in operation and service. This must be in compliance with local codes and standards, such as ASHRAE 15, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints must be accessible for inspection prior to being covered or enclosed.
 - Protection devices, piping, and fittings must be protected as much as possible against adverse environmental effects. For example, against the danger of water collecting and freezing in relief pipes or against accumulation of dirt or debris.
 - Steel pipes and components must be protected against corrosion with a rust-proof coating before applying insulation.



FLAMMABLE REFRIGERANT WARNINGS

- Precautions must be taken against excessive vibration or movement of the unit.
 - The minimum floor area of the room must be mentioned in the form of a table or a single figure without reference to a formula.
17. After completion of field piping for split systems, the field pipework should be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements:
 - The minimum test pressure for the low side of the system should be the low side design pressure and the minimum test pressure for the high side of the system should be the high side design pressure, unless the high side of the system cannot be isolated from the low side of the system in which case the entire system should not be pressure tested to the low side design pressure.
 - The test pressure after removal of pressure source shall be maintained for at least 1 hour with no decrease of pressure indicated by the test gauge, with test gauge resolution not exceeding 5% of the test pressure.
 18. Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized. For repairs to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.
 19. Work should be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.
 20. All maintenance staff and others working in the local area should be instructed on the nature of work being carried out. Avoid work in confined spaces.
 21. The area should be checked with an appropriate refrigerant detector prior to 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.
 22. If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment should be on site and readily available. Have a dry power or CO2 fire extinguisher adjacent to the charging area.
 23. No person carrying out work in relation to a refrigerating system which involves exposing any pipe work should use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing, and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs should be displayed.
 24. 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.
 25. 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 should 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 should be checked for the presence of refrigerant;
 - marking to the equipment continues to be visible and legible, marking and signs that are illegible should be corrected;
 - refrigerant pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to or protected against corrosion.
 26. Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution should be used.
 27. Initial safety checks should include:



FLAMMABLE REFRIGERANT WARNINGS

- that capacitors are discharged: this should be done in a safe manner to avoid the possibility of sparking;
 - that there are no live electrical components and wiring are exposed while charging, recovering, or purging the system;
 - that there is continuity of earth bonding.
28. Sealed electrical components should be replaced if damaged.
 29. Intrinsically safe components should be replaced if damaged.
 30. Check that wiring 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.
 31. Under no circumstances should 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) should 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 should be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% minimum) is confirmed. Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine may react with the refrigerant and corrode the copper work. Examples of leak detection fluids are the bubble method, fluorescent method agents, etc. If a leak is suspected, all naked flames should be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant should be recovered from the system, or isolated (by means of shut-off valves) in a part of the system remote from the leak. See the following instructions of removal of refrigerant.
 32. When breaking into the refrigerant circuit to make repairs, or for any other purpose, conventional procedures should be used. However, for flammable refrigerants, it is even more vital to follow best practice. The following procedure should be adhered to:
 - safely remove refrigerant following local and national regulations;
 - evacuate;
 - purge the circuit with inert gas;
 - evacuate;
 - continuously flush or purge with inert gas when using flame to open circuit;
 - open the circuit
 33. The refrigerant charge should be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For units containing flammable refrigerants, the system should 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 should be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process should be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system should be vented down to atmospheric pressure to enable work to take place. The outlet for the vacuum pump should not be close to any potential ignition sources, and ventilation should be available.
 34. In addition to conventional charging procedures, the following requirements should be followed:
 - Work should 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 grounded prior to charging the system with refrigerant.
 - Label the system when charging is complete (if not already).
 - Extreme care should be taken not to overfill the refrigeration system.
 - Prior to recharging the system, it should be pressure tested with oxygen-free nitrogen (OFN). The system should be leak-tested on completion of charging but prior to commissioning. A follow-up leak test shall be carried out prior to leaving the site.



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35. Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is good recommended practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample should be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.
- Become familiar with the equipment and its operation.
 - Isolate the system electrically.
 - 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
 - Pump down refrigerant system, if possible.
 - If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
 - Make sure that the cylinder is situated on the scales before recovery takes place.
 - Start the recovery machine and operate in accordance with instructions.
 - Do not overfill cylinders (no more than 80% volume liquid charge).
 - Do not exceed the maximum working pressure of the cylinder, even temporarily.
 - When the cylinders have been filled correctly and the process completed, make sure that the cylinders and equipment are removed from the site promptly and all isolation valves on the equipment are closed off.
 - Recovered refrigerant should not be charged into another refrigeration system unless it has been cleaned and checked.
36. Equipment shall be labeled stating that it has been decommissioned and emptied of refrigerant. The label should be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.
37. When removing refrigerant from a system, either for servicing or decommissioning, it is good recommended 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 should be 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 valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs. The recovery equipment should be in good working order with a set of instructions concerning the equipment that is at hand and should 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 should be available and in good working order. Hoses should be complete with leak-free disconnect couplings and in good condition. The recovered refrigerant should 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 and especially not in cylinders.
38. 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 should not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it should be carried out safely.
39. An unventilated area where the appliance using flammable refrigerants is installed should be constructed so that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard. If appliances connected via an air duct system to one or more rooms below the ventilation requirements, that room should never contain potential ignition sources. A flame-producing device may be installed in the space if the device is provided with an effective flame arrest. Auxiliary devices which may be a potential ignition source should not be installed in the duct work. Examples of such are hot surfaces with a temperature exceeding 1292°F (700°C) and electric switching devices. Only auxiliary devices (such as a certified heater kit) approved by the manufacturer or declared suitable with the refrigerant should be installed in connecting ductwork. False 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 should only be replaced with sensors specified by the manufacturer. A leak detection system is installed. The unit must be powered except for service.



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40. Transport of equipment containing flammable refrigerants should comply with transportation regulations.
41. Marking of equipment using signs should comply with local regulations.
42. Disposal of equipment using flammable refrigerants should comply with national regulations.
43. Storage of equipment/appliances should be in accordance with the manufacturer's instructions.
44. Storage of packed (unsold) equipment should be constructed so 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.
45. 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 minutes. The vacuum pressure level should be specified in the manual, and should be the lessor of 500 microns of 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 should be tightness-tested according to the following requirements: the test method should 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 should be detected.
 - Any servicing should be performed only as recommended by MRCOOL®.
46. Any maintenance, service, or repair operations must be performed by qualified personnel. Every working procedure that affects safety should only be carried out by competent persons that are both trained and certified. The training of these procedures should be 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 should follow the ANNEX HH requirements of UL 60334-2-40 4th Edition.
Examples of such working procedures are breaking into a refrigerant circuit, opening of sealed components, & opening of ventilated enclosures.

NOTE ABOUT FLUORINATED GASES

- This unit contains fluorinated greenhouse gases. For specific information on the type of gas and the amount, refer to the relevant label on the unit itself.
- Installation, uninstallation, recycling, service, maintenance, and repair of this unit must be performed by a certified technician.
- Maintain proper record-keeping each time the unit is checked for leaks.
- The allowed static pressure range of the unit on site is 0-0.80 in.wc. (0-200Pa). The data below represents the static pressure at full required air flow used for AHRI testing. **24K & 36K Pressure: 0.5 in.wc. (125Pa)**
- The maximum functional total external static pressure cannot exceed 0.80 in.wc. or 200Pa. The airflow reduces significantly beyond 0.80 in wc. or 200Pa. System design should allow for the increased resistance or filters as they become dirty.



WARNING: PROPOSITION 65

This appliance contains fiberglass insulation. Respirable particles of fiberglass are known to the state of California to cause cancer. Exhaust gas from this appliance contains chemicals, including carbon monoxide, known to the state of California to cause birth defects or other reproductive harm.

Symbols Displayed on Indoor & Outdoor Unit

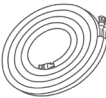
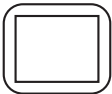
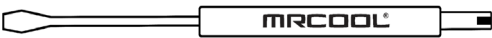
	WARNING	This symbol shows that this appliance uses a flammable refrigerant. If the refrigerant is leaked and exposed to an external ignition source, there is a risk of fire.
	CAUTION	This symbol shows that the operation manual should be read carefully.
	CAUTION	This symbol shows that a service personnel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

2 UNIT OVERVIEW

2.1 Packing List

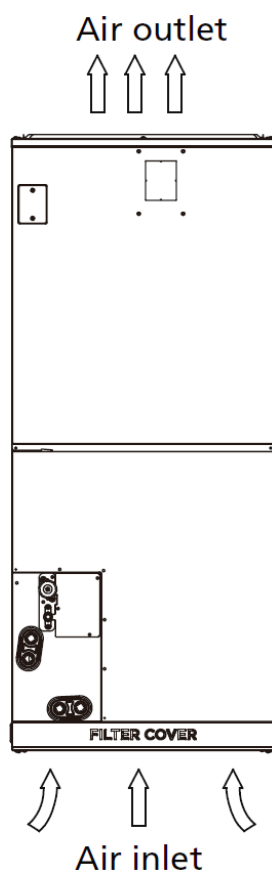
This system comes with the following accessories. Use all of the installation parts and accessories to install the unit. Improper installation may result in water leakage, electrical shock and fire, or cause the equipment to fail. The items that are not included with the air conditioner must be purchased separately.

Though there is mention of a remote control in manual instructions, there is no remote control included. It must be purchased separately, if desired. If you have access to a MRCOOL® remote control from a previous or existing unit, it is also compatible with this unit.

PART	LOOKS LIKE	QUANTITY
Installation & Owner's Manual		1
Cable Ties		2
Foam Insulator		4
Quick Connecting Pipe		2
Insulation Pipe		1
DIYPRO™ Cable		1
Quick-Connect Line Set		1
Drain Pipe		1
Drain Joint (in outdoor packaging)		1
Seal (in outdoor packaging)		1
MRCOOL Smart Thermostat		1 (Wifi required for setup)
MRCOOL Screwdriver		1

 This marking indicates that this product should not be disposed with other household wastes throughout North America. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

2.2 Unit Parts



2.4 Features

Refrigerant Leak Detection System:

In the event of a refrigerant leak, the LCD screen will display "EL0C", "EHC1", or "EHC2" and the LED indicator light will flash. The default temperature of the first power-on is set to 60°F for cooling and 86°F for heating. When the temperature stops, the temperature is set at the room temperature at that time.

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2.3 Operating Conditions

Use the system under the following temperatures for safe and effective operation. If the air conditioner is used under different conditions, it may malfunction or become less efficient.

	Cool Mode	Heat Mode	Dry Mode
Room Temperature	60°F-90°F (16°C-32°C)	32°F-86°F (0°C-30°C)	50°F-90°F (10°C-32°C)
Outdoor Temperature	-22°F-122°F (-30°C-50°C) (Hyper Heat)	-22°F-75°F (-30°C-24°C) (Hyper Heat)	32°F-122°F (0°C-50°C)
	-13°F-122°F (-25°C-50°C) (Regular Heat)	-13°F-75°F (-25°C-24°C) (Regular Heat)	

For Outdoor Units with Auxiliary Electric Heater:

When the outside temperature is below 32°F (0°C), we strongly recommend keeping the outdoor unit powered at all times to prevent damage to equipment.

NOTE

Room relative humidity should remain less than 80%. If the unit operates in excess of this figure, the surface of the unit may produce condensation.

For optimal unit performance and energy saving, do the following:

- Keep doors & windows closed to retain cool or warm air in the room.
- Limit energy usage by using the timer function.
- Do not block air inlets or outlets.
- Regularly inspect & clean air filters every 30 to 90 days depending on thickness and MERV.
- Don't set the unit to excessive temperature levels.
- While cooling, close the curtains to avoid direct sunlight.

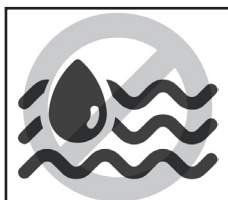
3 INDOOR UNIT INSTALLATION

! CAUTION

Install the indoor and outdoor units, cables, and wires at least 3-1/5ft (1m) from televisions or radios to prevent static or image distortion. Depending on the appliances, a 3-1/5ft (1m) distance may not be sufficient. **The indoor unit must be electrically grounded per national and local electrical codes.**

3.1 Installation Location

Do NOT install the unit in the following locations:



Environments with excessive moisture, which can corrode the equipment, electrical components, and cause electrical shorts.



Areas with strong electromagnetic waves.



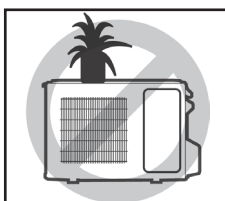
Coastal areas with high salt content in the air.



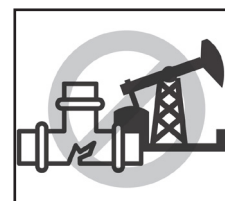
Areas that store flammable materials or gas.



Areas where there may be detergent or other corrosive gases in the air, such as bathrooms or laundry rooms.



Areas where the air inlet and outlet may be obstructed.

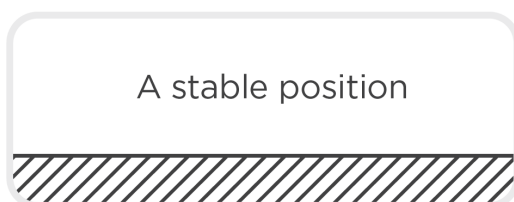


Areas with oil drilling or fracking.

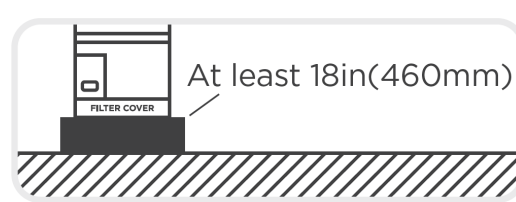


Areas with danger of explosion. Keep flammable materials & vapors, such as gasoline, away from air handler.

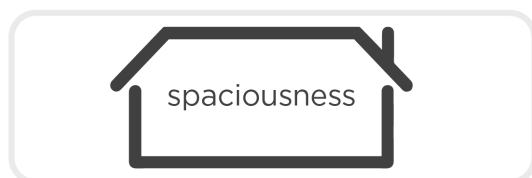
Unit location **MUST** meet the following requirements:



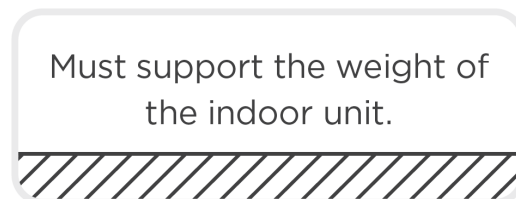
- ☑ Securely install the indoor unit on a structure that can support its weight. If the structure is too weak, the unit may fall and cause personal injury, unit and property damage, or death.



- ☑ Place air handler so that heating elements are at least 18in (460mm) above the floor for a garage installation. Failure to follow these instructions can result in death, explosion, or fire.



- ☑ Enough room for installation and maintenance.
- ☑ Enough room for the connecting pipe and drainpipe.



- ☑ The structure that the equipment is suspended from must support the weight of the indoor unit.

3 INDOOR UNIT INSTALLATION

Room Size Restriction

The unit should be installed in a separate, unoccupied room with natural ventilation opening(s). They are connected via an air duct system to one or more rooms, and the bottom of the air outlet of the air duct in the room should be at a height of $\geq 7.3\text{ft}/2.2\text{m}$ from the floor. In UL/CSA 60335-2-40, the R454B refrigerant belongs to mildly flammable refrigerants, which will limit the room area of the system service. Similarly, the total amount of refrigerant in the system should be less than or equal to the maximum allowable refrigerant charge, which depends on the room area serviced by the system.

Refrigerant Charge & Room Area Limitations:

For the purpose of determining the room area (A) when used to calculate the maximum allowable refrigerant charge (Mmax) in an unventilated space, the following should apply.

The room area (A) should be defined as the room area enclosed by the projection to the floor of the walls, partitions, and doors of the space in which the unit is installed. Spaces connected by only drop ceilings, ductwork, or similar connections should not be considered a single space. For units mounted higher than 6.0ft (1.8m), spaces divided by partition walls which are no higher than 5.3ft (1.6m) should be considered a single space.

For fixed appliances, rooms on the same floor and connected by an open passageway between the spaces can be considered a single room when determining compliance to Amin, if the passageway complied with all of the following:

- it is a permanent opening
- it extends to the floor
- it is intended for people to walk through

For fixed appliances, the area of the adjacent rooms, on the same floor, connected by a permanent opening in the walls and/or doors between occupied spaces, including gaps between the wall and the floor, can be considered a single room when determining compliance to Amin, provided all of the following are met:

- the space should have appropriate openings as outlined in this manual
- for connected rooms, the minimum opening area for natural ventilation Anvmin should not be less than the following:

A/m ²	Mc/kg	Mmax/kg	Anvmin/m ²
5	5.0	2.685	0.045
6	5.0	2.941	0.042
7	5.0	3.177	0.038
8	5.0	3.396	0.035
9	5.0	3.602	0.031
10	5.0	3.797	0.028
11	5.0	3.983	0.024
12	5.0	4.160	0.020
13	5.0	4.330	0.016
14	5.0	4.493	0.013
15	5.0	4.651	0.009
16	5.0	4.803	0.005
17	5.0	4.951	0.001

Section Terminology:

- **Mc:** the actual refrigerant charge in the system
- **A:** the actual room area where the appliance is installed
- **Amin:** the required minimum room area
- **Mmax:** the allowable maximum refrigerant charge in a room
- **Qmin:** the minimum circulation airflow
- **Anvmin:** the minimum opening area for connected rooms or an unoccupied room with natural ventilation opening
- **TAmin:** the total area of the conditioned space (for units serving one or more rooms with an air duct system)
- **TA:** the total area of the conditioned space connected by air ducts

Note:

Take Mc=5.0kg as an example. For units servicing one or more rooms with an air duct system, the room area calculation should be determined based on the total area of the conditioned space (TA) connected by ducts taking into consideration that the circulating airflow distributed to all the rooms by the appliance

3 INDOOR UNIT INSTALLATION

For an unoccupied room with a natural ventilation opening, the minimum opening area for natural ventilation An_{vmin} should not be less than the following:

Mc/kg	An_{vmin}/m^2
1.5	0.063
1.8	0.069
2.1	0.075
2.4	0.080
2.7	0.085
3	0.089
3.3	0.093
3.6	0.098

Mc/kg	An_{vmin}/m^2
3.9	0.102
4.2	0.105
4.5	0.109
4.8	0.113
5.1	0.116
5.4	0.120
5.7	0.123
6	0.126

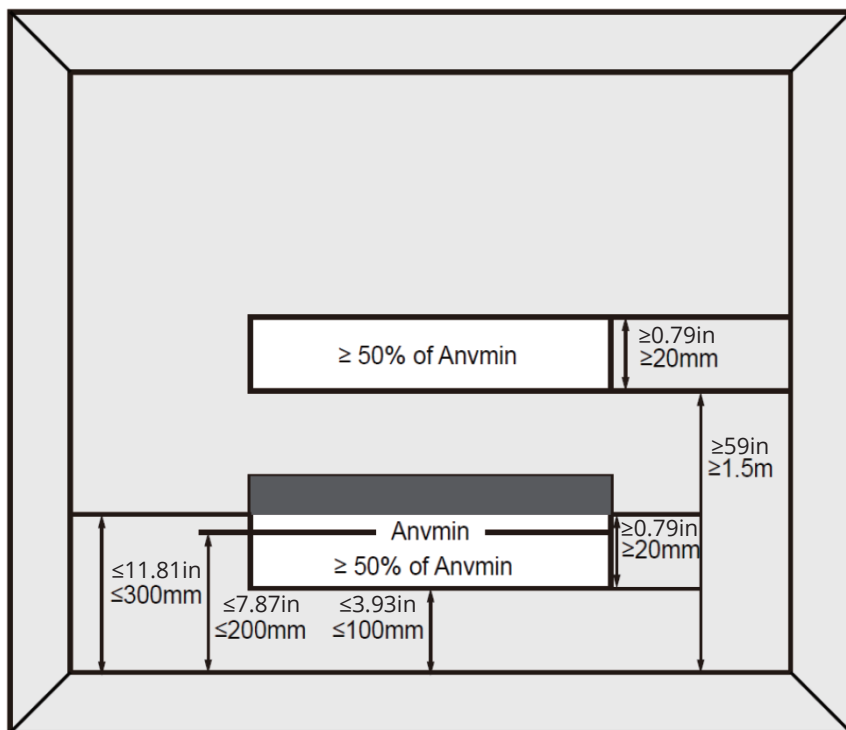
Note: An_{vmin} should choose the closest and largest value of An_{vmin} . Take $Mc=1.7kg$ as an example. The value is between 1.5 and 1.8, so its An_{vmin} should be the same as $Mc=1.8kg$

Opening Conditions for Connected Rooms or an Unoccupied Room (Natural Ventilation)

When the openings for connected rooms or an unoccupied room with natural ventilation opening are required, the following conditions should be applied:

- The area of any openings above 11.8in (300mm) from the floor should not be considered in determining compliance with An_{vmin} .
- At least 50% of the required opening area An_{vmin} should be below 7.8in (200mm) from the floor.
- The bottom of the lowest openings should not be higher than the point of release when the unit is installed and not more than 3.9 in (100mm) from the floor.
- Openings are permanent openings which cannot be closed.
- For openings extending to the floor, the height should not be less than .78in (20mm) above the surface of the floor covering.
- A second higher opening should be provided. The total size of the second opening should not be less than 50% of the minimum opening area for An_{vmin} and should be at least 59in (1.5m) above the floor.

NOTE: The requirement for the second opening can be met by drop ceilings, ventilation ducts, or similar arrangements that provide an airflow path between the connected rooms.



- The room into which refrigerant can leak, plus the connected adjacent room(s) should have a total area of no less than T_{amin} .
- The room area in which the unit is installed should not be less than 20% T_{amin} .

3 INDOOR UNIT INSTALLATION

For R454B Refrigerant Charge Amount and Minimum Room Area:

The unit you purchased should be one of the types in the table below. The indoor and outdoor units are designed to be used together. Please check the machine you purchased. The minimum room area of operating or storage should be as specified in the following table.

Model	Indoor Unit	Outdoor Unit
24K (208/230V)	DIY-24-HP-MUAH-230D25-O	DIY-24-HP-C-230D25-O
36K (208/230V)	DIY-36-HP-MUAH-230D25-O	DIY-36-HP-C-230D25-O

Mc or M _{REL} [oz/kg]	T _{Amin} [ft ² /m ²]	Mc or M _{REL} [oz/kg]	T _{Amin} [ft ² /m ²]	Mc or M _{REL} [oz/kg]	T _{Amin} [ft ² /m ²]	Mc or M _{REL} [oz/kg]	T _{Amin} [ft ² /m ²]
<=62.7/1.776	12/1.10	134/3.8	126/11.67	211.6/6.0	198/18.43	289.2/8.2	271/25.18
63.5/1.8	60/5.53	141.1/4	132/12.29	218.7/6.2	205/19.04	296.3/8.4	278/25.8
70.5/2.0	66/6.14	148.1/4.2	139/12.9	225.8/6.4	212/19.66	303.4/8.6	284/26.41
77.6/2.2	73/6.76	155.2/4.4	145/13.51	232.8/6.6	218/20.27	310.4/8.8	291/27.63
84.6/2.4	79/7.37	162.2/4.6	152/14.13	239.9/6.8	225/20.88	317.5/9.0	298/27.64
91.7/2.6	86/7.99	169.3/4.8	159/14.74	246.9/7.0	231/21.5	324.5/9.2	304/28.26
98.8/2.8	93/8.6	176.4/5	165/15.36	254/7.2	238/22.11	331.6/9.4	311/28.87
105.8/3	99/9.21	183.4/5.2	172/15.97	261/7.4	245/22.73	338.6/9.6	317/29.48
112.9/3.2	106/9.83	190.5/5.4	179/16.58	268.1/7.6	251/23.34	345.7/9.8	324/30.10
119.9/3.4	112/10.44	197.5/5.6	185/17.2	275.1/7.8	258/23.96	352.7/10.0	331/30.71
127/3.6	119/11.06	204.6/5.8	192/17.81	282.2/8.0	264/24.57		
Area Formula T_{Amin} is the required minimum room area in ft ² /m ² Mc is the actual refrigerant charge in the system in oz/kg M_{REL} is the height of the bottom of the unit relative to the floor of the room after installation. WARNING: The minimum room area or minimum room area of the conditioned space is based on releasable charge and total system refrigerant charge.							

When the unit detects a refrigerant leak, the minimum airflow of the indoor unit is as follows:

Model	Nominal Air Volume
24K	400CFM (680m ³ /h)
36K	541CFM (920m ³ /h)

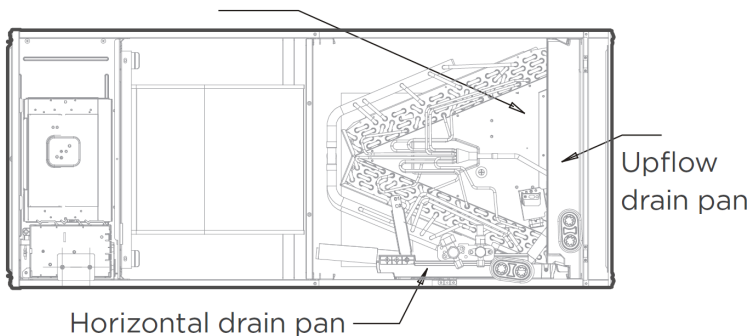
WARNING

There must be an airtight seal between the bottom of the air handler and the return air plenum. Use fiberglass sealing strips, foil duct tape, caulking, or an equivalent sealing method between the plenum and the air handler cabinet to ensure a tight seal. Return air must not be drawn from a room where this air handler or any gas-fueled appliance (i.e., water heater), or carbon monoxide-producing device (i.e., wood fireplace) is installed.

3 INDOOR UNIT INSTALLATION

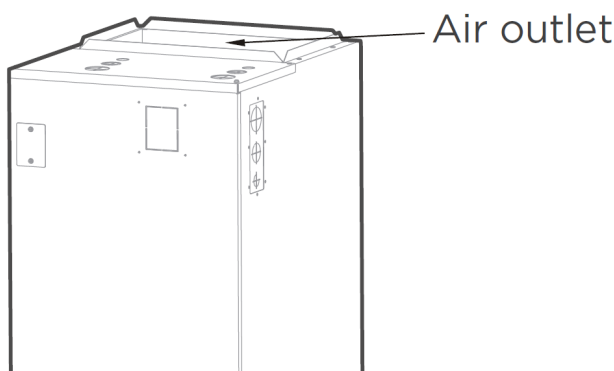
3.2 Installation Preparation & Precautions

Coil compartment
(Access panel Removed)



! WARNING

- Apply sealant around the places where the wires, refrigerant pipes, and condensate pipes enter the cabinet.
- Use duct tape or flexible sealant to seal closed any space around the holes where the drain lines exit the cabinet. Warm air must not be allowed to enter through any gaps or holes in the cabinet.



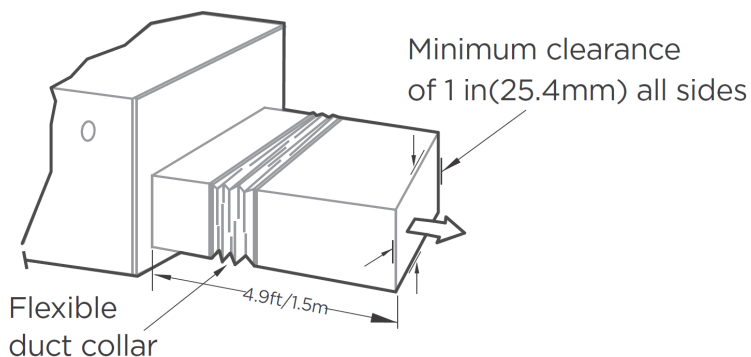
NOTE

Remove all accessories and packing in the air outlet before installation.

Recommended Distances Between the Indoor Unit:

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

Horizontal Installations



The outlet side pipe length 4.9ft/1.5m.

Vertical Installations



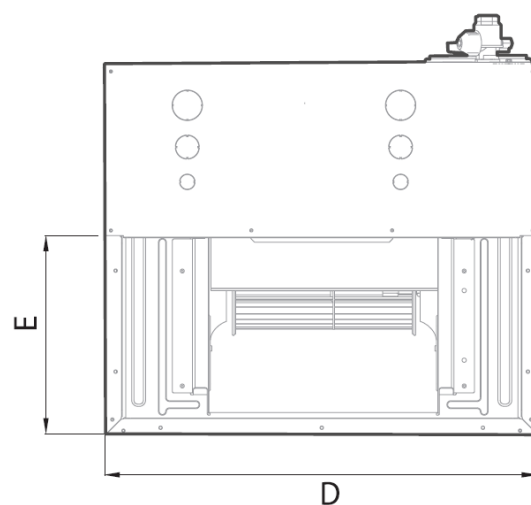
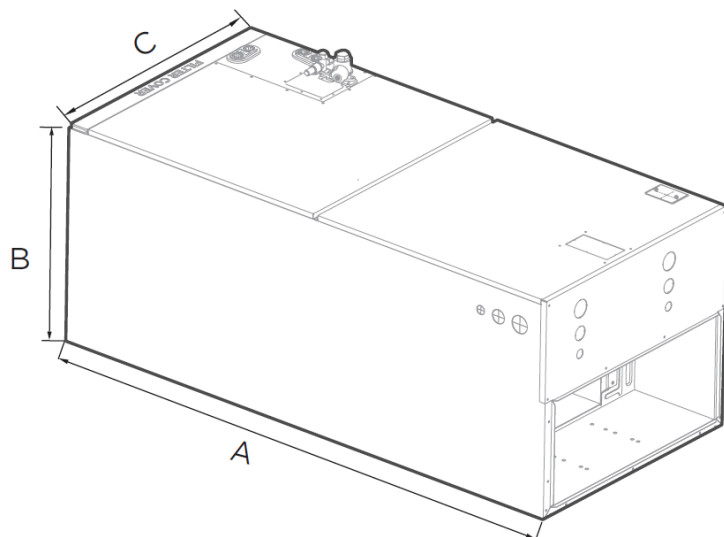
Fixing Instructions:

When installed vertically (upward or downward), the lower end of the air outlet needs to be connected to the L-shaped metal air duct and fastened by screws.

If return air is to be ducted, install the duct flush with the floor. Set the unit on the floor over the opening. All return air must pass through the coil.

3 INDOOR UNIT INSTALLATION

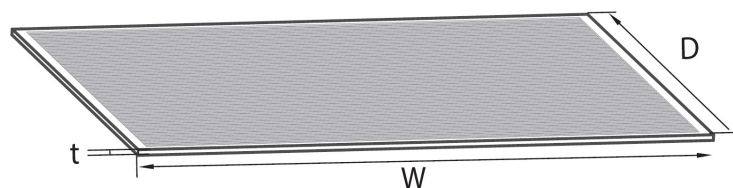
3.3 Indoor Unit Parts Installation Size



(unit: inch/mm)

Dimensions		24K	36K
Length of A	inch	45	49
	mm	1143	1245
Length of B	inch	21	21
	mm	533	533
Length of C	inch	17-1/2	21-1/50
	mm	445	534
Length of D	inch	15-3/4	19-5/16
	mm	400	490
Length of E	inch	10-1/4	10-1/4
	mm	260	260

Recommended Size of Filter



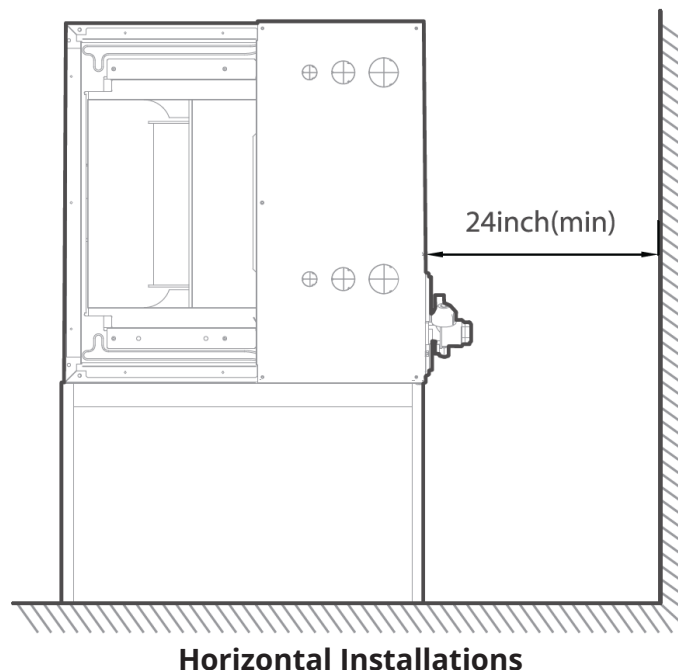
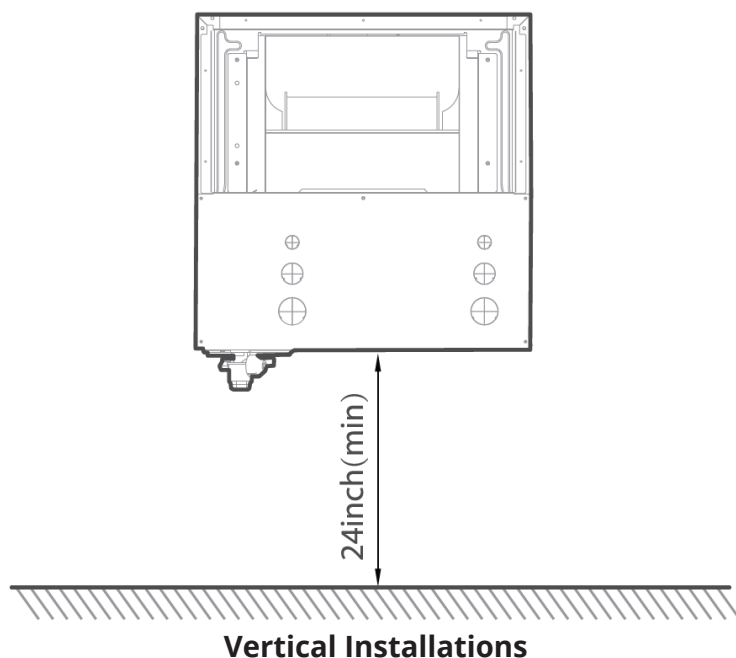
Note:

The user needs to purchase a standard filter that meets the requirements of UL900. If you have questions about the selection of filters, contact MRCOOL® or your dealer.

Dimensions		24K	36K
Length of W	inch	16	20
	mm	406.4	495.3
Length of D	inch	20	20
	mm	508	508
Length of t	inch	1	1
	mm	25.4	25.4

3 INDOOR UNIT INSTALLATION

3.4 Installation Position Requirements



NOTICE FOR DUCT CONNECTIONS:



It should be assembled according to the instructions.



It should be insulated and use a vapor barrier.



It should be flexible suspension mounted and not fastened.



It should be fabricated and installed in accordance with local and/or national codes.

More Requirements:

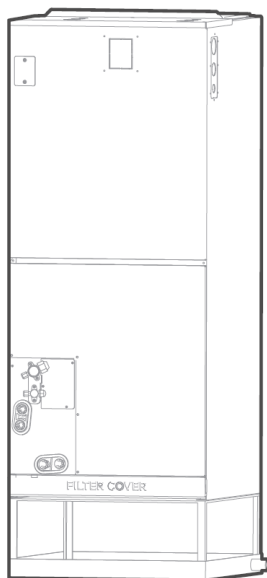
- Air supply and return may be handled in one of several ways best suited to the installation. (See table for dimensions for duct inlet and outlet connections.) The vast majority of problems encountered with combination cooling systems can be linked to improperly designed or installed duct systems. It is therefore highly important to the success of an installation that the duct system be properly designed and installed. Use flexible duct collars to minimize the transmission of vibration/noise into the conditioned space. Where return air duct is short, or where sound could potentially be a problem, a sound absorbing liner should be used inside the duct.
- Duct must be insulated where it runs through an unconditioned space during the cooling season. The use of a vapor barrier is recommended to prevent absorption of moisture from the surrounding air into the insulation.
- The supply air duct connection should be properly sized by use of a transition to match unit opening.
- All ducts should be suspended using flexible hangers and never fastened directly to the structure. This unit is not designed for nonducted (freeblow) applications.
- Duct work should be fabricated and installed in accordance with local and/or national codes.

3 INDOOR UNIT INSTALLATION

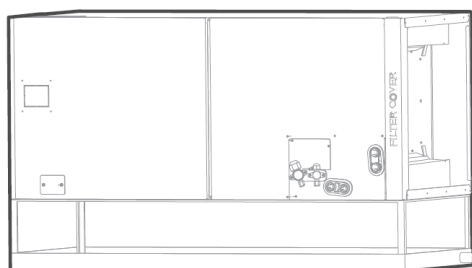
! CAUTION

A field-fabricated secondary drain-pan, with a drain pipe to the outside of the building, is required in all installations over a finished living space or in any area that may be damaged by overflow from the main drain pan. In some localities, local codes may require a secondary drain pan for any horizontal installation.

3.5 Selection of Installation Direction



Vertical Up

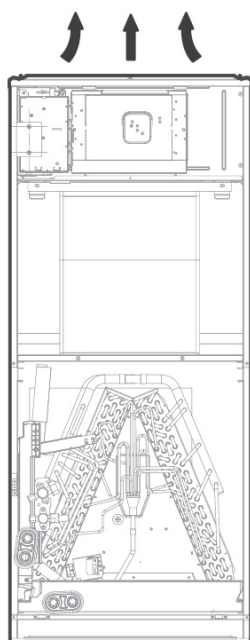


Horizontal

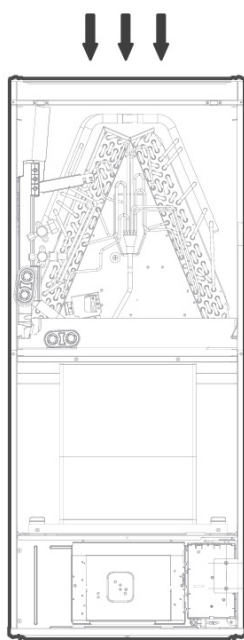
At least
5in(127mm)

NOTE: For horizontal installation, a secondary drain pan (not supplied) must be installed.

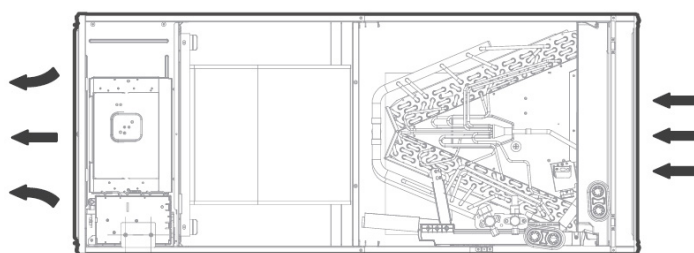
3.6 Airflow Directions



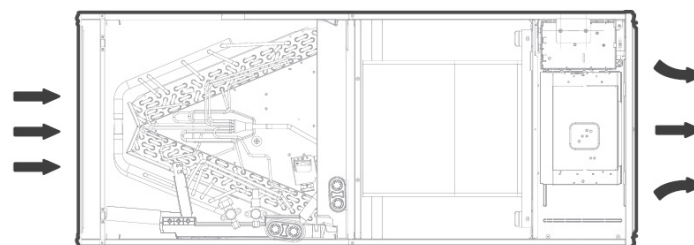
Upflow



Downflow



Horizontal Left



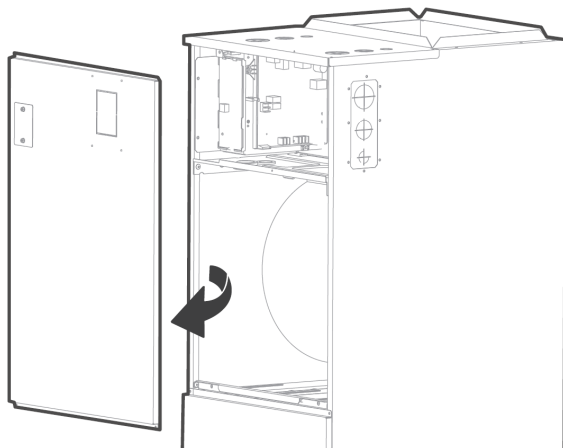
Horizontal Right

NOTE: Vertical up and horizontal left installation does not need to change the direction of the evaporator.

3 INDOOR UNIT INSTALLATION

3.7 Wire & Piping Connection

Downflow & Horizontal Right Connection Overview:



Step 1:

Open the upper cover.

Step 2:

Open the cover of the electronic control box.

Step 3:

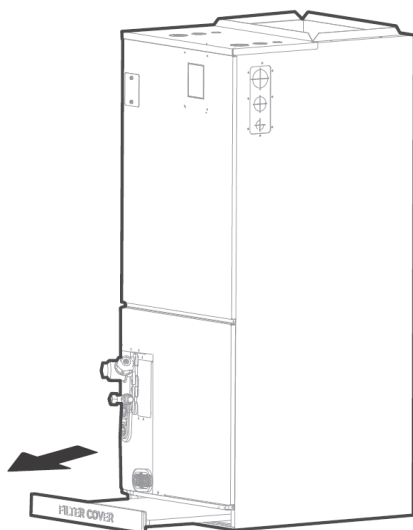
Connect the wire according to the wiring diagram.

Step 4:

Connect the pipes and install the drainage pipes.

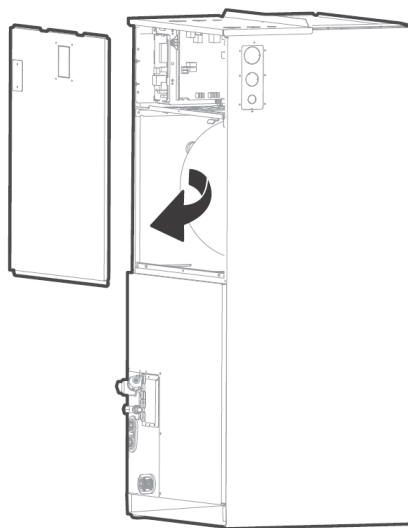
Downflow & Horizontal Right Connection Instructions:

NOTE: The unit may be installed in upflow, downflow, horizontal left, or horizontal right orientations.



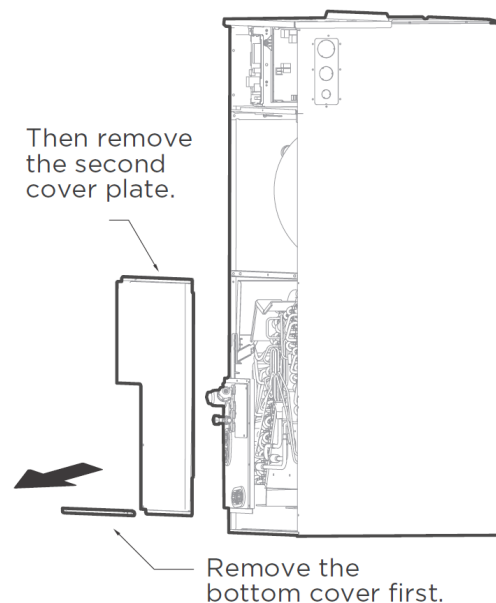
Step 1:

Remove the filter door, then remove the filter.



Step 2:

Remove the upper cover assembly.



Step 3:

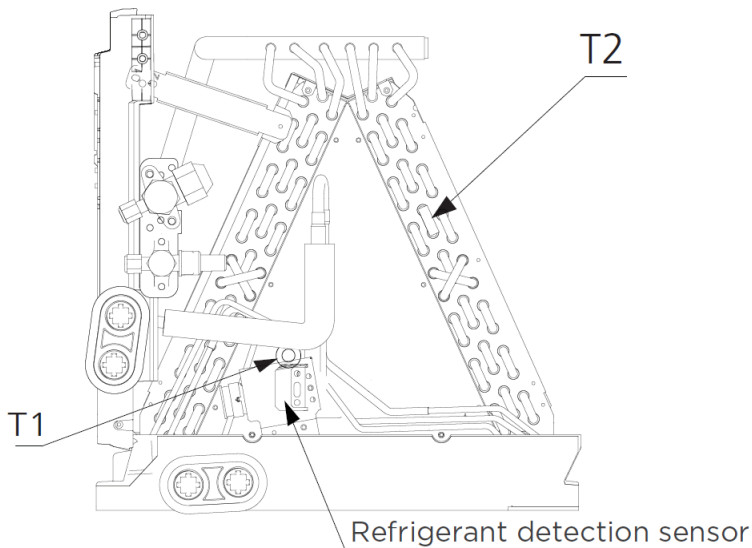
Remove evaporator cover plate.

3 INDOOR UNIT INSTALLATION

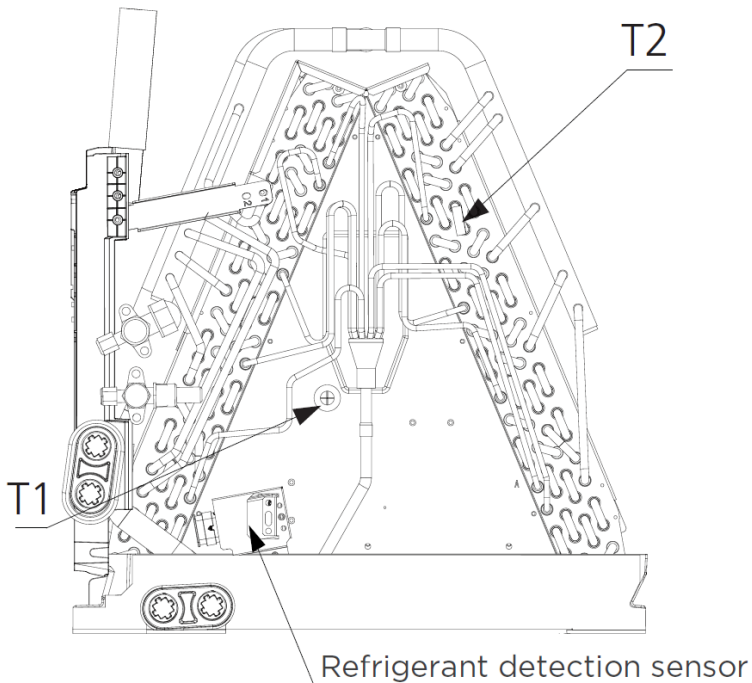
Step 4:

Identify the position of each temperature sensor of the evaporator to confirm your unit model.

24K Model:



36K Model:

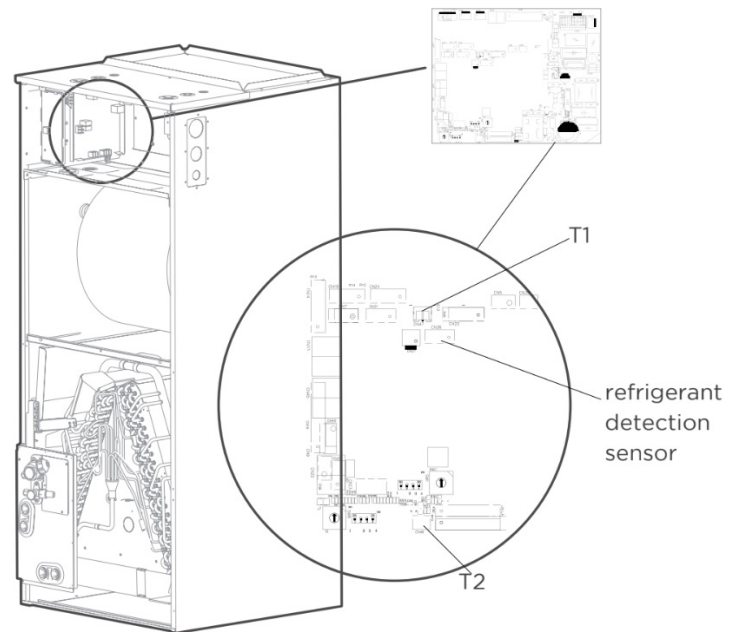


Step 5:

Unplug temperature sensors T1, T2, and the refrigerant detection sensor from the control board.

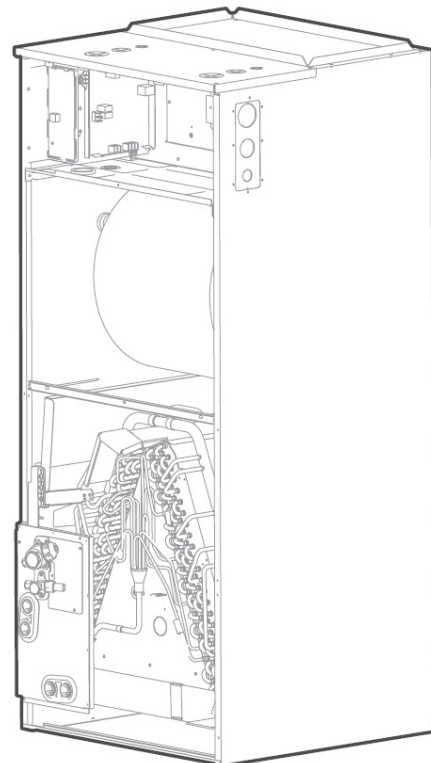
T1: IDU room temperature sensor

T2: IDU coil temperature sensor



Step 6:

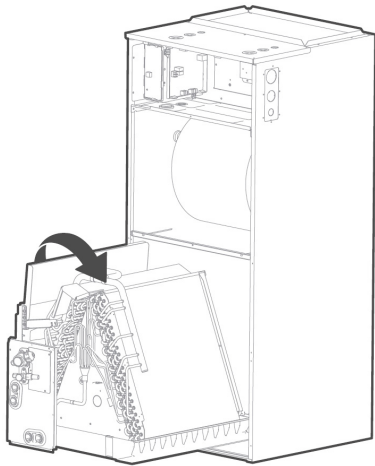
Remove T1, T2, and refrigerant detection sensor wire ties.



3 INDOOR UNIT INSTALLATION

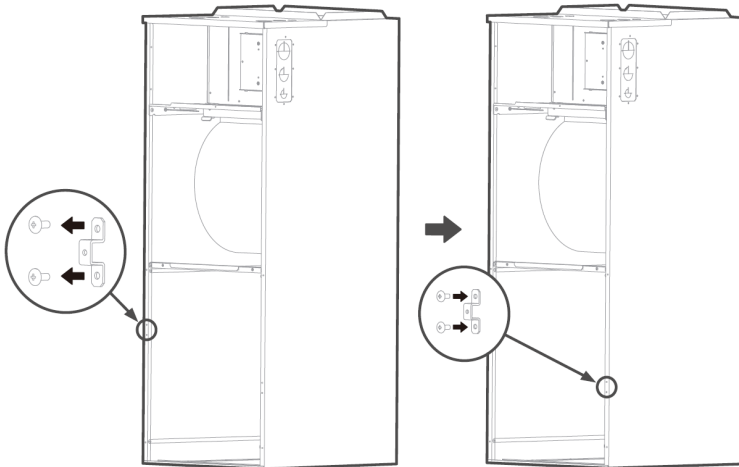
Step 7:

Take out the evaporator and drain pan and rotate 180° (when your equipment requires a downflow configuration.)



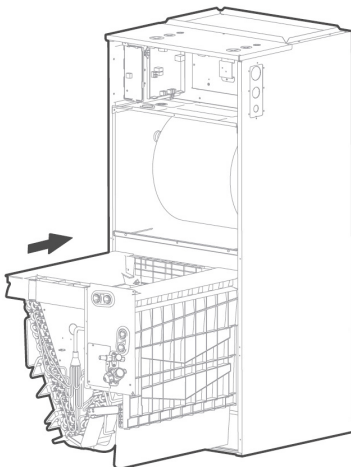
Step 8:

Adjust the mounting part position according to the direction of the equipment.



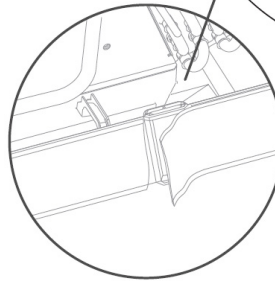
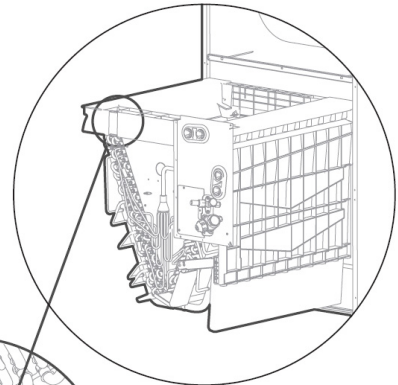
Step 9:

Reinstall the evaporator and drain pan.

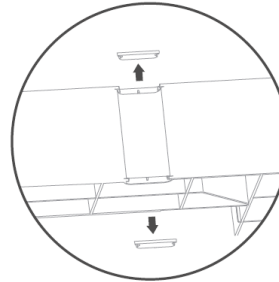


Step 10:

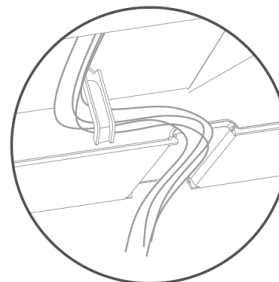
Reinstall T1, T2 sensor plug and tie up the sensor wires.



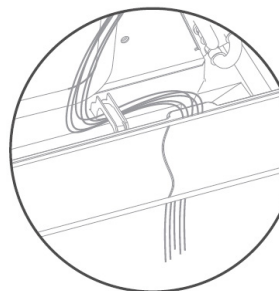
Cut the foam gasket.



Remove the knockouts as shown in the figure.



Hook the wire into the buckle and down into the wire slot.



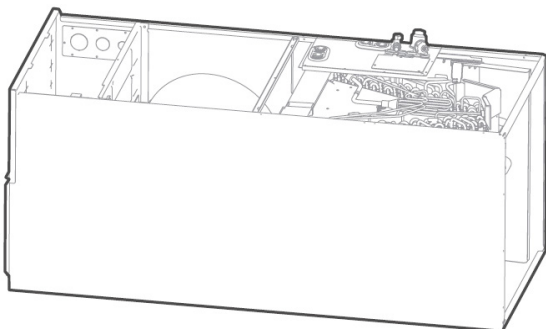
Replace foam gasket over the wires.

NOTE: The wire body needs to pass through the wire groove from the drain pan and attached on the hook of the drain pan.

3 INDOOR UNIT INSTALLATION

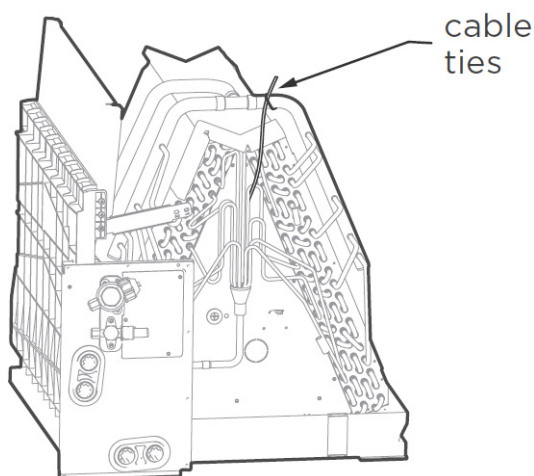
Step 11:

The evaporator is assembled in place.



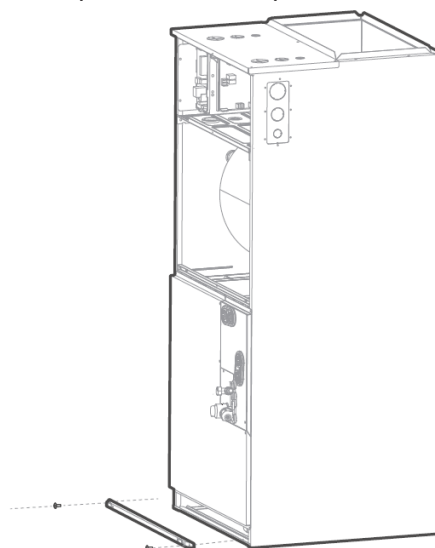
Step 12:

Use cable tie to attach the room temperature sensor as shown in the figure.



Step 13:

Reinstall the evaporator cover plate.

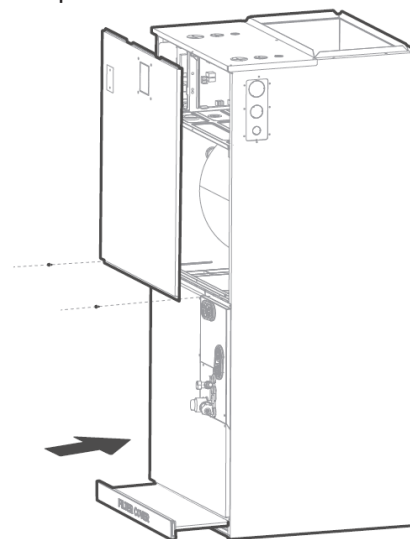


Step 14:

Connect the wire according to the wiring diagram.

Step 15:

Reassemble the upper cover and reinstall the filter and filter cover plate.



! CAUTION FOR PIPE INSTALLATION

- Insulate all piping to prevent condensation, which could lead to water damage.
- The drainpipe is used to drain water away from the unit. If the drainpipe is bent or installed incorrectly, water may leak and cause a water-level switch malfunction.
- In heat mode, the outdoor unit will discharge water. Ensure that the drain hose is placed in an appropriate area to avoid water damage and icy conditions on walkways.
- **DO NOT** pull the drainpipe forcefully. This could disconnect it.

NOTE

If installed above a finished living space, a secondary drain pan (as required by many building codes), must be installed under the entire unit and its condensate drain line must be routed to a location where the user can see the condensate discharge.

3 INDOOR UNIT INSTALLATION

NOTE ON PURCHASING PIPES

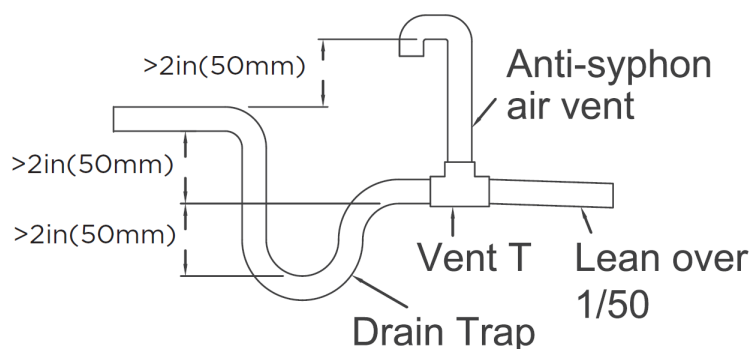
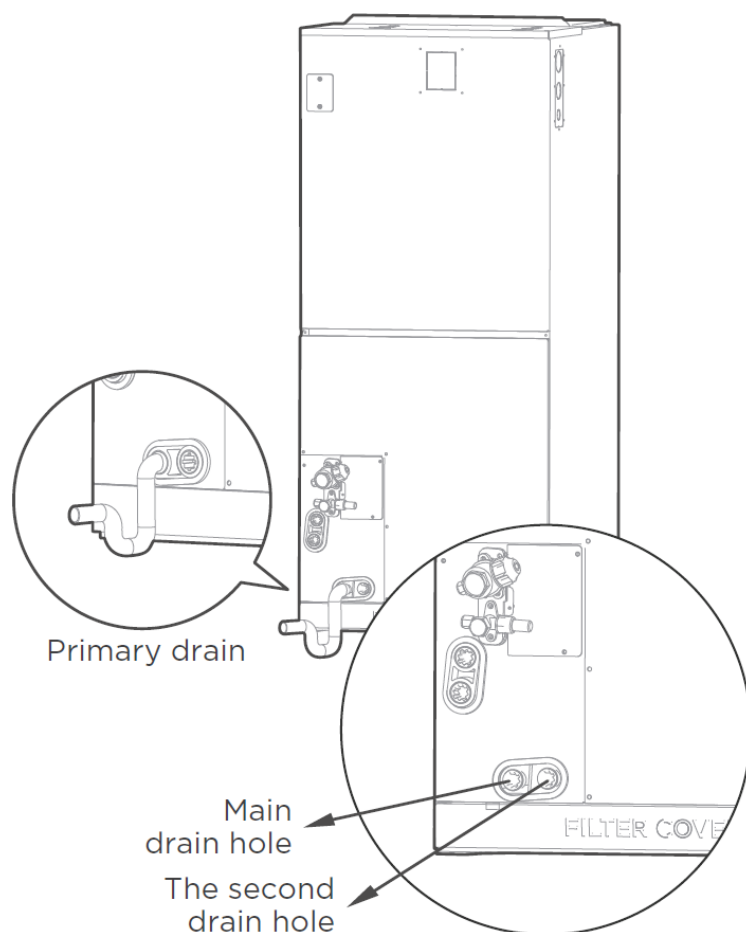
Installation requires PVC pipe or other suitable material per local and national codes, which can be obtained at your local hardware store or dealer.

! WARNING

- After removal of drain pan plug(s), check the drain hole(s) to verify the drain opening is fully open and free of any debris. Also check to make sure that no debris has fallen into the drain pan during installation that may plug up the drain opening. Seal around the exiting drain pipe, liquid, and suction lines to prevent the infiltration of humid air.
- On units of this type, where the blower "draws" rather than "blows" air through the coil, traps must be installed in the condensate drain lines (primary and auxiliary, if used). Traps prevent the blower from drawing air through the drain lines into the air supply.

Vertical Connection Instructions:

These units operate with a negative pressure at the drain connections and a drain trap is required. The trap needs to be installed as close to the unit as possible. Make sure the top of the trap is below the connection to the drain pan to allow complete drainage of the pan.



NOTE:

Horizontal runs must also have an anti-siphon air vent (standpipe) installed ahead of the horizontal run to eliminate air trapping.

NOTE ON DRAINPIPE INSTALLATION

- The figure above shows how to trap or plug all drains during vertical discharge.
- The figure above shows how to trap or plug all drains during right-hand discharge.
- The seal plugs are supplied as accessories and should be screwed tightly only by hand.
- Incorrect installation could cause water to flow back into the unit and flood.

! CAUTION

The drainpipe outlet should be at least 1.9in (5cm) above the ground. If it touches the ground, the unit may become blocked and malfunction.

4 REFRIGERANT PIPING CONNECTION

! WARNING

All field piping must be completed by a licensed technician and must comply with both local and national regulations.

- When the unit is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit.
- In the event of refrigerant leakage, if the refrigerant leaks and its concentration exceeds its proper limit, it may result in hazards due to a lack of oxygen.
- When installing the refrigeration system, ensure that air, dust, moisture, or foreign substances do not enter the refrigerant circuit. Contamination in the system may cause poor operating capacity, high pressure in the refrigeration cycle, explosion, or injury.
- Ventilate the area immediately if there is refrigerant leakage during the installation. Leaked refrigerant gas is toxic and may be flammable. Ensure there is no refrigerant leakage after completing installation work.

4.1 Pipe Length & Elevation

Maximum Length & Drop Height Based on Models:

Capacity	Max Length of Piping ft (m)	Maximum Drop Height ft (m)
24K	164 (50)	82 (25)
36K	246 (75)	98.4 (30)

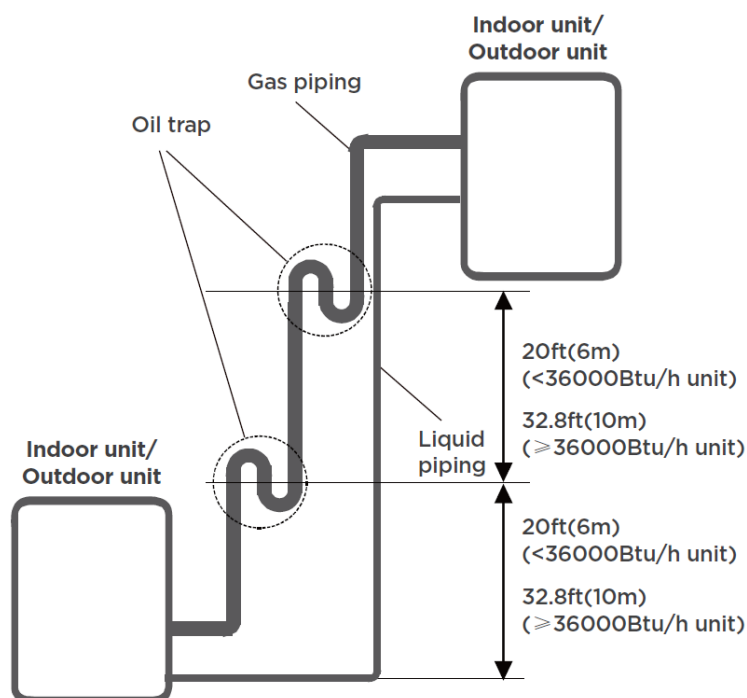
Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meets the requirements shown.

Capacity	Pipe Specification		Remark
	Liquid Side	Gas Side	
24K	Ø3/8in (Ø9.52mm)	Ø5/8in (Ø16mm)	Pipes are not included in the accessories and must be purchased separately.
36K	Ø3/8in (Ø9.52mm)	Ø5/8in (Ø16mm)	

! CAUTION-OIL TRAPS

If oil flows back into the outdoor unit's compressor, it could lead to liquid compression or deterioration of the oil return. Oil traps in the rising gas piping can prevent this.

An oil trap should be installed every 20ft (6m) of vertical suction line riser (<36000Btu/h unit). An oil trap should be installed every 32.8ft (10m) of vertical suction line riser (≥36000Btu/h unit).



4 REFRIGERANT PIPING CONNECTION

4.2 Quick-Connect® Line Set Connection

IMPORTANT INFORMATION

- Closely follow the detailed instructions for connecting the refrigerant lines to the indoor and outdoor units. Failure to install in accordance with these installation instructions may void the warranty.
- Do not remove the sealing caps and stoppers until immediately before you install the lines.
- To prevent leaks, ensure that the quick-connector threading and valve body is free of dirt and contaminants prior to assembly. Moisture and/or foreign material may impact function, possibly leading to refrigerant loss and/or premature failure.
- Only install refrigerant lines outdoors during dry weather.
- The refrigerant lines must not be installed and then plastered over.
- Care should be taken to prevent release of refrigerant to the environment while installing or servicing the equipment. Always wear proper personal protective equipment when handling refrigerant. (e.g. work gloves, safety glasses, etc.)
- Do not smoke during installation.
- The equipment must never be operated without fully completing the refrigerant line connection. Failure to do so will damage the equipment.
- Follow the required tightening torques defined in the table based on connector size. Under-tightening may result in a refrigerant leak, while over-tightening could damage components.
- For any questions about the installation or connection of the refrigerant lines, contact MRCOOL®.

NOTE

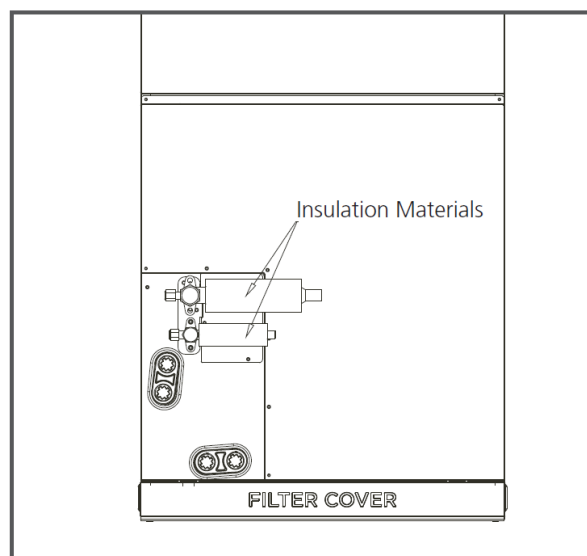
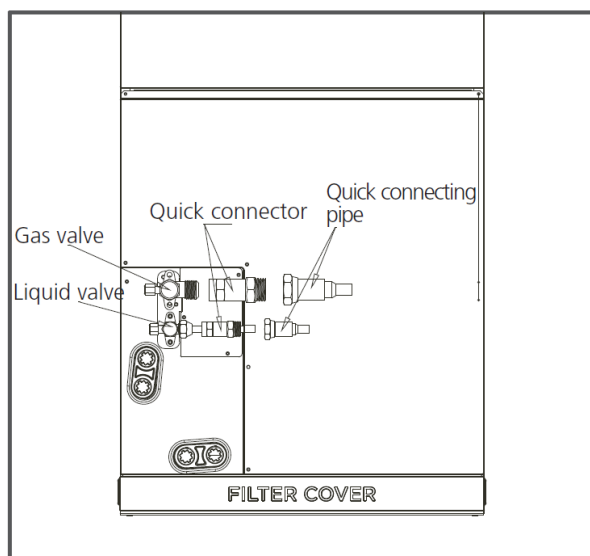
- The Quick-Connect® installation method is only used for the models that have been pre-charged with refrigerant and equipped with quick-connecting ends.
- Before you continue, it is essential that you read the following instructions carefully.

Step 1:

When ready to immediately install the refrigerant line, remove the plastic seals/caps from the indoor unit and refrigerant line.

Align the quick-connector with the valve of the indoor unit. Ensure that they are the same size. Tighten them with two wrenches (one on the valve, one on the quick-connector) according to the torque table.

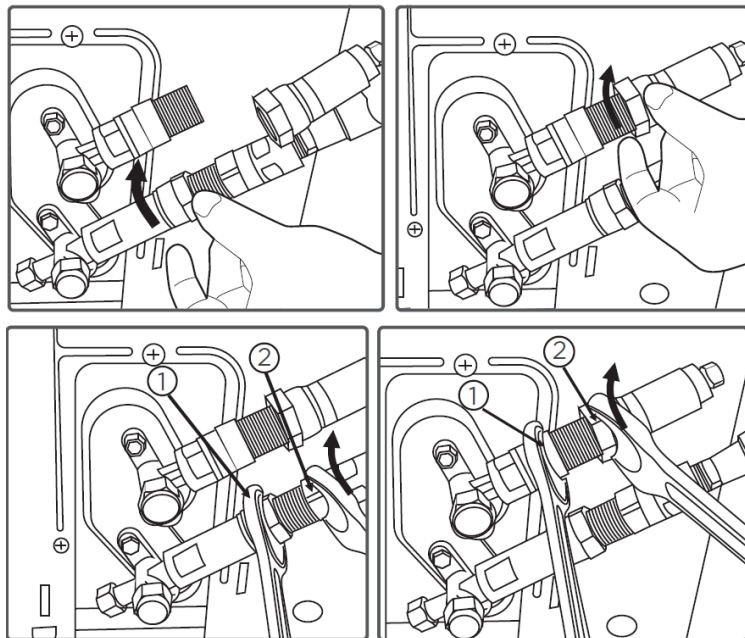
Screw the quick-connecting line onto the quick-connector and hand-tighten. Be careful not to cross-thread.



4 REFRIGERANT PIPING CONNECTION

Step 2:

Using two open-ended wrenches, tighten the quick-connect nut (2) on the line according to the torque specification in the table below, being careful not to loosen the connection (1) to the valve body.



Step 3:

Ensure that the screw connectors do not cross-thread as you tighten them and work quickly.

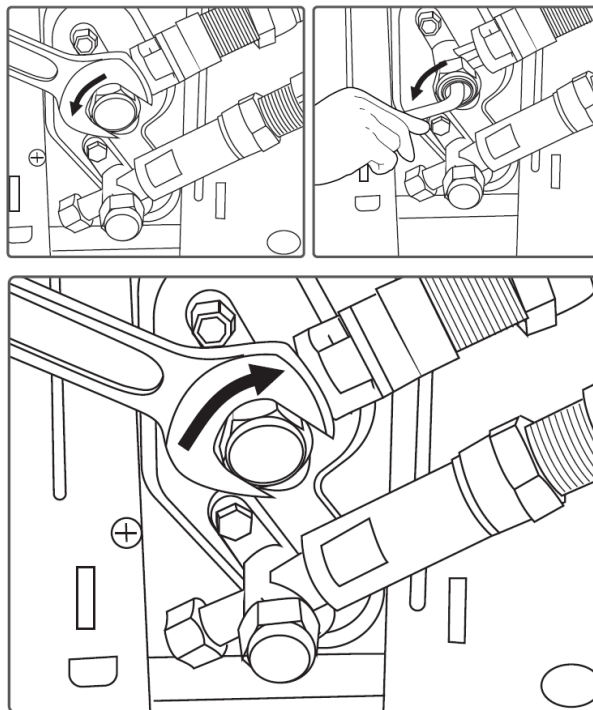
After completing steps 1-3, check that all connections are sealed correctly using leak detection spray or soap suds. If any bubbles form, the system has a leak and the screw connectors must be re-tightened using an open-ended wrench.

NOTE:

Since the coupling works with tapping rings, it may leak if you undo and reconnect the pipes. This will also void the warranty.

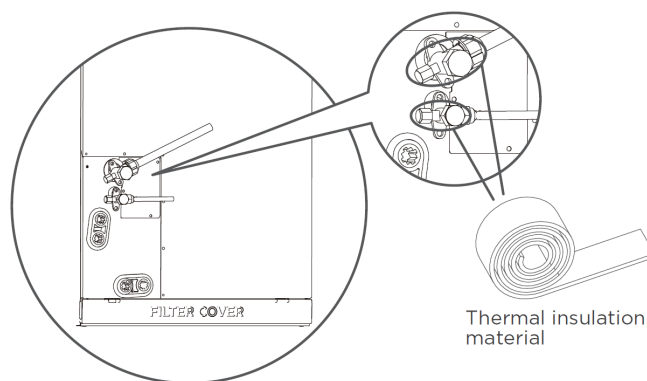
Step 4:

Remove the cover on the top valve using a 19mm open-ended wrench. Open the valve by turning it counter-clockwise as far as it will go using a 5mm Allen key. The valve is now open. If the valve is not opened fully, the system may malfunction and suffer damage. Screw the cover back onto the top valve and tighten it well to ensure that it is properly sealed.



Step 5:

After the unit is installed, wrap the valve body with insulation material and make sure the valve is sealed.



Torque Table:

Coupling Size	Pound-Force Foot (lbf-ft)	Kilogram-Force Centimeter (kgf-cm)
-06 (9.5mm dash size)	18-20	180-200
-09 (12.7mm dash size)	32-39	320-390
-12 (19.1mm dash size)	49-59	490-590
-16 (25.4mm dash size)	57-71	570-710

5 ELECTRIC HEAT KIT INSTALLATION

5 - Electric Heat Kit Installation

NOTICE

Installation must be performed by a licensed contractor. Please take necessary precautions when performing the installation.

Accessories

Name	Quantity
Manual	1
Foam Gasket	1
Screws	7
Silicone Breaker Cover	1
Electric Auxiliary Heating Wiring Diagram	1
Circuit Breaker Label	1

Model Size Selection

For installations requiring supplemental heating, the optional Electric Auxiliary Heat Module is available in sizes from 5kW to 20kW to accommodate appropriate sizing given the specific heat load and electrical requirements of each installation. Refer to the table below for selection of available sizes of each model, being sure to avoid improper matching.

Model (Btu/h)	5kW	8kW	10kW	15kW	20kW
24K	Y	Y	Y	Y	-
36K	Y	Y	Y	Y	Y

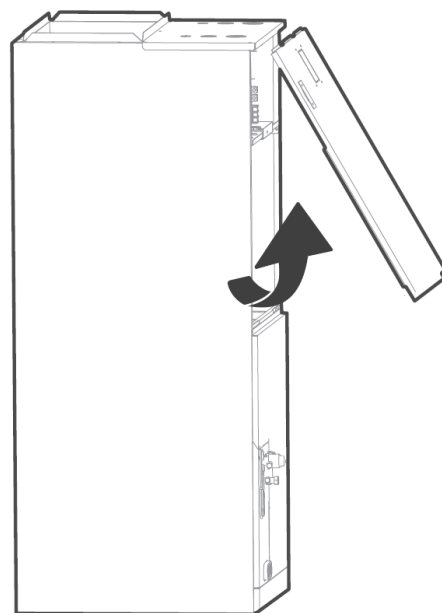
NOTICE

Only use compatible modules certified for use with the model. Refer to the Electric Auxiliary Heat Model specification for additional details to ensure proper selection and installation.

Installation Preparation

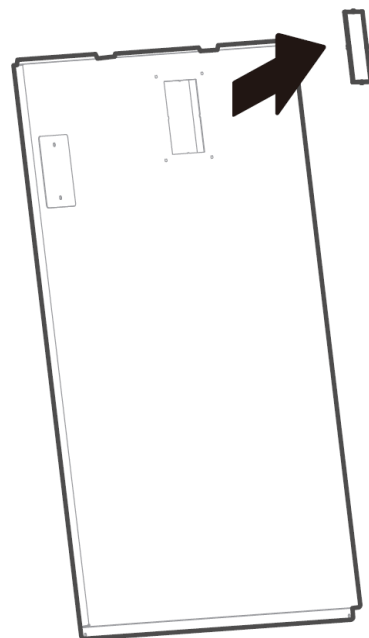
Before installation, confirm the electric auxiliary heat module and supplied accessories are present and free of damage. Do not attempt to install if damage is present.

Electric Auxiliary Heat Module Installation and Wiring Operation



Step 1:

Open the upper cover.



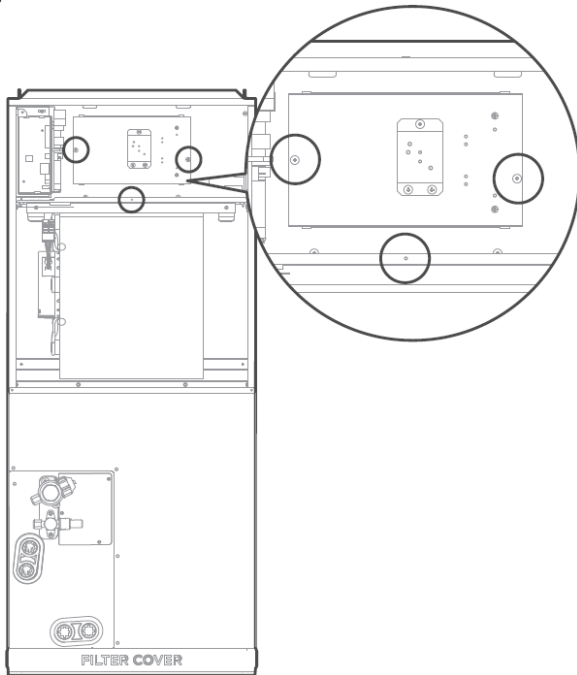
Step 2:

Use tools to remove the knock-out holes of the upper cover.

5 ELECTRIC HEAT KIT INSTALLATION

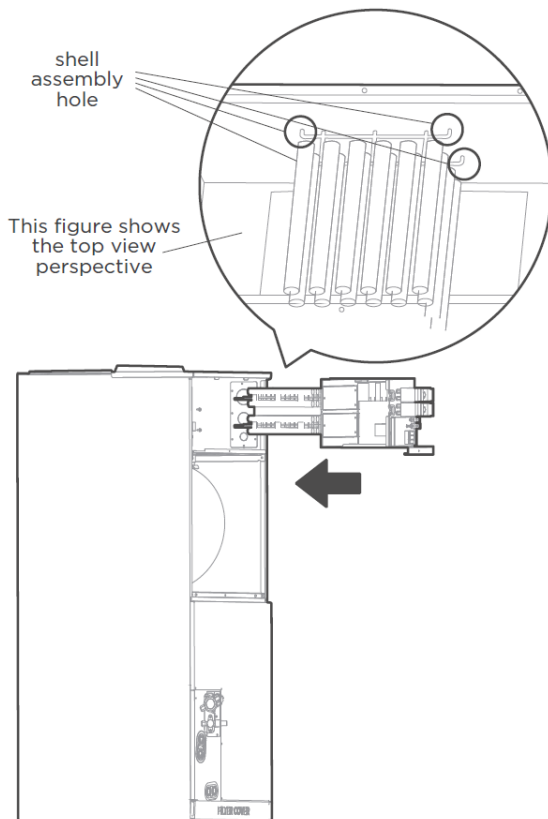
Step 3:

Remove the terminal block and power wires, loosen the screws, and remove the electric auxiliary heating cover.



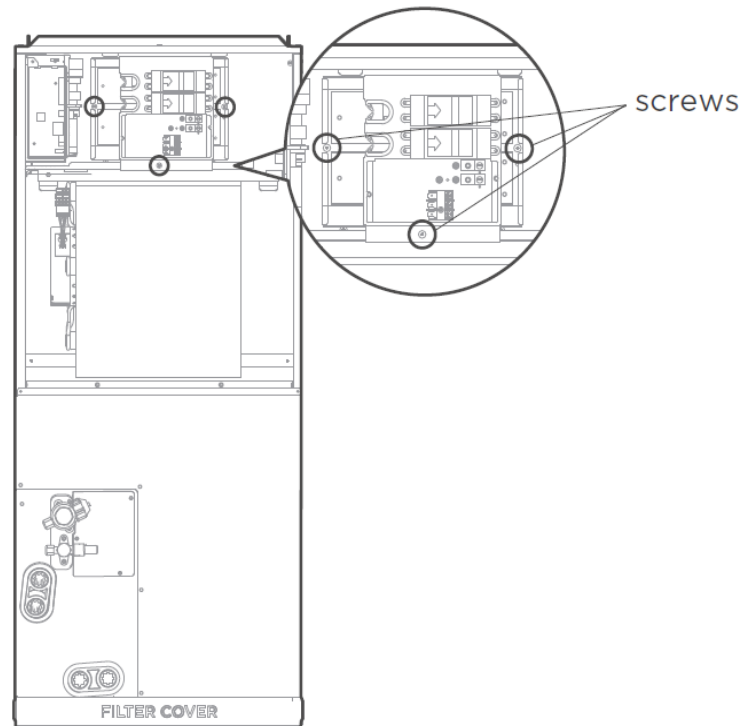
Step 4:

Install the electric auxiliary heating assembly through the front, and note that the support assembly must lock into the support holes in the back of the cabinet.



Step 5:

Tighten the mounting screws.

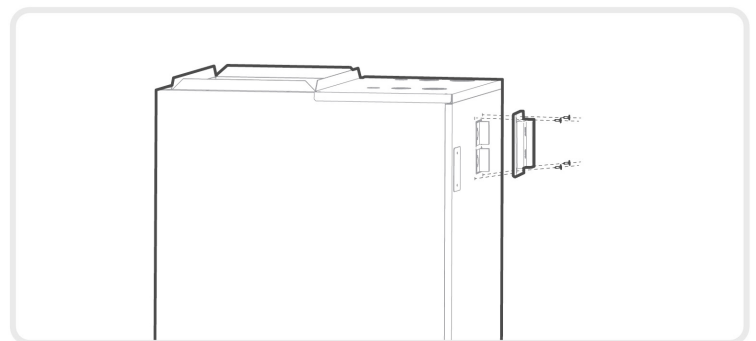


Step 6:

Wire according to the wiring nameplate. Apply the wiring diagram to the inside cover for future reference and maintenance. Plug the electric heating plugs CN11 and CN12 into the main board.

Step 7:

Install the upper cover and the silicone breaker cover.



Step 8:

After installing the electric auxiliary heat module, apply the circuit breaker label near the silicone breaker cover previously installed.

NOTICE

The circuit breaker cannot be operated by user.

6 CONFIRMATION OF INDOOR UNIT

6.1 Units with Electrical Heat

NOTICE

- The electric auxiliary heating wiring diagram is packed with the accessories.
- If the branch circuit wire length exceeds 100ft, consult NEC 210-19a to determine maximum wire length.
- Use 2% voltage drop.

After the electric heating wiring is connected, please confirm the following before powering on:

- Check and ensure a secure connection of all wiring.
- Ensure that the wire size is properly selected per NEC or local codes.

Model	Number of Circuit Breakers	Number of Relays	Number of Power Cord Groups	Number of Power Cord Grounding Screws
5kW	1	1	2	2
8kW	1	2	2	2
10kW	1	2	2	2
15kW	2	3	3	3
20kW	2	4	3	3

6.2 Units without Electrical Heat

Unit Size	Volts-Phase	Rated Current (A)	Minimum Circuit Amps	Branch Circuit	
				Minimum Wire Size AWG	Fuse/Circuit Breaker Amps
24K	208/230V-1	208/230V: 3.0A	208/230V: 4.0A	14#	15.0
36K	208/230V-1	208/230V: 3.0A	208/230V: 4.0A	14#	15.0

Use copper wire only to connect the unit. If other than uncoated (non-plated) 75°C copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the National Electric Code (ANSI/NFPA 70).

NOTICE

The specification may be different between different models. Refer to the indoor unit's nameplate.

6.3 Auxiliary Heater Electrical Data

Heater Model	Heater kW	Internal Circuit Protection	Circuit 1 208/230V			Circuit 2			Circuit 2		
			Heater Amps	MCA (1)	MOP (2)	Heater Amps	MCA (1)	MOP (2)	Heater Amps	MCA (1)	MOP (2)
MVPHK05	5	Ckt Bkr	18.0/20.0	23.0/27.0	25.0/30.0	/	/	/	/	/	/
MVPHK08	8	Ckt Bkr	28.8/32.0	37.0/42.0	40.0/45.0	/	/	/	/	/	/
MVPHK10	10	Ckt Bkr	36.0/40.0	46.0/53.0	50.0/60.0	/	/	/	/	/	/
MVPHK15	15	Ckt Bkr	18.0/20.0	23.0/27.0	25.0/30.0	36.0/40.0	46.0/53.0	50.0/60.0	/	/	/
MVPHK20	20	Ckt Bkr	36.0/40.0	46.0/53.0	50.0/60.0	36.0/40.0	46.0/53.0	50.0/60.0	/	/	/

6

6.4 Electric Auxiliary Heating Wiring Diagrams

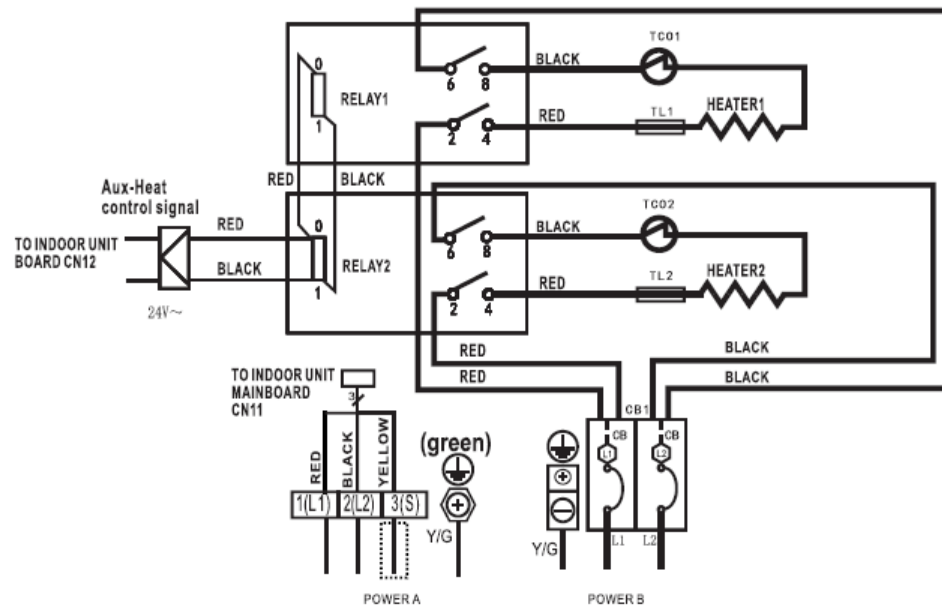


6 CONFIRMATION OF INDOOR UNIT

8KW/10KW HEAT KIT

 : THERMAL LINK

 : THERMAL CUT-OUT, SELF-RESETTING



NOTE1: 

This symbol indicates the element is optional. The wiring type of the actual unit shall prevail.

NOTE2:

PLEASE ATTACH THE NAMEPLATE TO THE COVER OF THE ELECTRIC CONTROL BOX. ALL THE ROUND HOLES LOCATED ON THE PLATE REPRESENT NUMBERS. PLEASE REFER TO THE INSTALLATION MANUAL FOR DETAILS.

NOTE3: TO BE WIRED IN ACCORDANCE WITH NEC AND LOCAL CODES.

NOTE4: POWER A,B,C,D ARE DIFFERENT POWERS.

Round hole number	Relay number	Round hole number	Circuit breaker number
	RELAY 1		CB1
	RELAY 2		
			
			
			

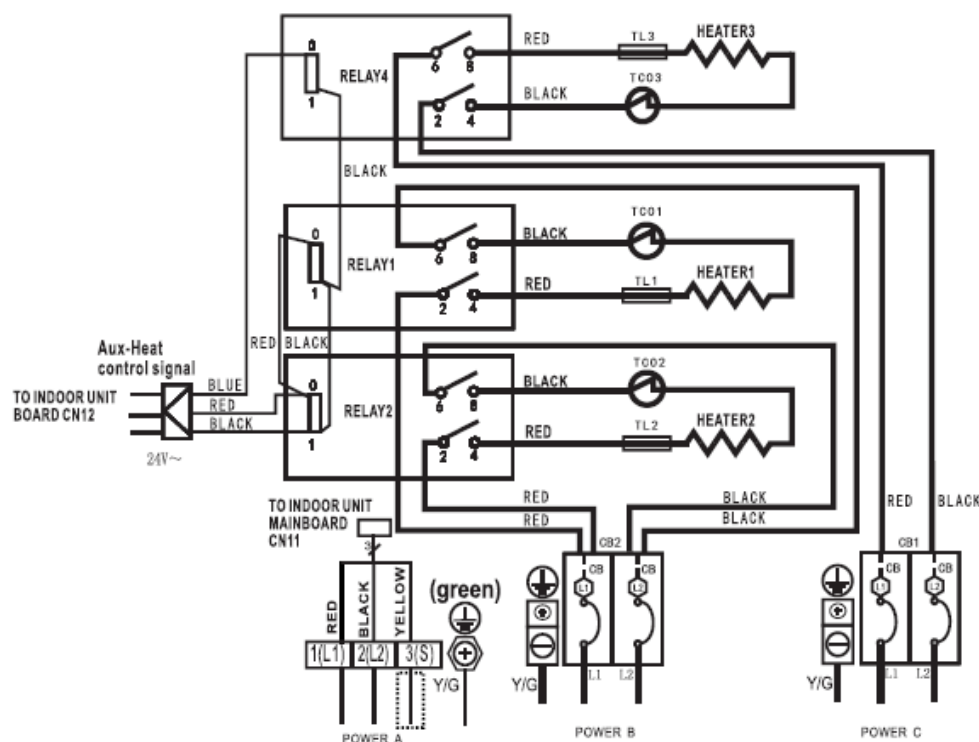
The wiring mode of power supply A shall be based on the type of original wiring terminal of AHU; for type A, S position must be connected to the outdoor S; for type B, S position shall not be connected. When using 208V or 230V, connect L1 and L2. When using 115V, connect L1 and L2 (L2 is used as N).



6 CONFIRMATION OF INDOOR UNIT

15KW HEAT KIT

—: THERMAL LINK
: THERMAL CUT-OUT, SELF-RESETTING



NOTE1: [Symbol]

This symbol indicates the element is optional. The wiring type of the actual unit shall prevail.

NOTE2:

PLEASE ATTACH THE NAMEPLATE TO THE COVER OF THE ELECTRIC CONTROL BOX. ALL THE ROUND HOLES LOCATED ON THE PLATE REPRESENT NUMBERS. PLEASE REFER TO THE INSTALLATION MANUAL FOR DETAILS.

NOTE3: TO BE WIRED IN ACCORDANCE WITH NEC AND LOCAL CODES.

NOTE4: POWER A,B,C,D ARE DIFFERENT POWERS.

Round hole number	Relay number	Round hole number	Circuit breaker number
○	RELAY1	○	CB1
○○	RELAY2	○○	CB2
○○○			
○○○○	RELAY4		
○○○○○			

The wiring mode of power supply A shall be based on the type of original wiring terminal of AHU: for type A, S position must be connected to the outdoor S; for type B, S position shall not be connected. When using 208V or 230V, connect L1 and L2. When using 115V, connect L1 and L2 (L2 is used as N).

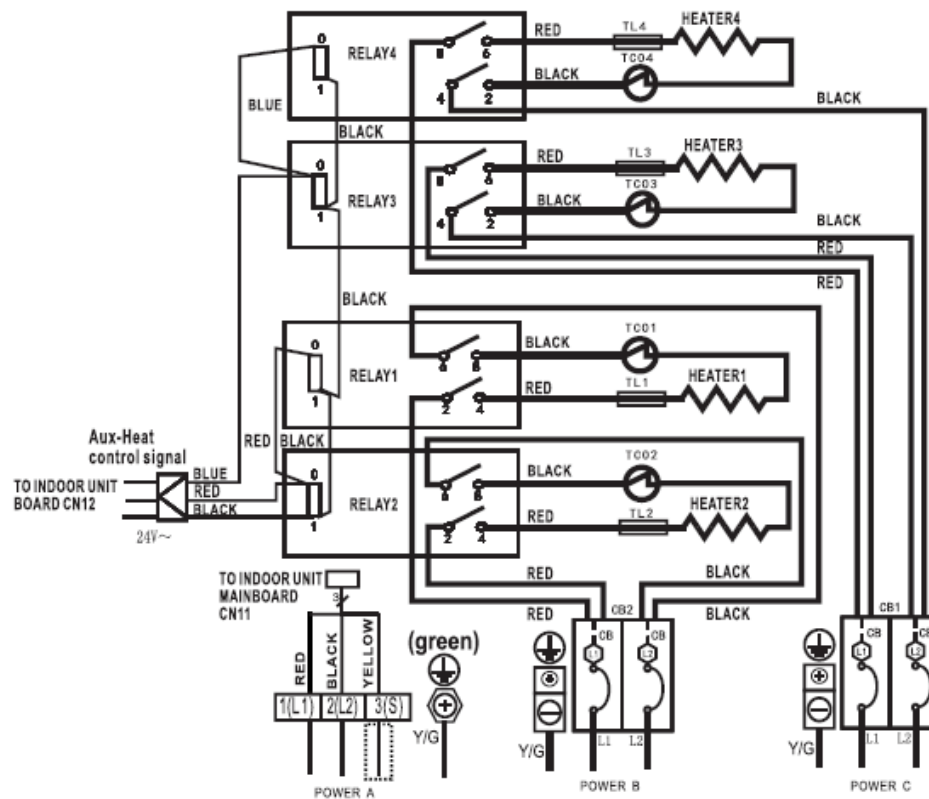


6 CONFIRMATION OF INDOOR UNIT

20KW HEAT KIT

 :THERMAL LINK

 :THERMAL CUT-OUT, SELF-RESETTING



NOTE1: 

This symbol indicates the element is optional. The wiring type of the actual unit shall prevail.

NOTE2:

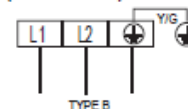
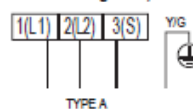
PLEASE ATTACH THE NAMEPLATE TO THE COVER OF THE ELECTRIC CONTROL BOX. ALL THE ROUND HOLES LOCATED ON THE PLATE REPRESENT NUMBERS. PLEASE REFER TO THE INSTALLATION MANUAL FOR DETAILS.

NOTE3: TO BE WIRED IN ACCORDANCE WITH NEC AND LOCAL CODES.

NOTE4: POWER A,B,C,D ARE DIFFERENT POWERS.

Round hole number	Relay number	Round hole number	Circuit breaker number
	RELAY1		CB1
	RELAY2		CB2
	RELAY3		
	RELAY4		
			

The wiring mode of power supply A shall be based on the type of original wiring terminal of AHU: for type A, S position must be connected to the outdoor S; for type B, S position shall not be connected. When using 208V or 230V, connect L1 and L2. When using 115V, connect L1 and L2 (L2 is used as N).



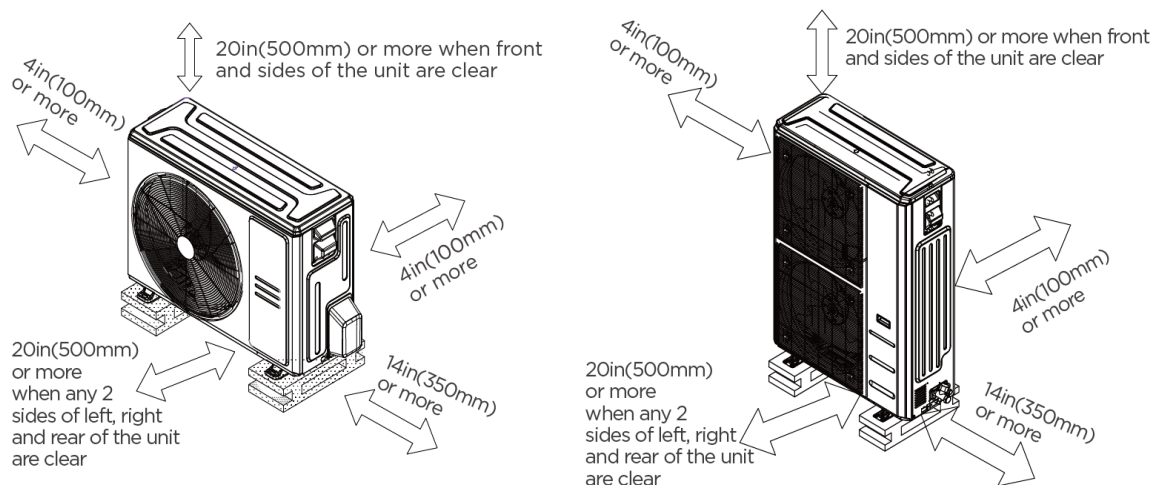
7 OUTDOOR UNIT INSTALLATION

NOTICE

Install the unit by following local switch regulations. These may differ slightly between different regions.

7.1 Location Selection

Before installing the outdoor unit, you must choose an appropriate location. The following are standards to help choose an appropriate location for the unit.



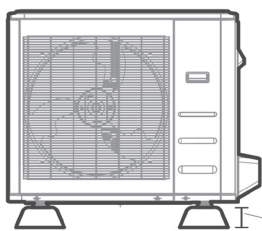
Meets all spatial requirements shown in installation space requirements above.



Firm & Solid--the location can support the unit and will not vibrate.



Noise from the unit will not disturb other people.



6in (15cm)

The outdoor unit must be installed on risers of at least 6in (15cm) in height or per local code to get the unit above local mean snow fall.



Good air circulation and ventilation.



Where snowfall is anticipated, take appropriate measures to prevent ice buildup and coil damage.

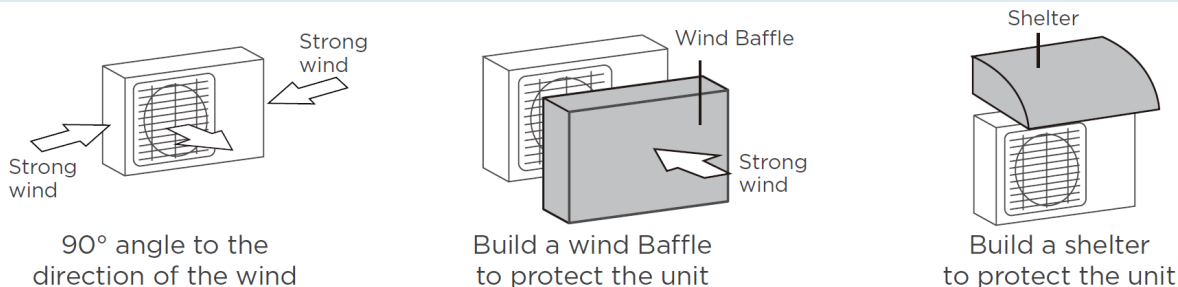
7 OUTDOOR UNIT INSTALLATION

Do NOT install the unit in the following locations:

- Near an obstacle that will block air inlets and outlets.
- In a location that is exposed to large amounts of dust.
- Near animals or plants that will be harmed by hot air discharge.
- Near any source of combustible gas.
- Near a public street, crowded areas, or where noise from the unit can disturb others.

! CAUTION FOR EXTREME WEATHER

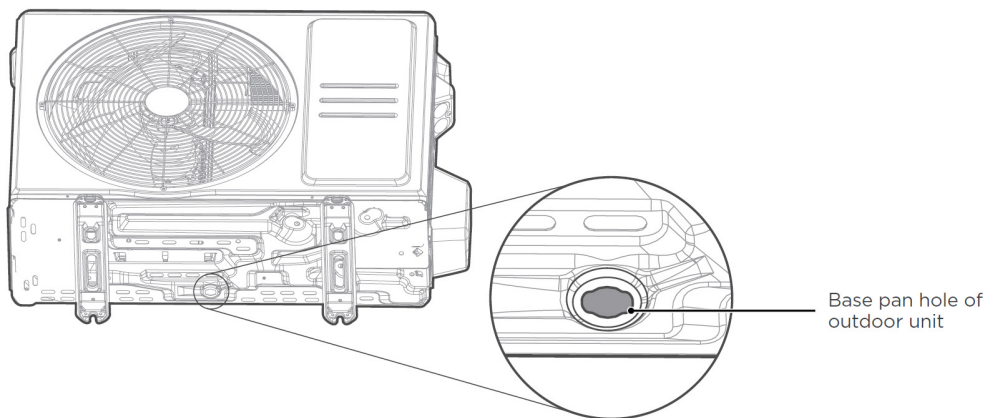
If the unit is exposed to heavy wind, install so that the air outlet fan is at a 90° angle to the direction of the wind. If needed, build a barrier in front of the unit to protect it from extremely heavy winds. See figures below.
If the unit is frequently exposed to heavy rain or snow, build a shelter above the unit to protect it from the rain or snow. Be careful not to obstruct air flow around the unit.



7.2 Drain Fitting

Step 1:

Find the base pan hole on the outdoor unit.



Step 2:

- Fit the rubber seal on the end of the drain fitting that will connect to the outdoor unit.
- Insert the drain fitting into the hole in the base pan of the unit. The drain fitting will click into place.
- Connect a drain hose extension (not included) to the drain fitting to redirect water from the unit during heating mode.



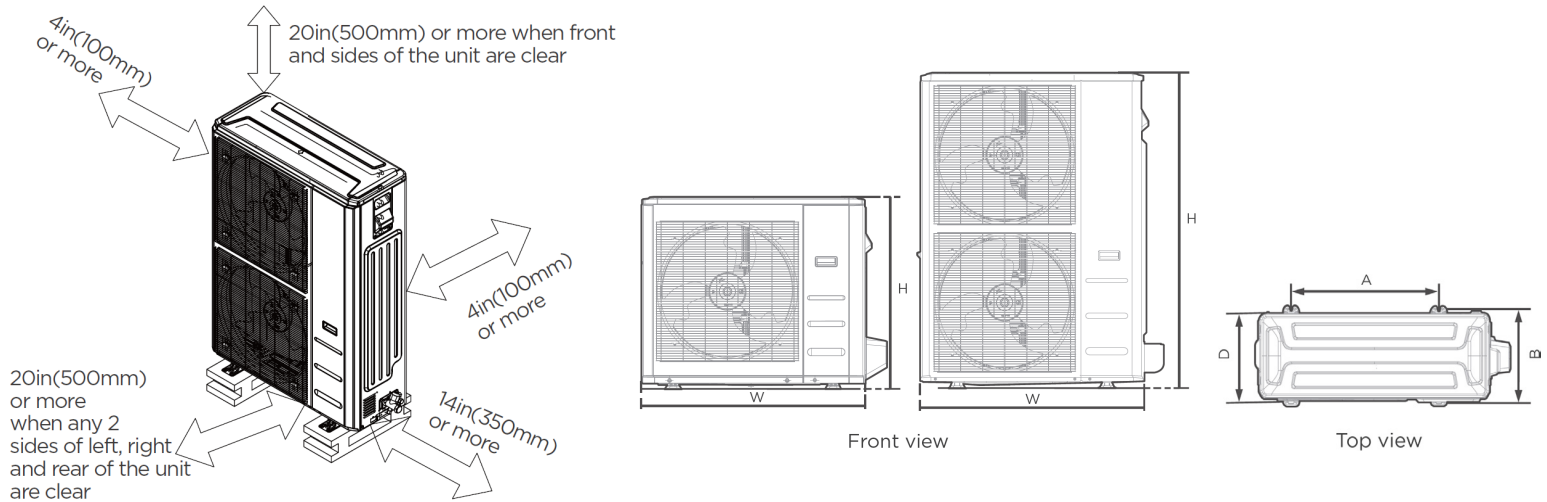
IN COLD CLIMATES

In cold climates, make sure that the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can freeze inside the hose and flood the unit.

7 OUTDOOR UNIT INSTALLATION

7.3 Anchor Outdoor Unit

The outdoor unit can be anchored to the ground or to a wall-mounted bracket with an M10 bolt. Prepare the installation base of the unit according to the dimensions below.



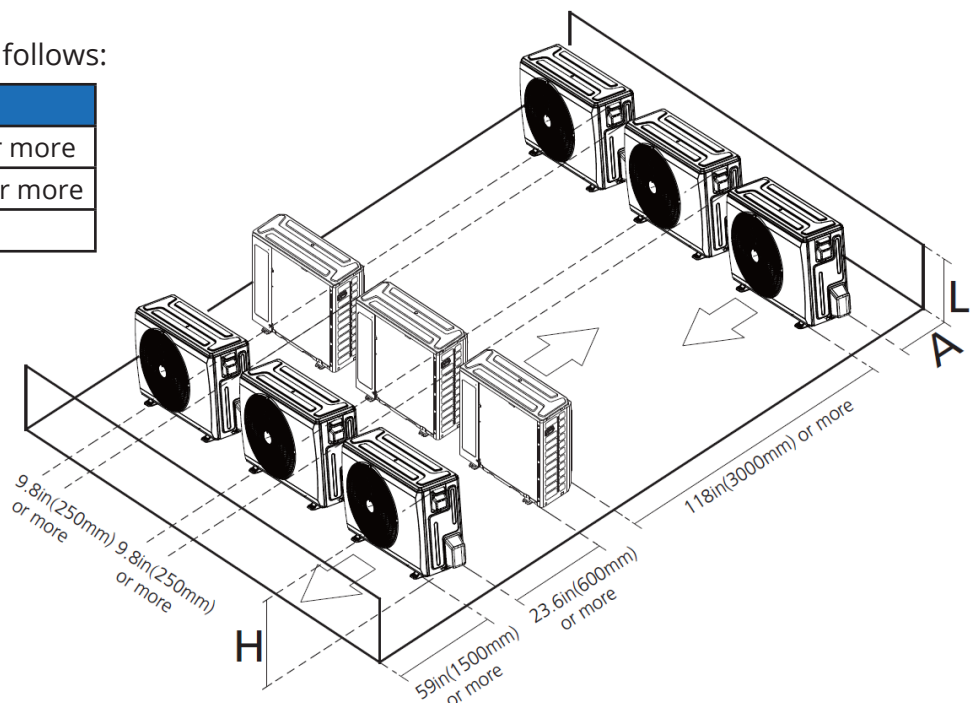
Model	Outdoor Unit Dimensions						Mounting Dimensions			
	W		H		D		A		B	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
DIY-24-HP-C-230D25-O	946	37-1/4	810	31-29/32	410	16-5/32	673	26-1/2	403	15-7/8
DIY-36-HP-C-230D25-O	946	37-1/4	810	31-29/32	410	16-5/32	673	26-1/2	403	15-7/8

NOTE: For more dimensions, refer to the DIY® Multi-Zone installation manual or the accompanying documentation for your particular outdoor unit model.

Rows of Series Installation

The relations between H, A, and L are as follows:

	L	A
$L \leq H$	$L \leq 1/2H$	9.8in (250mm) or more
	$1/2H < L \leq H$	11.8in (300mm) or more
$L > H$	Cannot be installed	



7 OUTDOOR UNIT INSTALLATION

If you are installing the unit on the ground or on a concrete platform, do the following:

1. Mark the positions for four expansion bolts based on the dimensions chart.
2. Pre-drill holes for expansion bolts.
3. Place a nut on the end of each expansion bolt.
4. Hammer the expansion bolts into the pre-drilled holes.
5. Remove the nuts from the expansion bolts, and place the outdoor unit on the bolts.
6. Put a washer on each expansion bolt, then replace the nuts.
7. Using a wrench, tighten each nut until snug.

If you are installing the unit on a wall-mounted bracket, do the following:

1. Mark the position of the bracket holes based on the dimensions chart.
2. Pre-drill the holes for the expansion bolts.
3. Place a washer and nut on the end of each expansion bolt.
4. Thread expansion bolts through the holes in the mounting brackets, put the mounting brackets in position, and hammer the expansion bolts into the wall.
5. Check that the mounting brackets are level.
6. Carefully lift the unit and place its mounting feet on the brackets, & bolt firmly to the brackets.
7. If allowed, install the unit with rubber gaskets to reduce vibrations and noise.

! CAUTION

Ensure that the wall is made of solid brick, concrete, or of similarly strong material. The wall must be able to support at least four times the unit's weight.

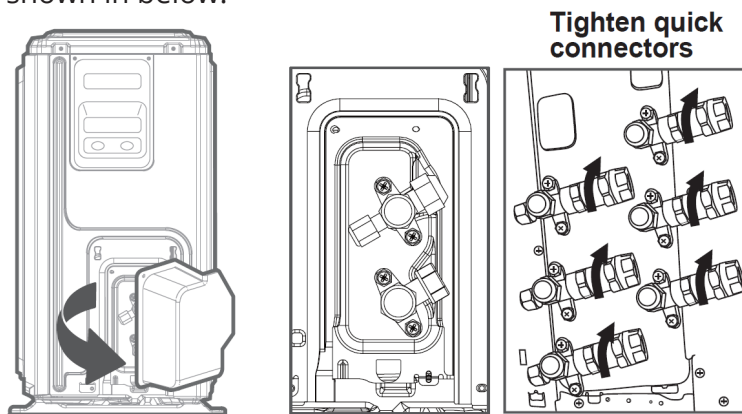
7.4 Quick-Connect® Line Set Connection

NOTE

All the pictures are for explanatory purposes only. The actual shape of the outdoor unit you purchased may be slightly different.

Step 1:

Remove the service valve cover on the outdoor unit as shown in below.



remove
the cover

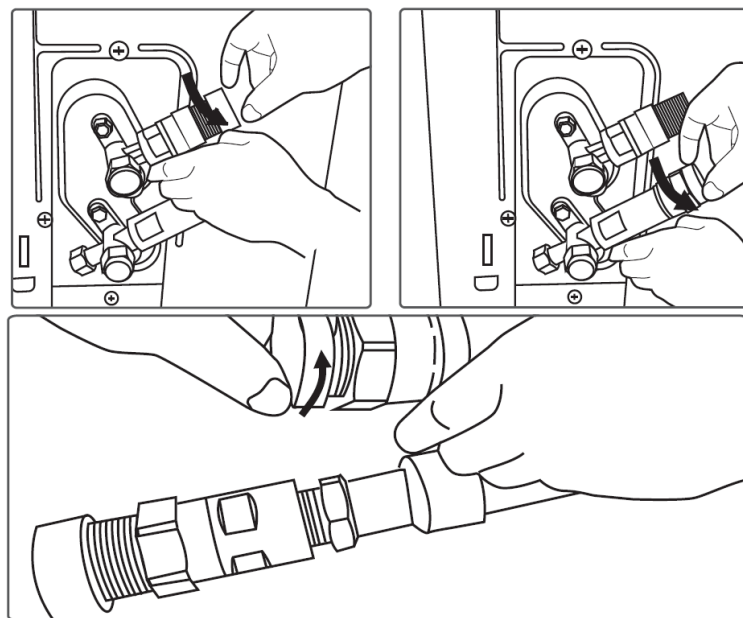
Model A

Model B

NOTE: Before connecting the quick-connecting pipe, use a wrench to confirm the joint and the shut-off valve are securely fastened in the direction indicated in the diagram. If there is any looseness, it must be tightened to prevent leakage. During the assembly process, if there is a reverse disassembly operation, the above operation needs to be performed to tighten it.

Step 2:

When immediately ready to install the refrigerant line, remove the plastic seals/caps from the outdoor unit and refrigerant line.



7 OUTDOOR UNIT INSTALLATION

Step 3:

Align the quick-connect line with the threaded connector on the outdoor unit, ensuring they are the same size. Being careful not to cross-thread, screw the line connector onto the quick-connector and hand-tighten.

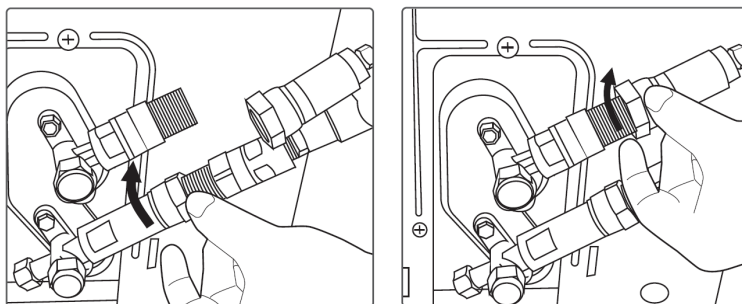
! WARNING

Before connecting the pipes, ensure that the quick connectors are tightened.

NOTE

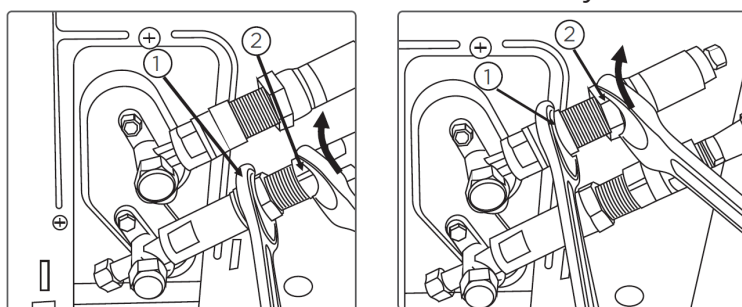
The refrigerant pipes must be connected to the valves on the outdoor unit with as little stress as possible.

IMPORTANT: Before you continue, it is essential that you read the following instructions carefully.



Step 4:

Using two open-ended wrenches, tighten the quick-connect nut "2" on the line according to the torque specification in the table below, being careful not to loosen the connection "1" to the valve body.

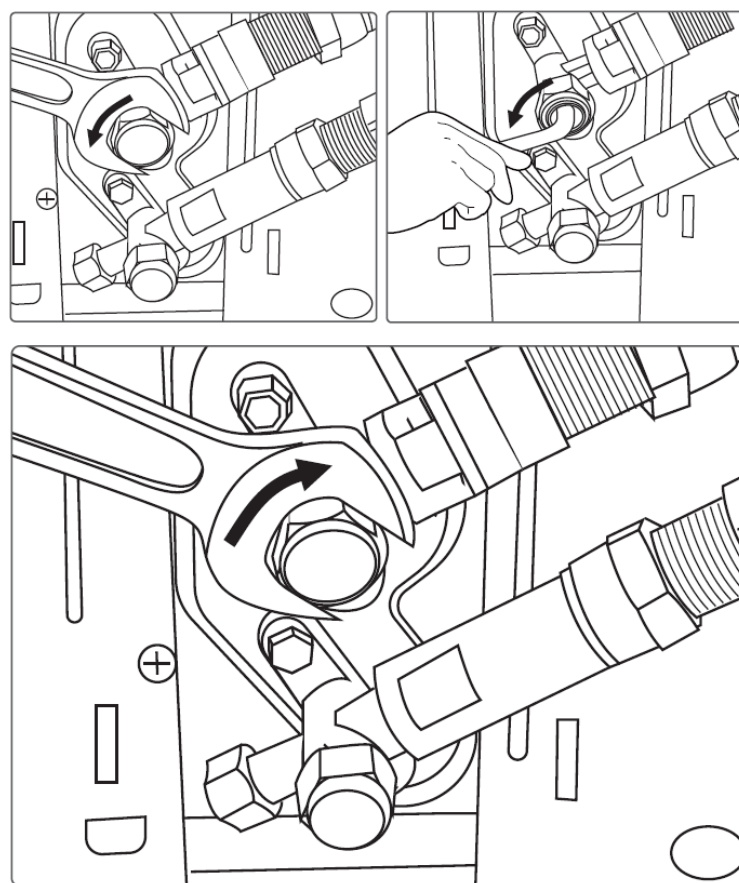


Step 5:

After completing steps 1-4, check that all the connections are sealed correctly using leak detection spray or soap suds. If any bubbles form, the system has a leak and the screw connectors must be retightened using an open-ended wrench.

Step 6:

Remove the cover on the top valve using a 19mm open-ended wrench. Open the valve by turning it counter-clockwise as far as it will go using a 5mm Allen key. The valve is now open. If the valve is not opened fully, the system may malfunction and suffer damage. Screw the cover back onto the top valve and tighten it well to ensure that it is properly sealed.

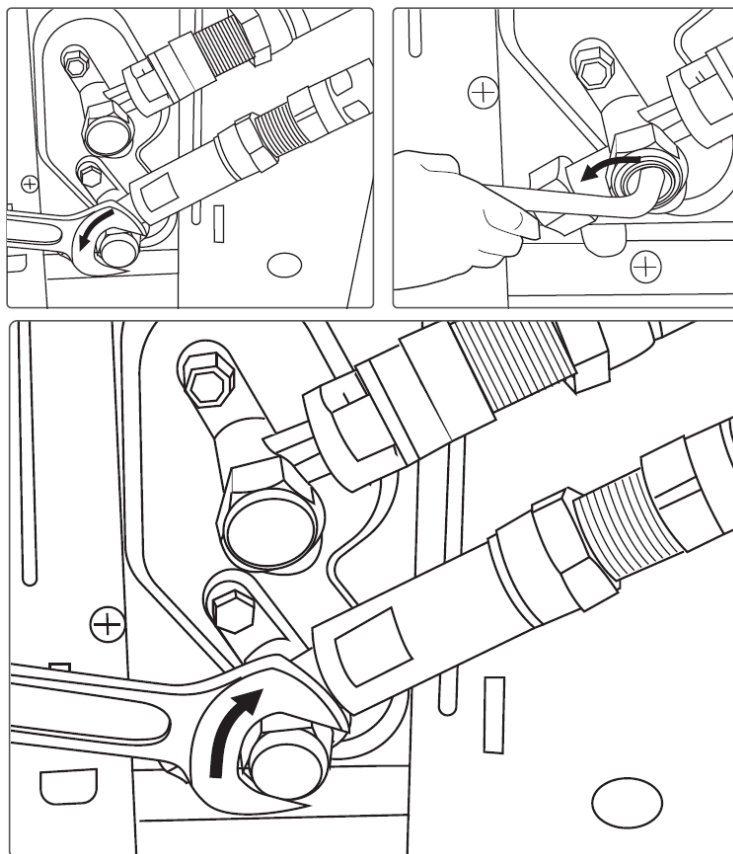


Coupling Size	Pound-Force Foot (lbf-ft)	Newton Meter (N-m)	Kilogram-Force Meter (kgf-m)	Recommended Min. Tightening Torque
-06 (6.35mm dash size)	18-20	24.4-27.1	2.4-2.7	10
-09 (9.62mm dash size)	30-35	40.6-47.4	4.1-4.8	15
-12 (12.7mm dash size)	45-50	61.0-67.7	6.2-6.9	25
-16 (15.88mm dash size)	60-65	81.3-88.1	8.2-8.9	32
-19 (19.05mm dash size)	/	/	/	45

7 OUTDOOR UNIT INSTALLATION

Step 7:

Remove the cover on the bottom valve using a 19mm open-ended wrench. Open the valve by turning it counter-clockwise as far as it will go using a 5mm Allen key. The valve is now open. If the valve is not opened fully, the system may malfunction and suffer damage. Screw the cover back onto the bottom valve and tighten it well to ensure that it is properly sealed.



NOTE

IMPORTANT: The conical ring on the valve has an important sealing function together with the sealing seat in the caps. Ensure that you do not damage the cone and that you keep the cap free of dirt and dust.

Step 8:

After completing steps 1-7, check that all the connections are sealed correctly using leak detection spray or soap suds. If any bubbles form, the system has a leak and the screw connectors must be re-tightened using an open-ended wrench.

Step 9:

With the system now functional, check the system again for signs of leaks (as in step 7) except while operating in both cooling and heating modes to allow proper operating pressures to be generated. If any bubbles form, the system has a leak and the screw connectors must be re-tightened until no leak exists. If problems persist or for any questions about the installation or connection of the refrigerant lines, contact MRCOOL®.

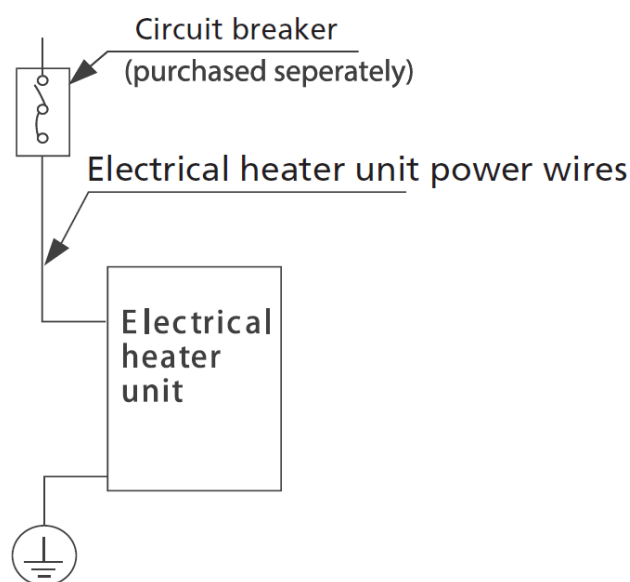
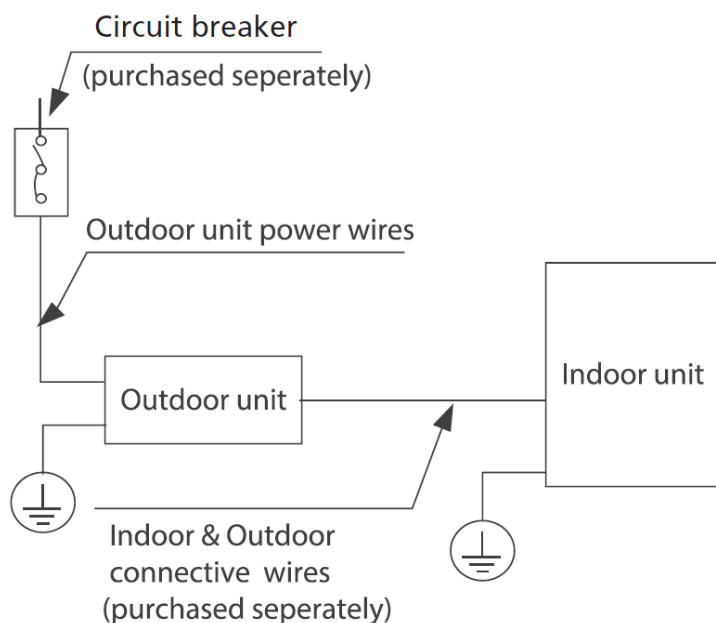
8 WIRING PRECAUTIONS

! WARNING

Before performing any electrical work, read these warnings.

- All wiring must comply with local and national electrical codes, regulations, and must be installed by a licensed electrician.
- All electrical connections must be made according to the electrical connection diagram located on the panels of the indoor and outdoor units.
- If there is a serious safety issue with the power supply, stop work immediately. Explain your reasoning to the client, and refuse to install the unit until the safety issue is properly resolved.
- Power voltage should be within 90-110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
- Installation of an external surge suppressor at the outdoor disconnect is recommended.
- If connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8in (3mm) must be incorporated in the fixed wiring. The qualified technician must use an approved circuit breaker or switch.
- Only connect the unit to an individual branch circuit. Do not connect another appliance to that circuit.
- Make sure to properly ground the unit.
- Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
- Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit. To avoid getting an electric shock, never touch the electrical components soon after the power supply has been turned off. After turning off the power, always wait 10 minutes or more before you touch electrical components.
- Make sure that you do not cross your electrical wiring with your signal wiring. This may cause distortion, interference, or possibly damage to circuit boards.
- No other equipment should be connected to the same power circuit.
- Connect the outdoor wires before connecting the indoor wires.
- Before performing any electrical work, turn off the main power to the system.

8.1 Wiring Overview



NOTE

The diagrams are for explanation purposes only. Your machine may be slightly different. The actual diagram shall prevail.

8 WIRING PRECAUTIONS

8.2 Outdoor Unit Wiring

! WARNING

Before performing any electrical or wiring work, turn off the main power to the system.

Step 1: Prepare the Cable for Connection

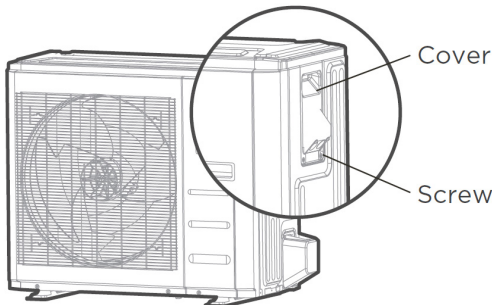
1. You must first choose the right cable size.
2. Using wire strippers, strip the rubber jacket from both ends of the signal cable to reveal approximately 5.9in (150mm) of wire.
3. Strip the insulation from the ends.
4. Stranded wire requires u-lugs or ring terminals to be crimped onto the ends of the wire.

NOTE

- When connecting the wires, strictly follow the wiring diagram found inside the electrical box cover.
- Choose the cable type according to local electrical switches and regulations.
- Please choose the Minimum Circuit Ampacity indicated on the nameplate of the unit.

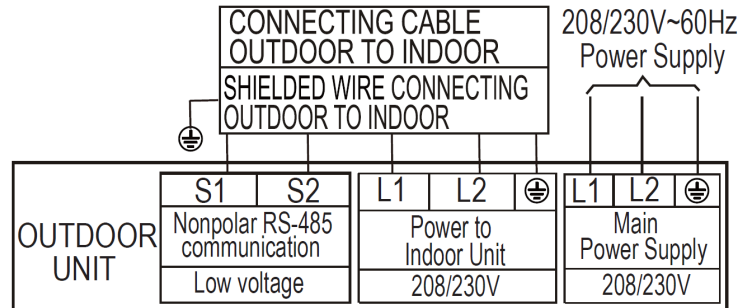
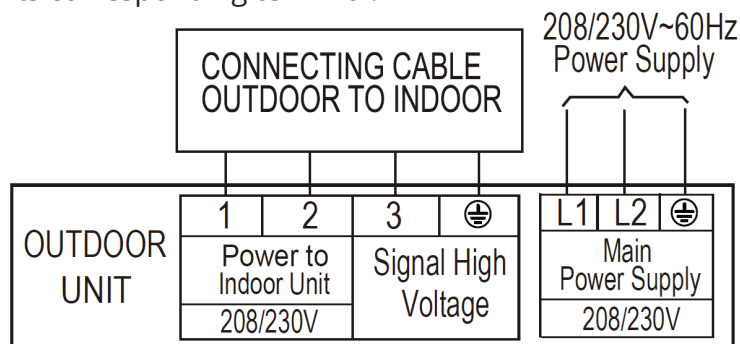
Step 2: Remove the Electric Cover

Remove the electric cover of the outdoor unit. If there is no cover on the outdoor unit, take off the bolts from the maintenance board and remove the protection board.



Step 3: Connect the U-Lugs to the Terminals

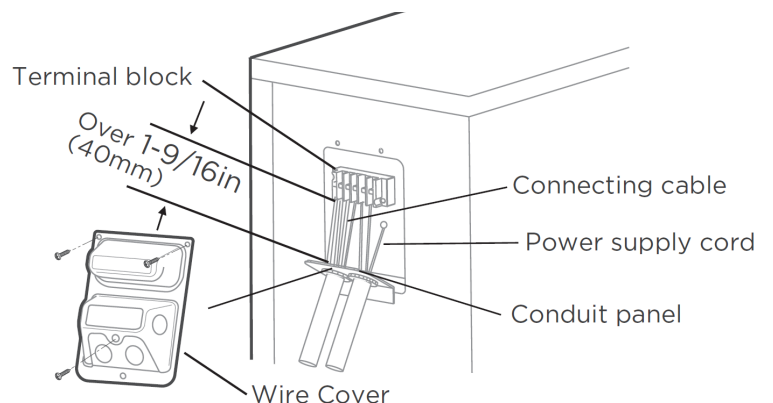
Match the wire colors/labels with the labels on the terminal block. Firmly screw the u-lug of each wire to its corresponding terminal.



4. Clamp down the cable with the cable clamp.
5. Insulate unused wires with electrical tape. Keep them away from any electrical or metal parts.
6. Reinstall the cover of the electric control box.

In North America:

1. Remove the wire cover from the unit by loosening the 3 screws.
2. Remove caps on the conduit panel.
3. Mount the conduit tubes (not included) on the conduit panel.
4. Properly connect both the power supply and low voltage lines to the corresponding terminals on the terminal block.
5. Ground the unit in accordance with local switches.
6. Be sure to size each wire allowing several inches longer than the required length for wiring.



Please select the appropriate through-hole according to the diameter of the wire.

! WARNING

Isolate the power supply leads and communication leads by the strain relief and keep power supply leads away from the communication leads.

8.3 Indoor Unit Wiring

! CAUTION

- While connecting the wires, please strictly follow the wiring diagram.
- The refrigerant circuit can become very hot. Keep the interconnection cable away from the copper tube.

Step 1: Prepare the Cable for Connection

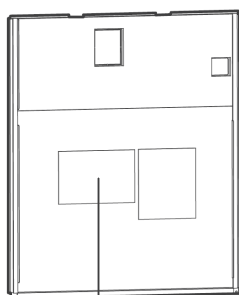
1. Using wire strippers, strip the insulating jacket from both ends of the signal cable to reveal about 5.9in (150mm) of the wire.
2. Strip the insulation from the ends of the wires.

Step 2: Open the Front Panel of the Indoor Unit

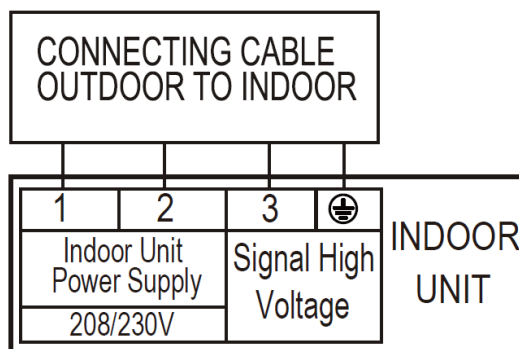
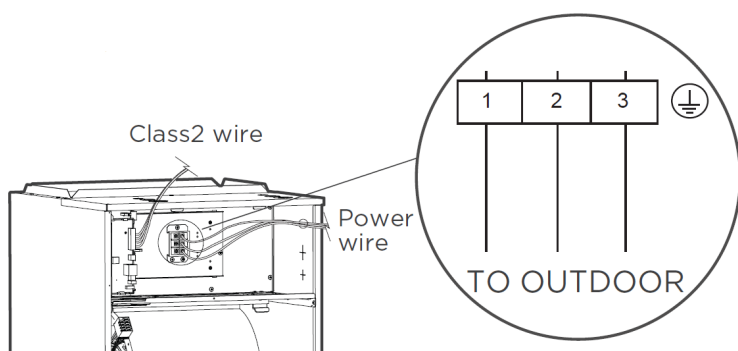
Using a screwdriver, remove the cover of the electric control box on your indoor unit.

Step 3: Connect the Wires to the Terminals

1. Thread the power cable and the signal cable through the wire outlet.
2. Match the wire colors/labels with the labels on the terminal block. Firmly screw the wires of each wire to its corresponding terminal. Refer to the serial number and wiring diagram located on the cover of the electric control box.



Wiring diagram



! WARNING

Isolate the power supply leads and communication leads by the strain relief and keep power supply leads away from the communication leads.

3. Clamp down the cable with the cable clamp. The cable must not be loose or pull on the u-lugs.
4. Reattach the electric box cover.

! CAUTION

- While connecting the wires, please strictly follow the wiring diagram.
- The refrigerant circuit can become very hot. Keep the interconnection cable away from the copper tube.
- The holes on the cover of the electric control box must be threaded through with the armored wires.

8 WIRING PRECAUTIONS

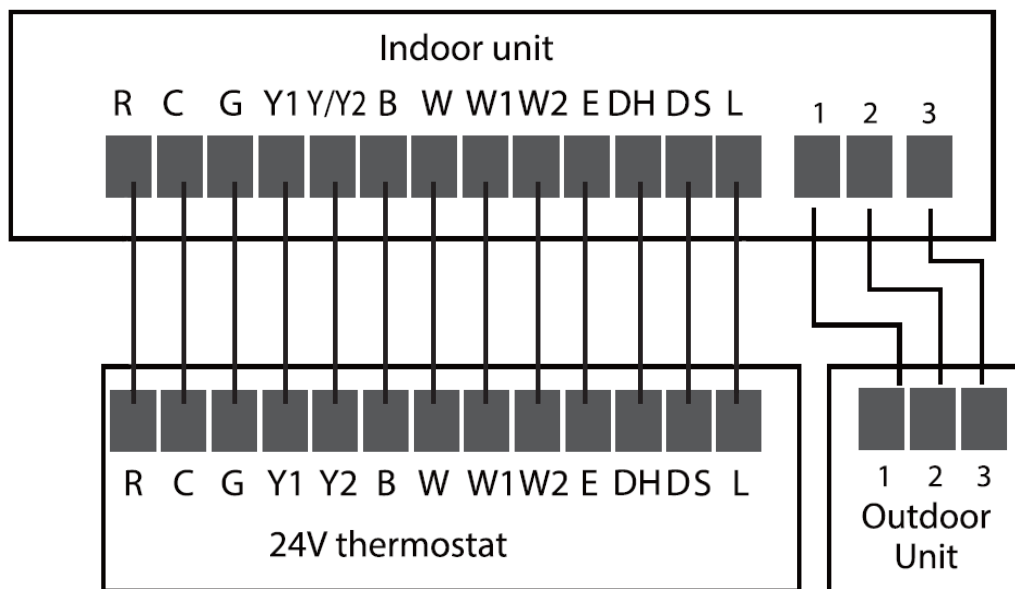
8.4 Specific Wiring Methods

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.

Connection Method A:

To use a 24V thermostat, you need to refer to the following wiring:

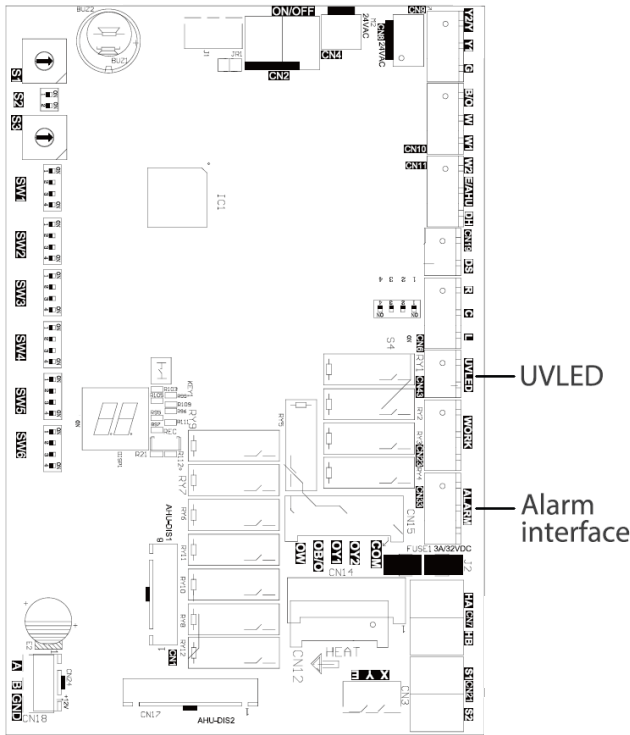


NOTE

The wiring method of the thermostat and the internal machine refers to the wiring of the non-communication scheme.

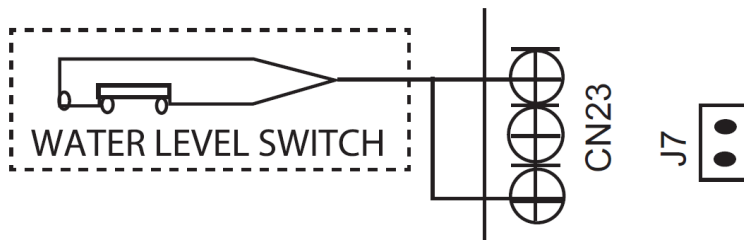
8 WIRING PRECAUTIONS

Optional Function Wiring:

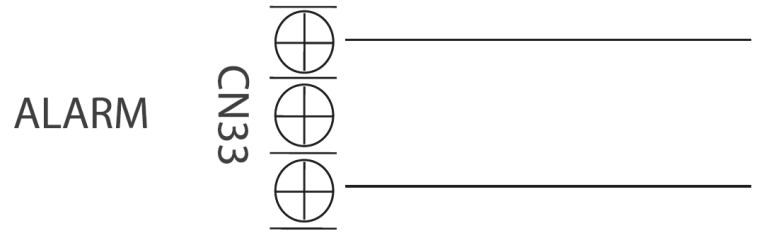


Condensate Overflow Switch:

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.



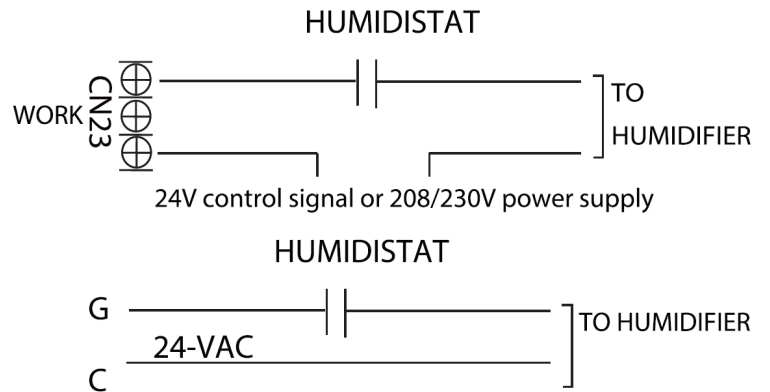
Fault Warning:



Alarm Output:

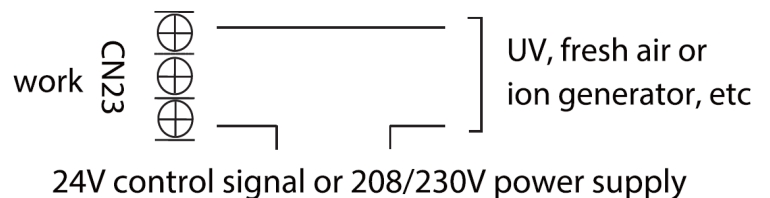
An alarm output (CN33) can be utilized if actions are required when a fault is present. This is a passive outlet port, so you will need to input a voltage signal. The relay is normally-open for normal operation, and closed when a fault condition is active.

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 the 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 Ion Generator Wiring:



The WORK port is linked with the fan. When the fan is running, the relay is closed.

8 WIRING PRECAUTIONS

Control Logic:

Indoor Unit Connector

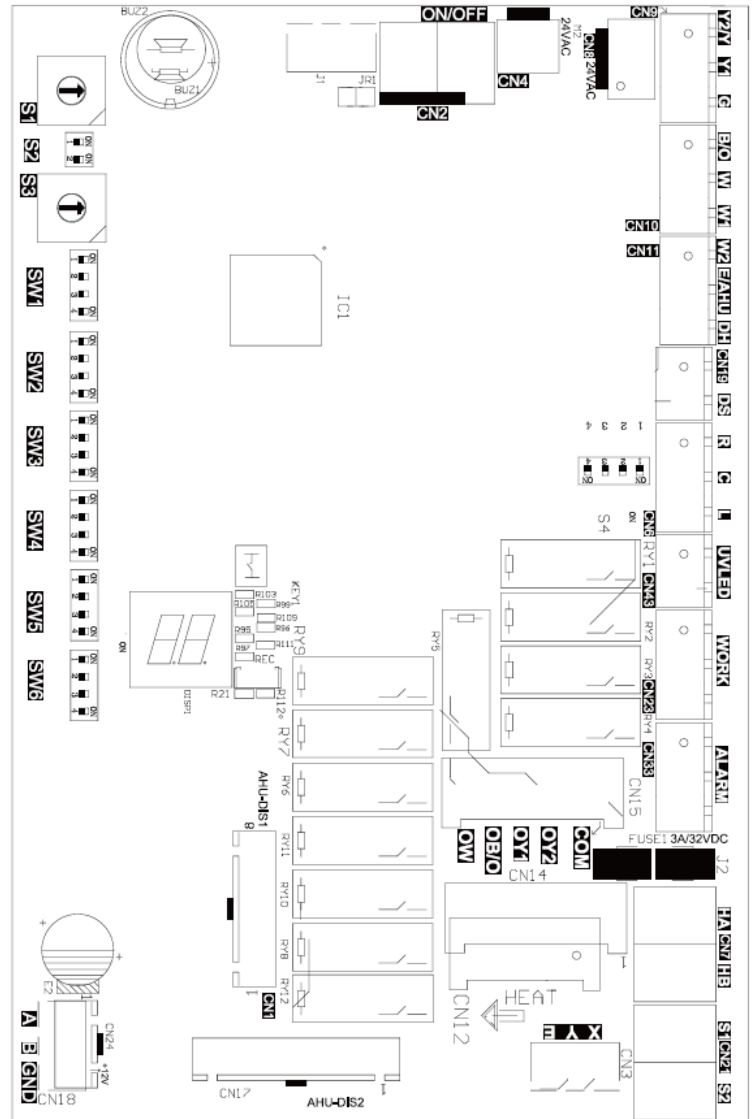
Connector	Purpose
R	24V Power Connection
C	Common
G	Fan Control
Y1	Low Demand
Y/Y2	High Demand
B	Heating Reversing Valve
W	Heating Control
W1	Stage 1 Electric Heating
W2	Stage 2 Electric Heating
E/AUX	Emergency Heating
DH/BK	Dehumidification/Zoning Control
DS	Reserved Signal
L	System Fault Signal

LED Display:

This control displays the unit status as well as any active fault codes on the LED display. If the unit is functioning normally, the LED will display the current temperature setpoint. When a fault code is active, the display will quickly flash the fault code. Refer to the fault code table located in the troubleshooting section of this manual for detailed fault code information.

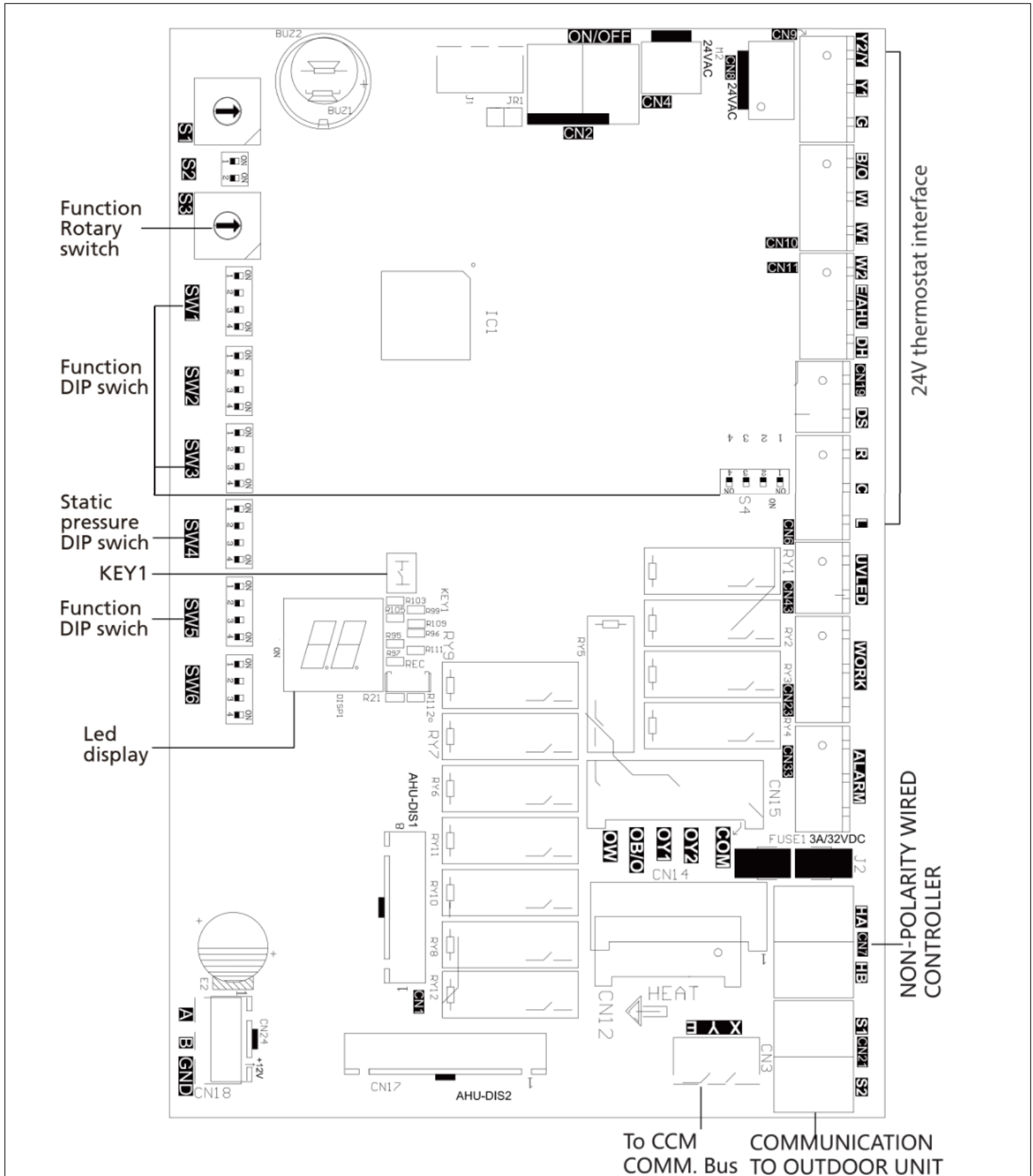
KEY1 Instructions: (For Wired Controller Only)

- Press KEY1 to enter the forced automatic mode, press KEY1 again to enter the forced cooling mode (LED display FC), and press KEY1 again to shut down.
- Long press KEY1 under forced cooling mode (LED display FC) for 5 seconds to enter forced defrost mode.



8 WIRING PRECAUTIONS

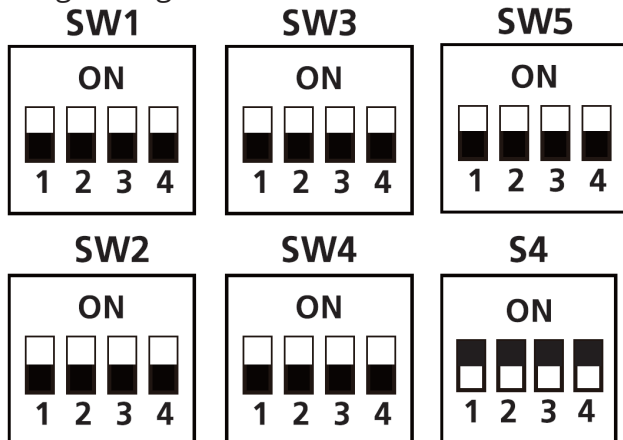
DIP Switch Definitions:



8 WIRING PRECAUTIONS

Function DIP Switch Settings:

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



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 & SW1-4:

SW1	Control Type	IDU & ODU Connection	Note
ON 1 2 3 4	Wired Controller / 24V Thermostat	S1+S2(1+2+3)	Auto Discovery
ON 1 2 3 4	Wired Controller	S1+S2 (1+2+3)	Scenario 2
ON 1 2 3 4	24V Thermostat	S1+S2 (1+2+3)	Scenario 1
ON 1 2 3 4	24V Thermostat	24V Connection	Setting is Not Applicable

Indoor Unit Dial Code

No.	Dial Code	Control Scenario	Function	ON	OFF	Note
1	SW1-2	1, 2, 3	Anti-cold blow protection option	NO	[Default] YES	
2	SW1-3	1, 2, 3	Single cooling/heating and cooling options	Cooling	[Default] Cooling & Heating	
3	SW2-1	1	Compressor Running (demand working with heat pump+electric heat)	Compressor slower speed	[Default] Faster Compressor	Only affects compressor and W1
4	SW2-1	2	Temperature differential 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)	
5	SW2-2	2	Electric heat on delay	YES	[Default] NO	
6	SW2-3	2	Electric auxiliary heating delay to start time	30 minutes	[Default] 15 minutes	Based on SW2-2 is ON.
7	SW2-4	1	Compressor	The operation of the 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 $\geq$ S3 DIP switch temperature +35.6°F (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 $\geq$ S3 DIP switch temperature +35.6°F (2°C).	SW2-4 and S3 need to be working together.

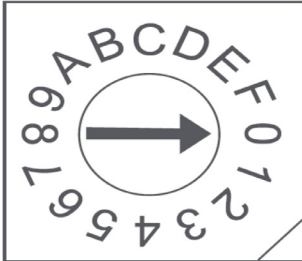
8 WIRING PRECAUTIONS

No.	Dial Code	Control Scenario	Function	ON	OFF	Note
8	SW2-4	2	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 $\geq$ S3 DIP switch temperature +35.6°F (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 judgment according to the following rules: 1) When the outdoor temperature is lower than the S3 DIP switch temperature, the compressor is not allowed to operate, but auxiliary heat is allowed to operate. 2) When the outdoor temperature is $\geq$ S3 DIP switch temperature +35.6°F (2°C), the compressor can be operated but auxiliary heat cannot be operated.	SW2-4 and S3 need to be working together.
9	Rotary Switch S3	1, 2	Set outdoor temperature limitation (for auxiliary heating or compressor)	Table A		
10	SW3-1	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 to increase capacity and satisfy user set point.	30 minutes	[Default] 90 minutes	
11	SW3-2	1	Cooling and heating Y/Y2 temperature differential adjustment	Compressor slower speed	[Default] Faster compressor	Only affects compressor
12	SW3-3	1	Compressor running (demand working with heat pump+electric heat)	Compressor slower speed	[Default] Faster compressor	Only affects compressor and W2
13	SW3-3	2	Temperature differential 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)	
14	SW3-4	1, 3	Fan speed of cooling mode when 24V Thermostat is applied for	Turbo	High	
15	SW4-1 SW4-2 SW4-3	1, 2, 3	Electric heat nominal CFM adjustment	Available settings are 000/001/010/011. Each digit corresponds to an individual switch position. For example [SW4-1 OFF, SW4-2 ON, SW4-3 OFF] = 010		
16	S4-4	2	Temperature differential 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
17	S4-4	1,3	Default ON	[Default] For single stage supplemental heat, W1 and W2 are connected.	For dual stage supplemental heat, W1 and W2 are controlled independently	
18	S4-2	1,3	DH function selection	[Default] Dehumidification control not available	Dehumidification feature is enabled through thermostat	
19	SW5-3	1,2,3	L or Alarm relay selection	L output 24V or alarm relay close only when refrigerant sensor fault or R454B refrigerant leakage is detected	[Default] L output 24V or alarm relay close when any fault is detected	
20	SW5-4	1,2,3	R output selection	R stop output 24V when refrigerant sensor fault or R454B refrigerant leakage is detected	[Default] R keep output 24V even when refrigerant sensor fault or R454B refrigerant leakage is detected.	

8 WIRING PRECAUTIONS

Control Scenario	24V Tstat, S1+S2 (1+2+3)	1
	Wired Controller S1+S2 (1+2+3)	2
	Full 24V	3

NOTE: Control scenario 3 is not applicable for this unit.



S3	S3 (°F)	S3 (°C)
0	OFF	OFF
1	-22	-30
2	-18	-28
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

Determined by dial code SW8 1-10K 2-5.1K

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

Air Volume Table

Capacity	External Static Pressure Range	Fan Speed	Electric Auxiliary Heat Module	24V Thermostat		Wired Controller		Airflow Volume (CFM)
				DIP Switch	24V Terminal Engaged	DIP Switch	Mode	
24K (2 Ton)	0-0.80 in. wc.	Cooling Turbo	-	SW3-4 = ON	Y2/Y	-	Cool	824
		Cooling High	-	SW3-4 = OFF	Y2/Y	-	Cool	759
		Cooling Medium	-	-	Y1	-	Cool	694
		Cooling Low	-	-	-	-	Cool	629
		Heat Pump Turbo	-	-	-	-	Heat	788
		Heat Pump High	-	-	B + Y2/Y, W	-	Heat	753
		Heat Pump Medium	-	-	Y1	-	Heat	641
		Heat Pump Low	-	-	-	-	Heat	524
		Electric Auxiliary Module 0 [Default]	15kW	SW4-1 = OFF SW4-2 = OFF SW4-3 = OFF	W1, W2, AUX	SW4-1 = OFF SW4-2 = OFF SW4-3 = OFF	Heat + AUX, AUX	871
		Electric Auxiliary Module 1	15kW, 10kW	SW4-1 = OFF SW4-2 = OFF SW4-3 = ON	W1, W2, AUX	SW4-1 = OFF SW4-2 = OFF SW4-3 = ON	Heat + AUX, AUX	841
		Electric Auxiliary Module 2	10kW, 8kW	SW4-1 = OFF SW4-2 = ON SW4-3 = OFF	W1, W2, AUX	SW4-1 = OFF SW4-2 = ON SW4-3 = OFF	Heat + AUX, AUX	818
		Electric Auxiliary Module 3	5kW	SW4-1 = OFF SW4-2 = ON SW4-3 = ON	W1, W2, AUX	SW4-1 = OFF SW4-2 = ON SW4-3 = ON	Heat + AUX, AUX	788
36K (2.5 Ton)	0-0.80 in. wc.	Cooling Turbo	-	SW3-4 = ON	Y2/Y	-	Cool	1188
		Cooling High	-	SW3-4 = OFF	Y2/Y	-	Cool	1082
		Cooling Medium	-	-	Y1	-	Cool	971
		Cooling Low	-	-	-	-	Cool	865
		Heat Pump Turbo	-	-	-	-	Heat	1112
		Heat Pump High	-	-	B + Y2/Y, W	-	Heat	1059
		Heat Pump Medium	-	-	Y1	-	Heat	794
		Heat Pump Low	-	-	-	-	Heat	582
		Electric Auxiliary Module 0 [Default]	20kW	SW4-1 = OFF SW4-2 = OFF SW4-3 = OFF	W1, W2, AUX	SW4-1 = OFF SW4-2 = OFF SW4-3 = OFF	Heat + AUX, AUX	1306
		Electric Auxiliary Module 1	15kW	SW4-1 = OFF SW4-2 = OFF SW4-3 = ON	W1, W2, AUX	SW4-1 = OFF SW4-2 = OFF SW4-3 = ON	Heat + AUX, AUX	1241
		Electric Auxiliary Module 2	10kW, 8kW	SW4-1 = OFF SW4-2 = ON SW4-3 = OFF	W1, W2, AUX	SW4-1 = OFF SW4-2 = ON SW4-3 = OFF	Heat + AUX, AUX	1176
		Electric Auxiliary Module 3	5kW, 8kW	SW4-1 = OFF SW4-2 = ON SW4-3 = ON	W1, W2, AUX	SW4-1 = OFF SW4-2 = ON	Heat + AUX, AUX	1112

9 POST-INSTALLATION

8.5 Specifications

Model			24K	36K
Power	Phase		1 Phase	
	Frequency & Volt		208/230V, 60Hz	
Outdoor Unit	MCA		24A	33A
	MOP		25A	35A
Line Gauge	Outdoor Unit Power Line	Line Quantity	2+Ground	
		Line Diameter (AWG)	12	10
	Outdoor-Indoor Signal Line	Line Quantity	---	
		Line Diameter (AWG)	---	
	Thermostat Signal Line	Line Quantity	----	
		Line Diameter (AWG)	18	
	Indoor-Outdoor Connection Line	Line Quantity	4	
		Line Diameter (AWG)	14	

9.1 Additional Refrigerant

DO NOT mix refrigerant types.

Some systems require additional charging depending on pipe lengths. In North America, the standard pipe length is 25ft (7.5m). The refrigerant should be charged from the service port on the outdoor unit's low pressure valve. The additional refrigerant to be charged can be calculated using the following formula:

Refrigerant	Liquid Side Diameter	
R454B: (Orifice tube in the indoor unit)	(Total pipe length - standard pipe length x 30g(0.32oz)/m(ft))	(Total pipe length - standard pipe length x 65g(0.7oz)/m(ft))

9.2 Test Run

! CAUTION

Failure to perform the test run may result in unit damage, property damage, or personal injury.

A test run must be performed after the entire system has been completely installed. Complete and confirm the list of checks before performing a test run.

Before Test Run Checkpoints

- The indoor & outdoor units are properly installed.
- Piping and wiring are properly connected.
- No obstacles near the inlet and outlet of the unit that might cause poor performance or product malfunction.
- The refrigeration system does not leak.
- Drainage system is unimpeded and draining to a safe location.
- The heating insulation is properly installed.
- The grounding wires are properly connected.
- The length of the piping and additional refrigerant stow capacity have been recorded.
- The power voltage is the correct voltage for the unit.

Test Run Instructions

You should perform the Test Run for at least 30 minutes.

1. Open both the liquid and gas stop valves.
2. Connect power to the unit. Then, turn on the main power switch and allow the unit to warm up.
3. Press the **Mode** button to scroll through the following functions, one at a time:
 - **COOL** - Select the lowest possible temperature
 - **HEAT** - Select the highest possible temperature
5. Let each function run for 5 minutes and then perform the checks listed in the tables below.

Indoor Unit Checks:
Ensure the remote control and its buttons work properly.
Ensure the louvers move properly and can be changed using the remote control.
Double-check to see if the room temperature is being registered correctly.
Ensure the indicators on the remote control and the display panel on the indoor unit work properly.
Ensure the manual buttons on the indoor unit work properly.
Check to see that the drainage system is unimpeded and draining smoothly.
Ensure there is no vibration or abnormal noise during operation.

NOTE: If the unit malfunctions or does not operate according to your expectations, please refer to the Troubleshooting section of this manual before contacting technical support.

Outdoor Unit Checks:
Check to see if the refrigeration system is leaking.
Make sure there is no vibration or abnormal noise during operation.
Ensure the wind, noise, and water generated by the unit do not disturb your neighbors or pose a safety hazard.

Drainage Test:
Ensure the drainpipe flows smoothly. New buildings should perform this test before finishing the ceiling.
Turn on the main power switch and run the air conditioner in cool mode.
Check to see that the water is discharged. It may take up to one minute before the unit begins to drain depending on the drainpipe.
Make sure that there are no leaks in any of the piping.
Stop the unit. Turn off the main power switch & reinstall the test cover.

9.3 Care & Maintenance

! BEFORE CLEANING & MAINTENANCE

- Disconnect the power before cleaning or maintenance, except for cleaning the air filter.
- Contact an authorized service technician for repair or maintenance. Improper repair and maintenance may cause water leakage, electrical shock, or fire, and may void your warranty.
- Do not substitute a blown fuse with a higher or lower amperage rating fuse, as this may cause circuit damage or an electrical fire. The replacement fuse must be identical to the one removed.
- Make sure the drain hose is set up according to the instructions. Failure to do so could cause leakage and result in personal property damage, fire, and electric shock.
- Make sure that all wires are connected properly. Failure to connect wires according to instructions can result in electrical shock or fire.
- Only use a soft, dry cloth to wipe the unit clean. If needed, use a cloth soaked in warm water to wipe it clean.
- Do not use chemicals or chemically treated cloths to clean the unit.
- Do not use benzene, paint thinner, polishing powder, or other solvents to clean the unit. They can cause the plastic surface to crack or deform.
- To avoid panel deformation or discoloration, do not use water hotter than 104°F (40°C) to clean the front panel.
- Do not wash the unit under running water. Doing so creates an electrical hazard.
- Clean the unit using a damp, lint-free cloth and neutral detergent. Dry the unit with a dry, lint-free cloth.
- Do not use water to clean the inside of the indoor unit. This can destroy insulation and cause electrical shock.
- An authorized dealer or licensed service provider should perform maintenance and cleaning of the outdoor unit.
- Any unit repairs should be performed by an authorized dealer or a licensed service provider.

9 POST-INSTALLATION

! CHANGING THE FILTER

- A clogged air filter can greatly reduce heating and cooling efficiency of this unit. Inspect and clean or replace the air filter each month or as required.
- Before changing the filter or cleaning, turn off the unit and disconnect its power supply.
- When removing the filter, do not touch the metal parts in the unit. The sharp metal edges can cut you.
- Do not expose the filter to direct sunlight when drying. This can shrink the filter.

Maintaining the Unit

Long Periods of Non-Use

If you plan not to use the unit for an extended period of time, do the following:



Clean all filters.



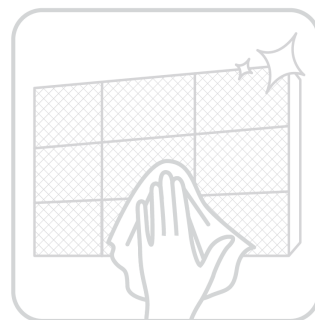
Turn on fan function until unit dries out completely.

Pre-Season Inspection

After long periods of non-use, or before periods of frequent use, do the following:



Check for damaged wires.



Clean all filters.



Ensure nothing is blocking the air inlets & outlets.



Check for leaks.

9.4 Troubleshooting

! CAUTION

If any of the following conditions occur, turn off the unit immediately.

- You smell a burning odor.
- The unit emits loud or abnormal sounds.
- A power fuse blows or the circuit breaker frequently trips.
- Water or other objects fall into or out of the unit.

DO NOT ATTEMPT TO FIX THESE YOURSELF! CONTACT AN AUTHORIZED SERVICE PROVIDER IMMEDIATELY.

The following problems are not a malfunction, and in most situations will not require repairs.

Issue	Possible Causes
Unit does not turn on when pressing ON/OFF button.	The unit has a 3-minute protection feature that prevents the unit from overloading. The unit cannot be restarted within 3 minutes of being turned off.
	If the operation light and PRE-DEF indicators are lit up, the outdoor temperature is too cold and the unit's anti-cold wind is activated in order to defrost the unit.
The unit changes from COOL/ HEAT mode to FAN mode.	The unit may change its setting to prevent frost from forming on the unit. Once the temperature increases, the unit will start operating in the previously selected mode again.
	The set temperature has been reached, at which point the unit turns off the compressor. The unit will continue operating when the temperature fluctuates again.
The indoor unit emits white mist.	In humid regions, a large temperature difference between the room's air and the conditioned air can cause white mist.
Both the indoor and outdoor units emit white mist.	When the unit restarts in heat mode after defrosting, white mist may be emitted due to moisture generated from the defrosting process.
The indoor unit makes noises.	A squeaking sound is heard when the system is off or in cool mode. The noise is also heard when the drain pump (optional) is in operation.
	A squeaking sound may occur after running the unit in heat mode due to expansion and contraction of the unit's plastic parts.
Both the indoor unit and the outdoor unit make noises.	Low hissing sound during operation: this is normal and is caused by refrigerant gas flowing through both indoor and outdoor units.
	Low hissing sound when the system starts, has just stopped running, or is defrosting: this noise is normal and is caused by the refrigerant gas stopping or changing direction.
	Squeaking sound: normal expansion and contraction of plastic and metal parts caused by temperature changes during operation can cause squeaking noises.
The outdoor unit makes noises.	The unit will make different sounds based on its current operating mode.
Dust is emitted from either the indoor or outdoor unit.	The unit may accumulate dust during extended periods of non-use, which will be emitted when the unit is turned on. This can be mitigated by covering the unit during long periods of inactivity.
The unit emits a bad odor.	The unit may absorb odors from the environment (such as furniture, cooking, cigarettes, etc.) which will be emitted during operation.
	The unit's filters have become moldy and should be cleaned.
The fan of the outdoor unit does not operate.	During operation, the fan speed is controlled to optimize product operation.

Note: If a problem persists, contact a local dealer or MRCOOL® customer service. Provide them with a detailed description of the unit malfunction as well as your model number.

9 POST-INSTALLATION

When trouble occurs, please check the following points before contacting a repair company.

Problem	Possible Causes	Solution
Poor Cooling Performance	Temperature setting may be higher than ambient room temperature.	Lower the temperature setting.
	The heat exchanger on the indoor or outdoor unit is dirty.	Clean the affected heat exchanger.
	The air filter is dirty.	Remove the filter and clean it according to instructions.
	The air inlet or outlet of either unit is blocked.	Turn the unit off, remove the obstruction and turn it back on.
	Doors and windows are open.	Make sure that all doors and windows are closed while operating the unit.
	Excessive heat is generated by sunlight.	Close windows and curtains during periods of high heat or bright sunshine.
	Too many sources of heat in the room (people, computers, electronics, etc.)	Reduce the amount of heat sources.
	Low refrigerant due to leak or long-term use.	Check for leaks, re-seal if necessary, and top off refrigerant.
The unit is not working	Power failure	Wait for the power to be restored.
	The power is turned off.	Turn on the power.
	The fuse is burned out.	Replace the fuse.
	The unit's 3-minute protection has been activated.	Wait three minutes after restarting the unit.
	Timer is activated	Turn timer off
The unit starts and stops frequently.	There's too much or too little refrigerant in the system.	Call a technician to check for leaks and recharge the system with refrigerant.
	Incompressible gas, air, or moisture, or foreign material has entered the system.	Call a technician to evacuate and recharge the system with refrigerant.
	System circuit is blocked.	Determine which circuit is blocked and replace the malfunctioning piece of equipment.
	The compressor is broken.	Call a technician to replace the compressor.
	The voltage is too high or too low.	Install a manostat to regulate the voltage.
Poor heating performance	The outdoor temperature is extremely low	Use auxiliary heating device
	Cold air is entering through doors and windows.	Make sure that all doors and windows are closed during use.
	Low refrigerant due to leak or long-term use.	Call a technician to check for leaks, re-seal if necessary, and top off refrigerant.

Note: If your problem persists after performing the checks and diagnostics above, turn off your unit immediately and contact a local dealer or MRCOOL® customer service.

9.5 Error Display (Indoor Unit)

Display	Error Information	Solution
EC 07	ODU fan speed out of control	TS27
EC 0D	ODU malfunction	TS44
EC 51	ODU EEPROM parameter error	TS23
EC 52	ODU coil temp. sensor (T3) error	TS29
EC 53	ODU ambient temp. sensor (T4) error	TS29
EC 54	COMP. discharge temp. sensor (TP) error	TS29
EC 56	IDU coil outlet temp. sensor (T2B) error (Multi-Zone)	TS29
EC C1	Other IDU refrigerant sensor detects leakage (Multi-Zone)	TS43
EH 00	IDU EEPROM malfunction	TS23
EH 03	IDU fan speed out of control	TS27
EH 0A	IDU EEPROM parameter error	TS23
EH 0B	IDU main control board & display board communication error	TS45
EH 0E	Water-level alarm malfunction	TS31
EH 3A	External fan DC bus voltage is too low	TS41
EH 3B	External fan DC bus voltage is too high	TS41
EH 60	IDU room temp. sensor (T1) error	TS29
EH 61	IDU coil temp. sensor (T2) error	TS29
EH 62 / EH 66	Evaporator coil inlet temperature sensor T2B is in open circuit or short circuit	TS29
EH 65	Evaporator coil temperature sensor T2A is in open circuit or short circuit	TS29
EH BA	Communication malfunction between indoor unit and external fan module	TS31
EH C1	Refrigerant sensor detects leakage	TS43
EH C2	Refrigerant sensor is out of range and leakage is detected	TS43
EH C3	Refrigerant sensor is out of range	TS42
EL 01	IDU & ODU communication error	TS24
EL 0C	System lacks refrigerant	TS24
EL 16	Communication malfunction between adapter board and outdoor main board	TS46
FH CC	Refrigerant sensor error	TS42
FL 09	Mismatch between the new and old platforms	TS46
pC 00	ODU IPM module protection	TS32
PC 01	ODU voltage protection	TS33
PC 02	Compressor top (or IPM) temp. protection	TS38
PC 03	Pressure protection (low or high pressure)	TS35
PC 04	Inverter compressor drive error	TS34
PC 0I	Low ambient temperature protection	TS39
----	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.

9.6 Error Display on Two-Way Communication Wired Controller

Display	Error Information	Solution
EH B3	Communication malfunction between wire and master control	TS40

Note: The other error codes displayed on the wired controller are the same from those on the unit.

9.7 Error Display (Outdoor Unit with Auxiliary Board)

Display	Error Information	Solution
DF	Defrosting	Normal Display, not error code
FC	Forced Cooling	
EC 07	ODU Fan Speed Out of Control	TS27
EC 51	ODU EEPROM parameter error	TS23
EC 52	ODU coil temp. sensor (T3) error	TS29
EC 53	ODU ambient temp. sensor (T4) error	TS29
EC 54	COMP. discharge temp. sensor (TP) error	TS29
EC 55	ODU IPM module temperature sensor malfunction	TS33
EC 56	IDU coil outlet temp. sensor (T2B) error (Multi-zone)	TS29
EC 57	Refrigerant pipe temperature sensor error	TS29
EC 71	Overcurrent failure of ODU DC fan motor	TS27
EC 72	Lack phase failure of ODU DC fan motor	TS63
EL 01	IDU and ODU communication error	TS24
EL 16	Communication malfunction between adapter board and ODU main board	TS46
PC 00	IPM Module Protection	TS32
PC 02	Compressor top (or IPM) temperature protection / Refrigerant sensor error	TS38
PC 06	Discharge temperature protection of compressor	TS53
PC 08	Outdoor overcurrent protection	TS47
PC 0A	High temperature protection of condenser	TS54
PC 0F	PFC module protection	TS52
PC 10	ODU low AC voltage protection	TS49
PC 11	ODU main control board DC bus high voltage protection	TS49
PC 12	ODU main control board DC bus low voltage protection / 341 MCE error	TS49
PC 30	System high pressure protection	TS55
PC 31	System low pressure protection	TS57
PC 40	Communication error between ODU main chip and compressor driven chip	TS51
PC 41	Compressor current sampling failure	TS60
PC 42	Compressor start failure of outdoor unit	TS47
PC 43	ODU compressor lack phase protection	TS59
PC 44	ODU zero speed protection	TS47
PC 45	ODU IR chip drive failure	TS60
PC 46	Compressor speed out of control	TS47
PC 49	Compressor overcurrent failure	TS47
LC 06	High temperature protection of inverter module (IPM)	TS38
PH 90	High temperature protection of evaporator	TS61
PH 91	Low temperature protection of evaporator	TS62

9.8 Quick Maintenance by Error Code

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

Part Requiring Replacement	Error Code										
	EH00/ EH0A	EL01	EH03	EH60	EH61	EH62/ EH66	EH65	ELoc	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	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
Reactor	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	PC 03/ PC30/ PC31	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	✓
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	✓	X

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Part Requiring Replacement	Error Code					
	PC06	PC08/ PC42/ PC44/ PC46/ PC49	PC0A	PC0f	PC40	Ec72
Outdoor PCB	✓	✓	✓	✓	✓	✓
Outdoor Fan Motor	X	✓	✓	X	X	✓
T3 Sensor	X	X	✓	X	X	X
TP Sensor	✓	X	X	X	X	X
Pressure Sensor	X	X	X	X	X	X
Reactor	X	✓	X	✓	X	X
Compressor	X	X	X	X	X	X
IPM Module Board	X	✓	X	X	✓	X
High Pressure Valve Assembly	✓	X	X	X	X	X
High Pressure Protector	X	X	X	X	X	X
Low Pressure Protector	X	X	X	X	X	X
Additional Refrigerant	✓	X	✓	X	X	X
Electric Control Box	X	X	X	X	✓	X

Part Requiring Replacement	Error Code					
	PC41	PC43	PC10/ PC11/ PC12	PC45	PH90	PH91
Outdoor PCB	✓	✓	✓	X	X	X
Outdoor Fan Motor	X	X	X	X	X	X
T3 Sensor	X	X	X	X	X	X
TP Sensor	X	X	X	X	X	X
Pressure Sensor	X	X	X	X	X	X
Reactor	X	X	✓	X	X	X
Compressor	X	✓	X	X	X	X
IPM Module Board	X	X	✓	✓	X	X
High Pressure Valve Assembly	X	X	X	X	X	X
High Pressure Protector	X	X	X	X	X	X
Low Pressure Protector	X	X	X	X	X	X
Additional Refrigerant	X	X	X	X	X	X
T2 Sensor	X	X	X	X	✓	✓
Indoor PCB	X	X	X	X	✓	✓
Indoor Fan Motor	X	X	X	X	✓	X

9.9 24V Signal Chart

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 Auxiliary Heat Module 1	3	*	0	0	*	0	1	0	0	*	Turbo	08
Electric Auxiliary Heat Module 2		*	0	0	*	0	0	1	0	*	Turbo	
Electric Auxiliary Heat Module 1 & 2		*	0	0	*	0	1	1	0	*	Turbo	09
Heat Pump Stage 1 + Electric Auxiliary Heat Module 1	1	*	1	0	1	0	1	0	0	1	Turbo	10
Heat Pump Stage 1 + Electric Auxiliary Heat Module 2		*	1	0	1	0	0	1	0	1	Turbo	
Heat Pump Stage 2 + Electric Auxiliary Heat Module 1		*	*	1	1	0	1	0	0	1	Turbo	
Heat Pump Stage 2 + Electric Auxiliary Heat Module 1		*	*	*	*	1	1	0	0	1	Turbo	
Heat Pump Stage 2 + Electric Auxiliary Heat Module 2		*	*	1	1	0	0	1	0	1	Turbo	
Heat Pump Stage 2 + Electric Auxiliary Heat Module 2		*	*	*	*	1	0	1	0	1	Turbo	
Heat Pump Stage 1 + Electric Auxiliary Heat Module 1 & 2		*	1	0	1	0	1	1	0	1	Turbo	11
Heat Pump Stage 2 + Electric Auxiliary Heat Module 1 & 2		*	*	1	1	0	1	1	0	1	Turbo	
Heat Pump Stage 2 + Electric Auxiliary Heat Module 1 & 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: 24V signal
 0: No 24V signal
 *: 1 or 0
 The AUU will turn off if the 24V input cannot meet the table.

Matching with Multi-Zone Outdoor Unit

When matching with a multi-zone outdoor unit, the indoor unit cannot be started due to the mode conflict in the following cases:

Mode of AHU	Mode of other IDU Zones	Mode Conflict Unit
Fan	Heating/Electric Heat/Emergency Heat	AHU
Cooling		AHU
Dehumidification		AHU
Heating	Fan/Cooling/Dehumidification	Other IDU Zones
Electric Heat		Other IDU Zones
Emergency Heat		Other IDU Zones

- Note:**
- When heating reaches the temperature and shuts down with other IDU zones normally, the AHU fan will stop running, and the Fan-ON mode is invalid.
 - The heat pump will start synchronously when Emergency Heat or Electric Heat is started.
 - When two AHU units are connected by multi-zone outdoor unit, the above rules are applicable while one of the AHU units is regarded as other IDU zones.



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The design and specifications of this product and/or manual are subject to change without prior notice.
Consult with the sales agency or manufacturer for details.