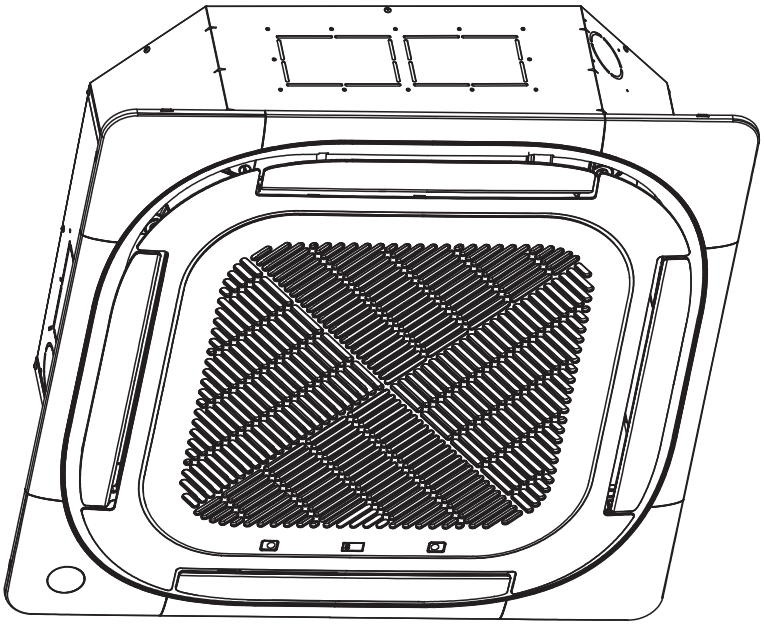
DURASTAR

INSTALLATION MANUAL

FOUR–WAY CASSETTE INDOOR UNIT

DRAC0912F2A, DRAC18F2A, DRAC24F2A,

R–454B 208/230V 1ph 60 HZ



Model Number:

Serial Number:

Purchase Date:

Installing Contractor Company Name:

TIP

Capture relevant information about your Durastar mini–split equipment before it is installed and write it above for future reference.

TABLE OF CONTENTS

INTRODUCTION

To better serve you, please do the following before contacting customer service:

- If you received a damaged product, immediately contact the retailer or dealer that sold you the product.
- Read and follow this manual carefully to help you use and maintain your air handler.
- Read the troubleshooting section of this manual as it will help you diagnose and solve common issues.
- Visit us on the web at www.durastar.com to download product guides and up-to-date information.
- If you need warranty service, our friendly customer service representatives are available via email at questions@durastar.com or by telephone at 1-888-320-0706.

SYMBOLS USED IN THIS MANUAL

WARNING: The warning symbol indicates personal injury or loss of life is possible. Extra care and precautions should be taken to ensure the user's safety.

CAUTION: The caution symbol indicates property damage or other serious consequences could occur.

NOTE: The pencil indicates any manufacturer notes relating to surrounding content. These may include further clarifications or call-outs.

TIP: A light bulb symbol indicates suggested manufacturer tips for the user to get the most out of the Durastar equipment and to accommodate the best user experience.

Refrigerant Safety Group A2L

WARNING:
RISK OF FIRE DUE TO FLAMMABLE MATERIALS
Follow handling instructions carefully in compliance with national regulations.

Explanation of symbols displayed on the unit

	**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**	This symbol shows that information is available such as the operating manual or installation manual.

WARNING

Turn off the air conditioner and disconnect the power before installing, cleaning, or repairing the air conditioner. Failure to do so can cause electric shock.

IMPORTANT SAFETY PRECAUTIONS

Improper handling can cause serious damage or injury. Please read the following safety information in its entirety.

Operation, Cleaning, and Maintenance Safety Precautions

- Children and people with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, should only use, clean, or maintain this air conditioner if they are given supervision or instructions concerning use of the air conditioner in a safe way and understand the hazards involved. Children should not play with the air conditioner.
- Maintenance or repair must be performed by qualified professionals. Otherwise, you may experience personal injury or damage to the air conditioner and surrounding property.
- Disconnect the power supply by turning it off at the circuit breaker when cleaning, maintaining, or repairing the air conditioner. Otherwise, you could risk electric shock.
- When turning the unit on or off via the emergency operation switch, press the switch with an insulated object other than metal.
- If the below problems occur, please turn off the air conditioner and disconnect power at the circuit breaker immediately. Then contact your dealer or a qualified professional for service.
  - The power cord is overheating or damaged.
  - There is an abnormal sound during operation.
  - The circuit breaker trips frequently.
  - The air conditioner gives off a burning smell.
  - The indoor unit is leaking.
- Do not block the air outlet or air inlet. This could cause a malfunction.
- Never stick fingers or any other body parts into the air conditioner openings. The internal fan may be rotating at high speeds, and may result in injury.
- Do not spill water on the remote control as this can permanently damage the remote.
- Do not spray water on the indoor unit. This could cause electric shock or a unit malfunction.
- Do not clean the air conditioner with excessive amounts of water.
- Do not clean the air conditioner with combustible cleaning agents; they can cause fire or deformation.
- After removing the filter, do not touch the fins in order to avoid injury.
- Do not use fire or a hair dryer to dry the filter. This could cause a deformation or fire hazard.
- Do not step on the top panel of the unit, or put heavy objects on the top panel. This could cause damage or personal injury.
- Do not use flammable materials such as hair spray, lacquer, or paint near the air conditioner as they may catch fire.
- Do not operate the air conditioner in places near combustible gases. Emitted gases may collect around the air conditioner and cause an explosion.
- Do not operate your air conditioner in a wet room such as a bathroom or laundry room. Too much exposure to water can cause electrical components to short circuit.
- If the air conditioner is used together with burners or other heating devices, thoroughly ventilate the room to avoid oxygen deficiency.

Electrical Safety

- Do not modify the length of the power supply cord or use an extension cord to power the unit.
- If the supply cord is damaged, it must be replaced by the manufacturer, a service agent, or a similarly qualified person in order to avoid a safety hazard.
- Keep power plug clean. Remove any dust or grime that accumulates on or around the plug. Dirty plugs can cause fire or electric shock.
- Do not pull power cord to unplug unit. Hold the plug firmly and pull it from the outlet. Pulling directly on the cord can damage it, which can lead to fire or electric shock.
- Do not share the electrical outlet with other appliances. Improper or insufficient power supply can cause fire or electrical shock.
- The product must be properly grounded at the time of installation, or electrical shock may occur.
- For all electrical work, follow all local and national wiring standards and regulations. Connect cables tightly, and clamp them securely to prevent external forces from damaging the terminal. Improper electrical connections can overheat and cause fire, and may also cause shock. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
- All wiring must be properly arranged to ensure that the control board cover can close properly. If the control board cover is not closed properly, it can lead to corrosion and cause the connection points on the terminal to heat up, catch fire, or cause electrical shock.
- If connecting power to fixed wiring, an all-pole disconnection device which has at least 3mm clearances in all poles, and have a leakage current that may exceed 10mA, the residual current device(RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- The air conditioner'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.

Installation Safety

- Installation must be performed by an authorized dealer or specialist. Improper installation can cause water leakage, electrical shock, or fire. (In North America, installation must be performed in accordance with NEC and CEC requirements by authorized personnel only.)
- Installation must be performed according to the installation instructions. Improper installation can cause water leakage, electrical shock, or fire.
- This air conditioner shall be installed in accordance with national and local wiring regulations.
- Contact an authorized service technician for repair or maintenance of this unit.
- Only use the included accessories, parts, and specified parts for installation. Using non-standard parts can cause water leakage, electrical shock, fire, and can cause the unit to fail.
- Install the unit in a firm location that can support the unit's weight. If the chosen location cannot support the unit's weight, or the installation is not done properly, the unit may fall and cause serious injury and damage.
- Install drainage piping according to the instructions in the installation manual. Improper drainage may cause water damage to your home and property.
- For units that have an auxiliary electric heater, do not install the unit within 3 feet (1 meter) of any combustible materials.
- Do not install the unit in a location that may be exposed to combustible gas leaks. If combustible gas accumulates around the unit, it may cause a fire.

- Do not turn on the power until all work has been completed.
- When moving or relocating the air conditioner, consult experienced service technicians for disconnection and re-installation of the unit.
- Be careful when opening or closing valves below freezing temperatures. Refrigerant may spurt out from the gap between the valve stem and the valve body, resulting in injuries.

WARNING: REFRIGERANT SAFETY (A2L)

- Do not use means to accelerate the defrosting process or to clean the unit, other than those recommended by the manufacturer.
- 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).
- Do not pierce or burn.
- Be aware that flammable refrigerants may not contain an odor.
- Compliance with national refrigerant regulations shall be observed.

A2L REFRIGERANT SAFETY PRECAUTIONS

1. Installation (Where Refrigerant Pipes Are Allowed)

- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification.
- Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.
- That the installation of pipe-work shall be kept to a minimum.
- That pipe-work shall be protected from physical damage.
- Where refrigerant pipes shall be compliance with national gas regulations.
- That mechanical connections shall be accessible for maintenance purposes.
- Be more careful that foreign matter(oil, water,etc) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc.
- All working procedure that affects safety means shall only be carried by competent persons.
- Appliance shall be stored in a well ventilated area where the room size corresponds to the room area as specific for operation.
- Joints shall be tested with detection equipment with a capability of 0.18 oz (5 g) per 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 shall NOT be used in the indoor side of the unit (brazed, welded joint could be used).
- In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.

LEAK DETECTION SYSTEM installed. Unit must be powered except for service. For the unit with refrigerant sensor, when the refrigerant sensor detects refrigerant leakage, the indoor unit will display a error code and emit a buzzing sound, the compressor of 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 can not be repaired and can only be replaced by the manufacturer. It shall only be replaced with the sensor specified by the manufacturer.

2. Because a FLAMMABLE REFRIGERANT is used, the requirements for installation space of appliance and/or ventilation requirements are determined according to:

- the mass charge amount(M) used in the appliance,
- the installation location,
- the type of ventilation of the location or of the appliance.
- piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.
- that protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris;
- that piping in refrigeration systems shall be so designed and installed to minimize the likelihood of hydraulic shock damaging the system;
- that steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation;
- that precautions shall be taken to avoid excessive vibration or pulsation;
- the minimum floor area of the room shall be mentioned in the form of a table or a single figure without reference to a formula;
- After completion of field piping for split systems, the field pipework shall be pressure tested with OXYGEN-FREE NITROGEN (OFN) and then vacuum tested prior to refrigerant charging, according to the following requirements:
  1. Pressure test the refrigerant piping to 500 PSI.
  2. 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.
  3. During the evacuation test, after achieving a vacuum level specified in the manual or less, the refrigeration system shall be isolated from the vacuum pump and the pressure shall not rise above 1500 microns within 10 min. The vacuum pressure level shall be specified in the manual, and shall be the lessor of 500 microns or the value required for compliance with national and local codes and standards, which may vary between residential, commercial,and industrial buildings.
- Field-made refrigerant joints indoors shall be tightness tested according to the following requirements: The test method shall have a sensitivity of 0.18 oz (5 g) per year of refrigerant or better under a pressure of at least 125% of the maximum allowable pressure. No leak shall be detected.

3 . Qualifications Of Workers

Any maintenance, service and repair operations must be performed by qualified personnel. Any working procedure that impacts safety must be performed only by qualified individuals who have completed the necessary training and obtained certification to demonstrate their competence. The training of these procedures is carried out by national training organizations or manufacturers that are accredited to teach the relevant national competency standards that may be set in legislation. All training shall follow the ANNEX HH requirements of UL 60335-2-40 4th Edition.

Examples for such working procedures are:

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

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

5. Work Procedure
Works shall 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.

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

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

8. Presence Of Fire Extinguisher
If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry power or CO2 fire extinguisher adjacent to the charging area.

9. No Ignition Sources
No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks.
“No Smoking” signs shall be displayed.

10. Ventilated Area
Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any work that could produce ignition. Keep ventilation openings clear of obstruction. Ventilation continue during the period that the work is carried out. Proper ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

11. Checks To The Refrigeration Equipment
Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt consult the manufacturer’s technical department for assistance. The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:

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

12. Checks To Electrical Devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, and adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised. Initial safety checks shall include:

- that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- that there no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding;
- Sealed electrical components shall be replaced if it's damage;
- Intrinsically safe components must be replaced if it's damage.

13. Wiring

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.

14. Detection Of Flammable Refrigerants

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

The following leak detection methods are deemed acceptable for 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 to a sensitivity of 0.18 oz (5 g) per year. (Detection equipment shall be calibrated in a refrigerant free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.
- Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

Note
Examples of leak detection fluids are bubble method and fluorescent method agents.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut o valves) in a part of the system remote from the leak. See the following instructions for removal of refrigerant.

15. Evacuation

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

- safely remove refrigerant following local and national regulations; evacuate;
- purge the circuit with NITROGEN
- evacuate (requirement);
- continuously flush or purge with NITROGEN when using flame to open circuit; and
- open the circuit

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

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

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

16. Charging Procedures

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

- Works shall be undertaken with appropriate tools only (In case of uncertainty, please consult the manufacturer of the tools for use with flammable refrigerants).
- Ensure that contamination of different refrigerants does not occur when using charging equipment.
- Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- 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 shall be taken not to overfill the refrigeration system.
- Prior to recharging the system it shall be pressure tested with OXYGEN FREE NITROGEN
- (OFN). The system shall be leak tested on completion of charging but prior to commissioning.
- A follow up leak test shall be carried out prior to leaving the site.

17. Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant. It is essential that electrical power is available before the task is commenced.

- Become familiar with the equipment and its operation.
- Isolate system electrically
- Before attempting the procedure ensure that:
  1. mechanical handling equipment is available, if required, for handling refrigerant cylinders;
  2. all personal protective equipment is available and being used correctly;
  3. the recovery process is supervised at all times by a competent person;
  4. 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 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 the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

18. Labeling

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

19. Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i. e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-o valves in good working order. Empty recovery cylinders are evacuated and, if possible,cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

20. Unventilated Areas

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

21. Transportation, Marking and Storage for Units That Employ Flammable Refrigerants

The following information is provided for units that employ FLAMMABLE REFRIGERANTS

Transport of equipment containing flammable refrigerants: Attention is drawn to the fact that additional transportation regulations may exist with respect to equipment containing flammable gas. The maximum number of pieces of equipment or the configuration of the equipment permitted to be transported together will be determined by the applicable transport regulations.

Marking of equipment using signs: Signs for similar appliances used in a work area are generally addressed by local regulations and give the minimum requirements for the provision of safety and/or health signs for a work location. All required signs are to be maintained and employers should ensure that employees receive suitable and sufficient instruction and training on the meaning of appropriate safety signs and the actions that need to be taken in connection with these signs. The effectiveness of signs should not be diminished by too many signs being placed together. Any pictograms used should be as simple as possible and contain only essential details.

Disposal of equipment using flammable refrigerants: See national regulations.

Storage of equipment/appliances: The storage of the appliance should be in accordance with

the applicable regulations or instructions,whichever is more stringent.

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

Additional Precautions

- Turn off the air conditioner and disconnect the power if you are not going to use it for a long time.
- Turn off the unit during electrical storms to avoid damaging the unit.
- Make sure that water condensation can drain unhindered from the unit.
- Do not operate the air conditioner with wet hands. This may cause electric shock.
- Do not use this device for any other purpose than its intended use.
- Do not climb onto or place objects on top of the outdoor unit.
- Do not allow the air conditioner to operate for long periods of time with doors or windows open, or if the humidity is very high.
- If the air handler is used together with burners or other heating devices, thoroughly ventilate the room to avoid oxygen deficiency and carbon monoxide build up.
- In certain environments, such as kitchens, server rooms, etc., the use of specially designed air-conditioning units is highly recommended.
- As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.
- Excessive Weight Hazard – Use two (2) or more people when moving and installing the unit. Failure to do so can result in back or other type of injury.

Specifications of R-454B Refrigerant

- **Application: R-454B is not a drop-in replacement for R-410A.** The equipment design must accommodate the A2L safety group of R-454B. It cannot be used in R-41 0A systems.
- **Physical Properties:** R-454B has an atmospheric bubble point of -59.6 °F (-50.9 °C) and an atmospheric dew point of -58.0 °F (-50.0 °C). Its bubble point saturation pressure at 77 °F (25 °C) is 213 psig (1469 kPa) and dew point saturation pressure at 77 °F (25 C) is 205 psig (1415 kPa).
- **Composition:** R-454B is classified as safety group A2L per ASHRAE Standard 34. Verify that service equipment and instruments are certified for use with group A2L refrigerants, and in particular with R-454B is a non-azeotropic mixture of 68.9% by weight difluoromethane (HFC-32) and 31.1 % by weight 2,3,3,3-tetrafluoro-1-propene (HFO-1234yf).

R454B REQUIRED ROOM HEIGHT AND MINIMUM ROOM AREA

Required Room Height

R454B UL guidelines require the **room height be ≥ 7.2ft / 2.2m.**

Minimum Room Area

R454B UL guidelines require dissipation if there is a refrigerant leak and are based on total square footage and total system charge. The total system charge includes any component that holds refrigerant, including line sets, indoor coils, and outdoor units. The minimum room area for operating and storing the unit should be as specified in the following table.

A_{min}: REQUIRED MINIMUM ROOM AREA: ft² (m²)

m_C or m_{REL} Refrigerant Charge lbs (kg)	h_{inst}: Height from the Floor to the Bottom of the Indoor Unit: ft (m)					
	≤ 7.2 (2.2)	**7.5 (2.3)**	**7.9 (2.4)**	**8.5 (2.6)**	**9.2 (2.8)**	**9.8 (3.0)**
≤ 3.91 (1.776)	12 (1.10)					
4.0 (1.8)	60 (5.53)	57 (5.29)	55 (5.07)	51 (4.68)	47 (4.35)	44 (4.06)
4.4 (2.0)	67 (6.15)	64 (5.88)	61 (5.64)	56 (5.20)	52 (4.83)	49 (4.51)
4.9 (2.2)	73 (6.76)	70 (6.47)	67 (6.20)	62 (5.72)	58 (5.31)	54 (4.96)
5.3 (2.4)	80 (7.38)	76 (7.06)	73 (6.76)	68 (6.24)	63 (5.80)	59 (5.41)
5.7 (2.6)	86 (7.99)	83 (7.64)	79 (7.32)	73 (6.76)	68 (6.28)	64 (5.86)
6.2 (2.8)	93 (8.60)	89 (8.23)	85 (7.89)	79 (7.28)	73 (6.76)	68 (6.31)
6.6 (3.0)	100 (9.22)	95 (8.82)	91 (8.45)	84 (7.80)	78 (7.24)	73 (6.76)
7.1 (3.2)	106 (9.83)	102 (9.41)	97 (9.01)	90 (8.32)	84 (7.73)	78 (7.21)
7.5 (3.4)	113 (10.45)	108 (9.99)	104 (9.58)	96 (8.84)	89 (8.21)	83 (7.66)
7.9 (3.6)	120 (11.06)	114 (10.58)	110 (10.14)	101 (9.36)	94 (8.69)	88 (8.11)
8.4 (3.8)	126 (11.68)	121 (11.17)	116 (10.70)	107 (9.88)	99 (9.17)	93 (8.56)
8.8 (4.0)	133 (12.29)	127 (11.76)	122 (11.27)	112 (10.40)	104 (9.66)	97 (9.01)
9.3 (4.2)	139 (12.90)	133 (12.34)	128 (11.83)	118 (10.92)	110 (10.14)	102 (9.46)
9.7 (4.4)	146 (13.52)	140 (12.93)	134 (12.39)	124 (11.44)	115 (10.62)	107 (9.91)
10.1 (4.6)	153 (14.13)	146 (13.52)	140 (12.96)	129 (11.96)	120 (11.11)	112 (10.37)
10.6 (4.8)	159 (14.75)	152 (14.11)	146 (13.52)	135 (12.48)	125 (11.59)	117 (10.82)
11.0 (5.0)	166 (15.36)	159 (14.69)	152 (14.08)	140 (13.00)	130 (12.07)	122 (11.27)
Variable Definitions	**A_{min}**: the required minimum room area in ft² (m²) **m_c**: the actual refrigerant charge in the system in lbs (kg) **m_{REL}**: the refrigerant releasable charge in lbs (kg) **h_{inst}** : the height of the bottom of the appliance relative to the floor of the room after installation ft (m) **WARNING:** The minimum room area or the minimum room area of 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	**DRAC0912F2A**		**DRAC18F2A**	**DRAC24F2A**
BTU	9K	12K	18K	24K
Nominal Air Volume	353 CFM (600 m³/h)	418 CFM (710 m³/h)	448 CFM (760 m³/h)	765 CFM (1300 m³/h)

TAKE NOTE OF THE FUSE SPECIFICATIONS

The air conditioner'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 , for example : T3.15AL/250VAC, T5AL/250VAC, T3.15A/250VAC, T5A/250VAC, T20A/250VAC, T30A/250VAC, etc.

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

OPERATING TEMPERATURES

Your air conditioner is designed to operate in the following indoor and outdoor temperatures. When your air conditioner is used outside of the following temperature ranges, certain safety features may activate and turn off the unit to protect it from damage.

TEMPERATURE RANGES

	COOL mode	HEAT mode	DRY mode
Indoor Air 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 Air Temperature	–13°F / –22°F* – 122°F (–25°C / –30°C* – 50°C)	–13°F / –22°F* – 75°F (–25°C / –30°C* – 24°C)	32°F – 122°F (0°C – 50°C)

* The minimum outdoor air operating temperature depends on the outdoor unit. Low ambient Sirius Heat™ models have a minimum outdoor air operating temperature of –22°F (–30°C).

To further optimize the performance of your unit, do the following:

- Keep doors and windows closed.
- Limit energy usage by using TIMER ON and TIMER OFF features.
- Do not block air inlets or outlets.
- Regularly inspect and clean air filters.

NOTE

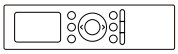
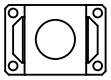
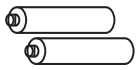
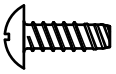
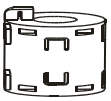
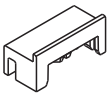
Your Durastar air conditioner's outdoor unit is equipped with a base pan heater, allowing it to continue to operate at freezing temperatures as low as –22°F (–30°C). When outdoor air temperatures are at or below 32°F (0°C), we strongly recommend keeping the unit plugged in at all times to ensure smooth ongoing performance.

NOTE

Keep the room's relative humidity below 80%. If the air conditioner operates in excess of this, the surface of the air conditioner may attract condensation. To help prevent condensation from forming and dripping, set the vertical airflow louver to its maximum angle (vertically to the floor) and set the fan to HIGH.

INCLUDED ACCESSORIES

The air conditioning system comes with the following accessories.

Accessory	Quantity	Image	Accessory	Quantity	Image
Manual	1–2		Remote Control	1	
Conduit Installation Plate	1		Remote Control Holder	1	
Drain Pipe Outlet Connector	0 – 1		Battery	2	
Gas Pipe Insulation	0 – 1		Liquid Pipe Insulation	0 – 1	
Drain Pipe Worm Clamp	2		Screw	2 (9–18K) / 6 (24K)	
Copper Nut	2		Wireless Module Cable	1	
Magnetic Ring	0 – 2		Cable Tie	0 – 6	
Rubber Block	0 – 1				

WARNING

Ensure that all service equipment and instruments are certified for use with group A2L refrigerants, specifically R-454B. Recovery equipment, pumps, hoses, and related components must be rated for the appropriate design pressures for R-454B. Manifold sets should accommodate pressures up to 800 psig on the high side and 250 psig on the low side, with a 550 psig low-side retard. Hoses must have a service pressure rating of 800 psig, while recovery cylinders should be rated for 400 psig, meeting DOT 4BA400 or DOT 4BW400 standards.

TOOLS NEEDED

The following tools are required for installation.

- Phillips screwdriver
- Drill with 2 1/2" or 3 1/2" (indoor unit model depending) core bit
- Vacuum pump
- HVAC manifold gauge set
- Micron Gauge
- Refrigerant leak detector
- Copper pipe cutter
- Flaring tool
- Burr reamer
- Crescent or spanner wrench
- Hexagonal wrench set
- Torque wrench
- Multimeter
- Electroprobe
- Level
- Hammer
- Wire strippers
- Wire crimper

FIELD SUPPLIED INSTALLATION ACCESSORIES

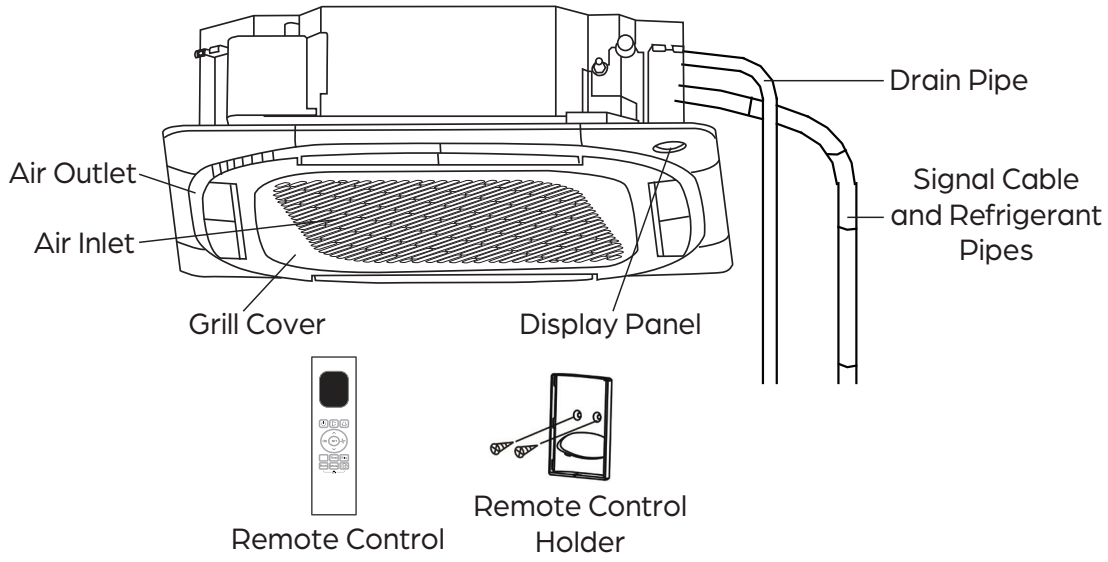
The following installation accessories are required and must be purchased separately.

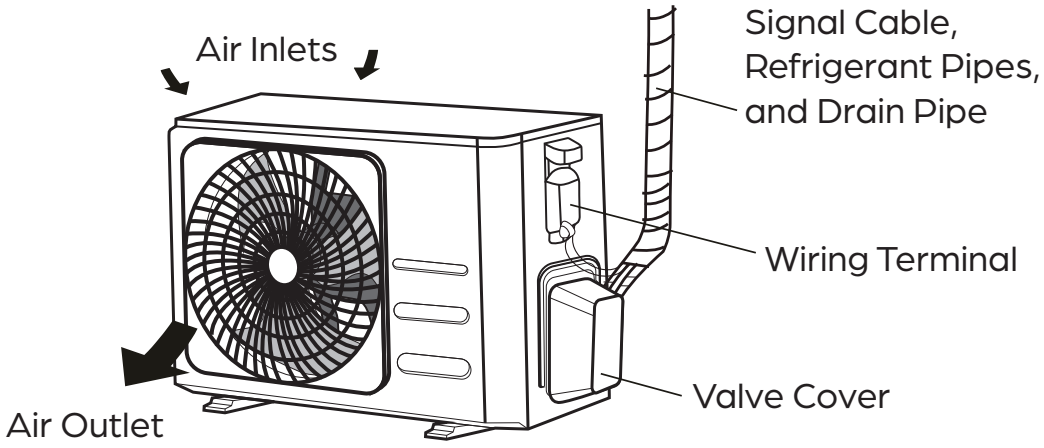
- Refrigerant piping (line set)
- Indoor and outdoor connection wire
- Outdoor power supply cord
- Drain pipe
- Pipe and cable wrapping tape
- Wall hole sleeve and cover
- Putty
- Suspension bolts and necessary hardware to hang indoor unit
- Wiring u-lugs

PARTS IDENTIFICATION

NOTE

The installation must be performed in accordance with the required local and national standards. The installation may be slightly different in different markets.





NOTE

Illustrations in this manual are for explanatory purposes. The actual shape of your mini-split equipment may vary slightly.

INDOOR UNIT INSTALLATION

STEP 1: SELECT INSTALLATION LOCATION

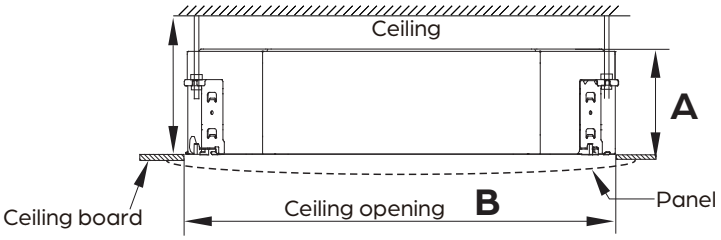
Before installing the indoor unit, you must choose an appropriate location. The following standards must be met for an appropriate location for the unit:

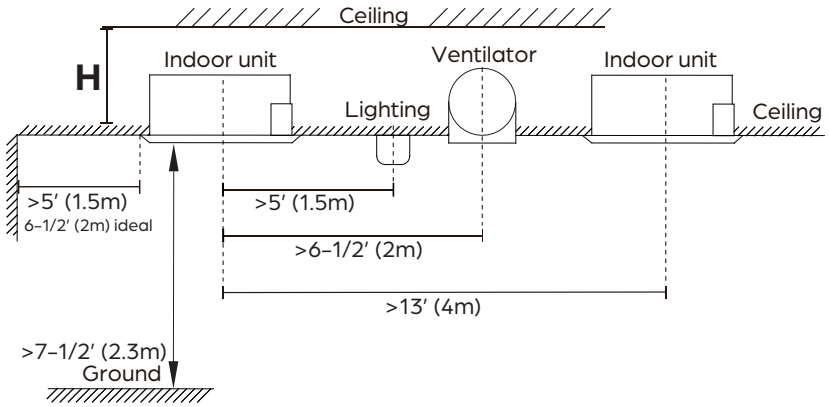
- Good air circulation
- Convenient drainage
- Noise from the unit will not disturb other people
- Firm and solid – the location will not vibrate
- Strong enough to support the weight of the unit
- A location at least five feet (1.5m) from all other electrical devices (e.g., lights, speakers)

DO NOT install unit in the following locations:

- Near any source of heat, steam, or combustible gas
- Near flammable items such as curtains or clothing
- Near any obstacle that might block air circulation
- Near a doorway
- In a location subject to direct sunlight

Refer to the following diagrams to ensure proper distance from walls, ceiling and other units:





MODEL	A (UNIT DEPTH)	B (CEILING OPENING)	H (PLENUM DEPTH)
DRAC0912F2A	9-5/8" (244mm)	23-5/8" (600mm)	>10-13/16" (274mm)
DRAC18F2A	9-5/8" (244mm)	23-5/8" (600mm)	>10-13/16" (274mm)
DRAC24F2A	8" (204mm)	35-7/16" (900mm)	>9" (230mm)

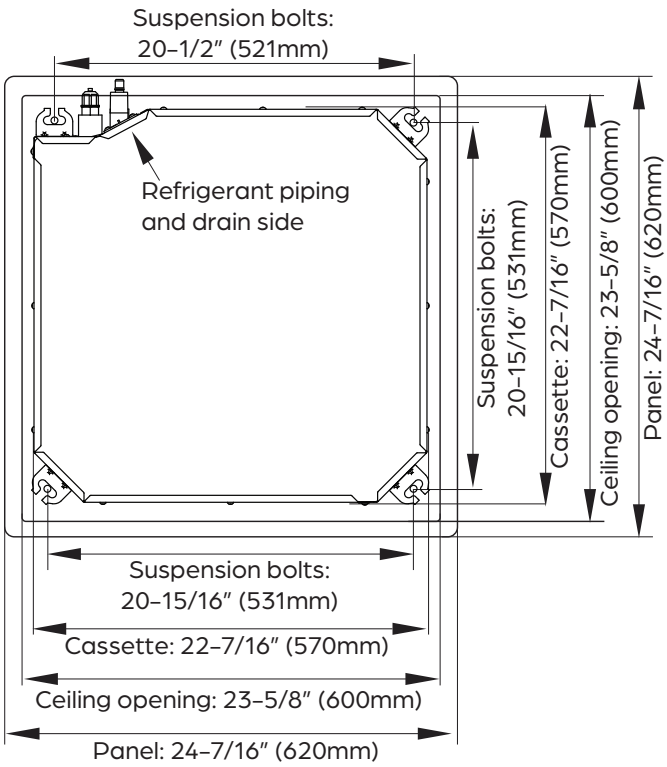
NOTE

If there is no pre-existing refrigerant piping, when choosing a location, leave ample room for a wall hole (see *Step 3: Drill Wall Hole for Connective Piping*) for the signal cable and refrigerant piping that connect the indoor and outdoor units.

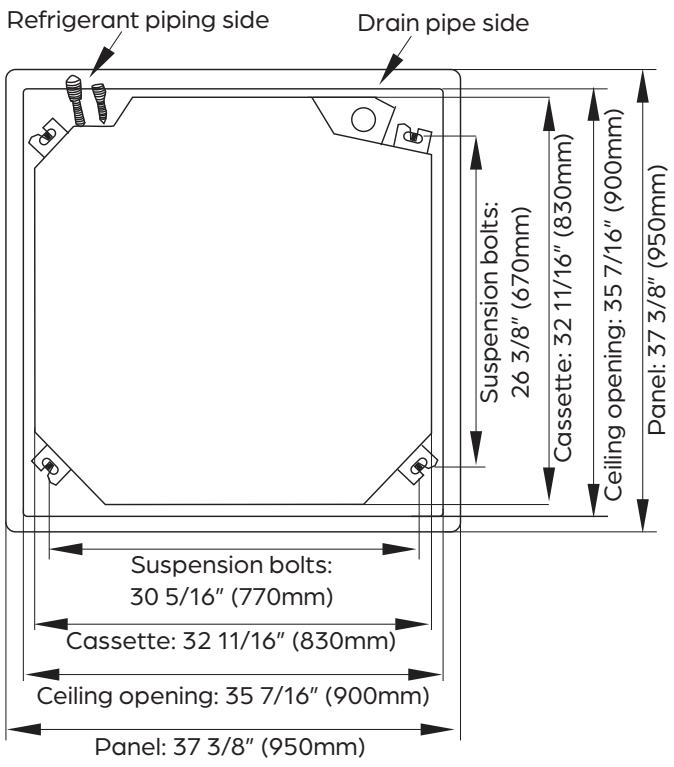
STEP 2: HANG INDOOR UNIT

1. Use the included paper template to cut a square hole in the ceiling, leaving at least 5' (1.5m) from the walls on all sides. For optimal performance increase distance from walls to 6 1/2' (2m). The ceiling opening must be slightly larger than the cassette body and smaller than the panel for the components to install correctly. Carefully measure and mark the locations where the ceiling holes will be drilled for the suspension bolts.

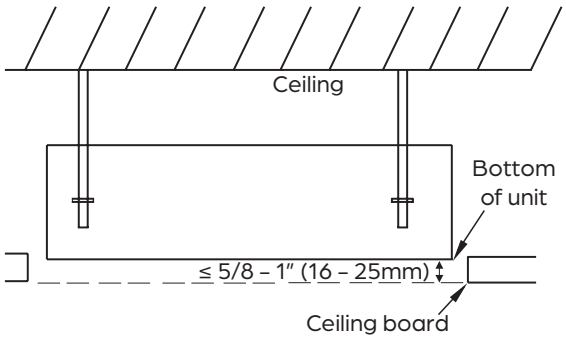
DRAC0912F2A / DRAC18F2A



DRAC24F2A



2. Drill four holes at least 5" deep in the internal ceiling for each of the required suspension bolt anchors (field supplied). Make sure to hold the drill at a 90° angle to the ceiling.
3. Using a hammer, insert the suspension bolt anchors into the pre-drilled holes.
4. Install the four suspension bolts.
5. Mount the indoor unit. Using two people to lift and secure it, insert the suspension bolts into the unit's hanging bracket holes and secure in place with washers and nuts. Make sure the unit is level and the bottom of the unit is 3/8"–1" (10–25mm) higher than the ceiling board to accommodate the unit's panel.

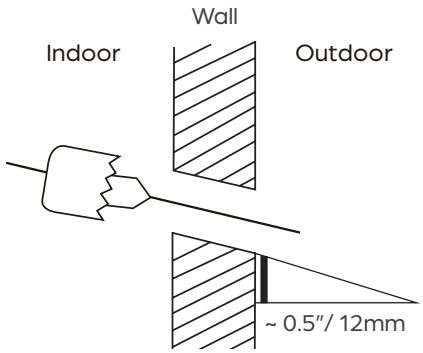


CAUTION

Ensure that the indoor unit is completely level. Improper installation can cause the drain pipe to back up into the unit and water leaks.

STEP 3: DRILL WALL HOLE FOR CONNECTIVE PIPING

1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 3 1/2" (90mm) core drill, drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of the hole is lower than the indoor end by about 3/16 – 1/4" (5mm to 7mm). This will ensure proper water drainage.

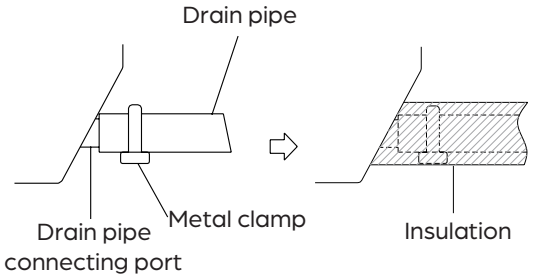


3. Place the protective wall hole sleeve (field supplied) into the hole. This protects pipes and cables from sharp edges and will help seal the opening when you finish the installation process. After the sleeve is inserted through the wall, connect the wall hole sleeve cover to the wall sleeve on the outside end. Make sure the cover is flush with the outside wall.

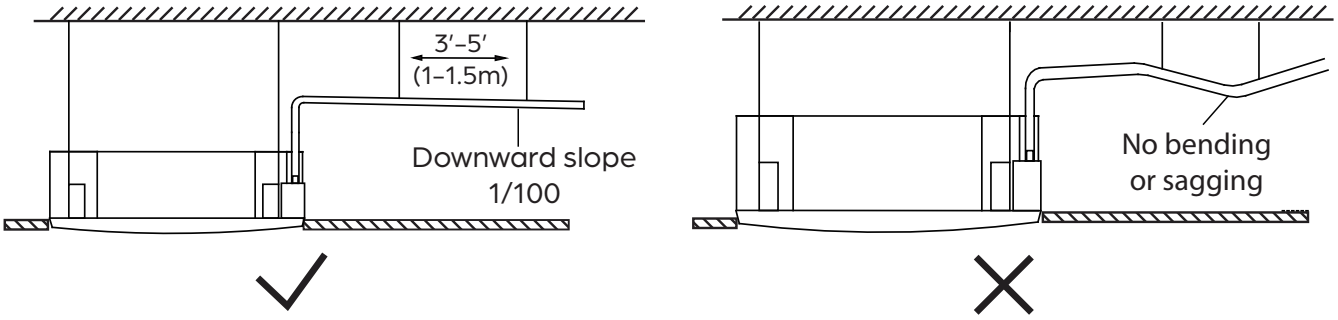
STEP 4: CONNECT DRAIN PIPE

The drain pipe is used to drain condensate water away from the unit. Improper installation may cause leaks and unit or property damage.

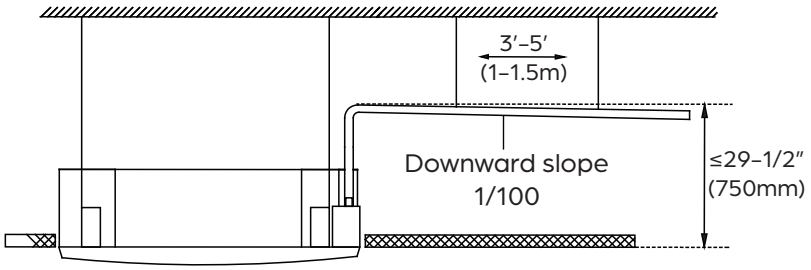
1. Connect a 1" OD drain pipe (field supplied) to the unit's connecting port using the insulated drain pipe connector supplied and metal worm clamps. Make sure it secured tightly and can not be easily pulled loose.



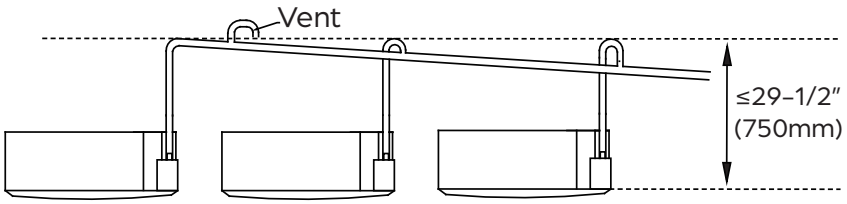
2. The drain pipe must be installed with a downward slope of at least a 1/100 gradient to prevent water from flowing back into the unit. To keep the drain pipe from sagging, install hanging wires every 3–5'. Do not allow the drain pipe to bend or sag and trap condensation.



4. This unit is equipped with a drain pump that allows the outlet of the drain pipe to be higher than the pipe's connecting port. The vertical lift pipe must be installed no higher than 29 1/2" (750mm) from the ceiling board. Install hanging wires every 3–5' to keep the drain pipe from sagging, and wrap the indoor portion of the pipe with foam pipe insulation to prevent condensation. Incorrect installation can cause water to flow back into the unit and leaks.



5. If connecting multiple drain pipes, install the pipes as illustrated below.



6. Pass the drain pipe through the wall hole to the outside. The end of the pipe should be at least 2" (50mm) above the ground. If it touches the ground, the pipe may become blocked. Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

STEP 5: CONNECT SIGNAL CABLE

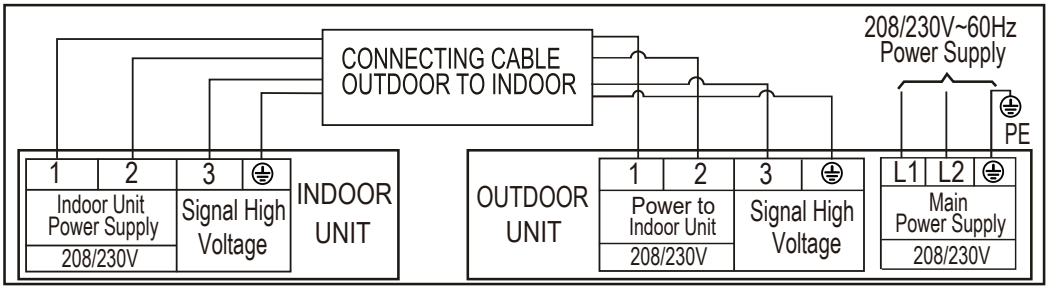
WARNING

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

BEFORE PERFORMING ANY ELECTRICAL WORK, READ THESE REGULATIONS

1. All wiring must comply with local and national electrical codes and regulations, and must be installed by a licensed electrician.
2. All electrical connections must be made according to the Electrical Connection Diagram located on the panels of the indoor and outdoor units.
3. If there is a serious safety issue with the power supply, stop work immediately and contact a licensed electrician. Do not continue with the installation until the safety issue is properly resolved.
4. Power voltage should be within 90–110% of rated voltage. Insufficient power supply can cause malfunction, electrical shock, or fire.
5. If connecting power to fixed wiring, install a surge protector and main power switch with a capacity of 1.5 times the maximum current of the unit.
6. If connecting power to fixed wiring, a switch or circuit breaker that disconnects all poles and has a contact separation of at least 1/8" (3mm) must be incorporated in the fixed wiring. A qualified technician must use an approved circuit breaker or switch.
7. Only connect the unit to an individual branch circuit outlet. Do not connect another appliance to that outlet.

8. Make sure to properly ground the air conditioner.
9. Every wire must be firmly connected. Loose wiring can cause the terminal to overheat, resulting in product malfunction and possible fire.
10. Do not let wires touch or rest against refrigerant tubing, the compressor, or any moving parts within the unit.
11. 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 the electrical components.



The signal cable enables communication between the indoor and outdoor units. You must first choose the right cable size before preparing it for connection.

USE THE RIGHT CABLE

- Indoor Power Cable / Signal Cable: 14/4 stranded, unshielded
- Outdoor Power Cable: Determined by the amperage of system and the local codes in your area.

CABLE SIZING

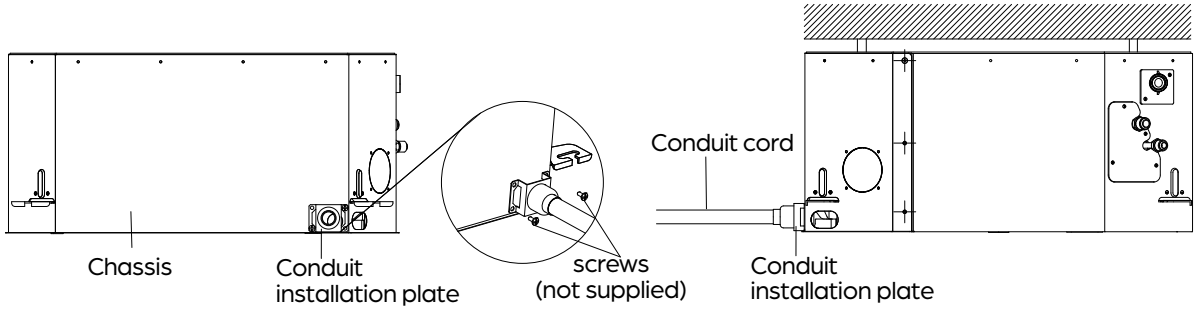
Use a minimum of 14 AWG for power and signal cables connected to and between the indoor and outdoor units.

Choose the correct size of cable

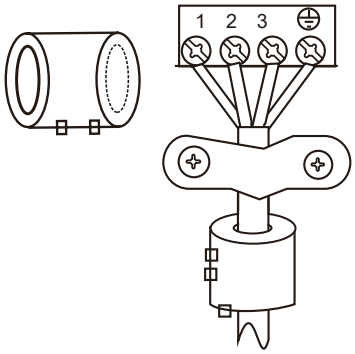
The size of the power supply cable, signal cable, fuse, and switch needed is determined by the maximum current of the unit. The maximum current is indicated on the nameplate located on the side panel of the unit. Refer to this nameplate to choose the right cable, fuse, or switch.

Wiring the Indoor Unit (see image on next page)

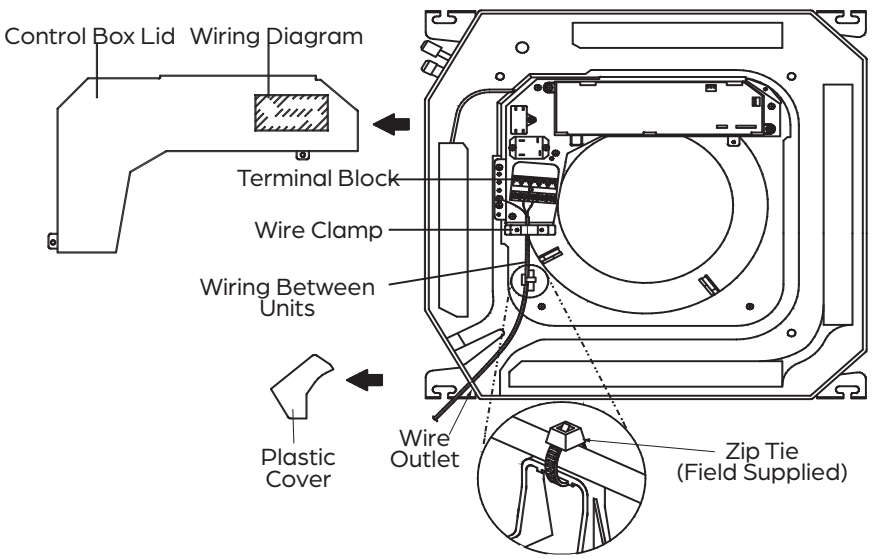
1. Prepare the cable for connection:
   - Using wire strippers, strip the jacket from both ends of the cable to reveal about 6" of the wires.
   - Strip the insulation from the ends of the wires.
   - Using a wire crimper, crimp u-lugs to the ends of the wires.
2. Open the control box lid of the indoor unit. Reference the wiring diagram located on the lid.
3. Unscrew the cable clamp below the terminal block and place it to the side.
4. Connect the supplied conduit mounting bracket if desired.

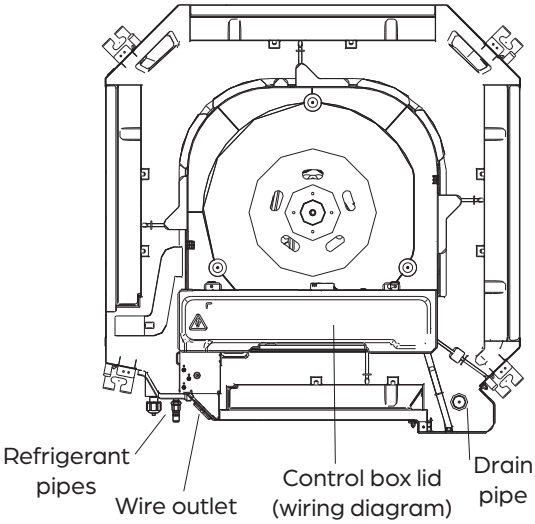


5. Feed the cable through wire outlet hole on the side of the unit.
6. Feed the wire through the magnetic ring supplied and secure the ring to wire below the terminal block.



7. Refer to the wiring diagram and connect the u-lugs to the terminal block. Firmly screw the u-lug of each wire to its corresponding terminal.
8. After checking to make sure every connection is secure, use the cable clamp to fasten the signal cable to the unit. Screw the cable clamp down tightly. Zip ties may also be provided to secure the wiring if needed.
9. Replace the control box lid.





WARNING

All wiring must be performed strictly in accordance with the wiring diagram located on the inside of the control box lid.

INDOOR UNIT BTU SETTING (FOR MULTI-ZONE)

The units in the chart below have the ability to operate in multiple BTU settings. These units come in the default setting "0" for automatic BTU identification in single zone applications. However, in multi-zone applications, **the BTU setting must be determined by the position of rotary switch ENC1** on the indoor unit board. Make sure to adjust this switch to the desired BTU capacity. If the indoor unit model number is not listed below, this step is not necessary.

CAUTION
UNIT MUST BE POWERED OFF BEFORE ADJUSTING ROTARY SWITCH

Default setting "0" | Change to "2" for 9,000 BTU/H | Change to "3" for 12,000 BUT/H

Indoor Unit Model	ENC1 Rotary Switch Settings (If Available)	
	9,000 BTU	12,000 BTU
DRAC0912F2A	2	3

STEP 6: PREPARE REFRIGERANT PIPING

1. If pre-existing refrigerant piping is already embedded in the wall, proceed directly to *Step 8: Install Panel*.
2. If there is no pre-existing piping, connect the indoor unit's refrigerant piping to the connective piping that will join the indoor and outdoor units. Refer to the *Refrigerant Piping Connections* section of the outdoor unit's installation manual for detailed instructions.

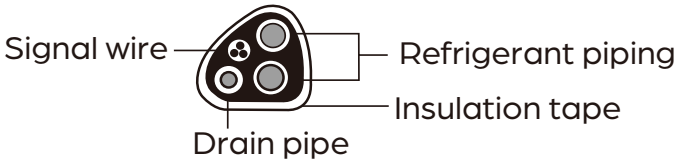
WARNING
Be extremely careful not to dent or damage the piping while bending them away from the unit. Any dents in the piping will affect the unit's performance.

IMPORTANT NOTE:
The TOTAL SYSTEM CHARGE WEIGHT should be noted on the label adjacent to the unit rating label on the outdoor unit.

STEP 7: WRAP PIPES AND CABLE

Before passing the refrigerant piping, drain pipe, and the signal cable through the wall hole, you must bundle them together to save space, protect them, and insulate them.

1. Bundle the drain pipe, refrigerant pipes, and signal cable as shown below:



NOTE

The drain pipe MUST be at the bottom of the bundle. Putting the drain pipe at the top of the bundle can cause the drain pan to overflow, which can lead to fire or water damage.

NOTE

DO NOT intertwine the signal cable with any of the other wires while bundling these items together.

2. Using adhesive vinyl tape, attach the drain pipe to the underside of the refrigerant pipes.
3. Using insulation tape, wrap the signal wire, refrigerant pipes, and drain pipe tightly together. Double-check that all items are bundled.

NOTE

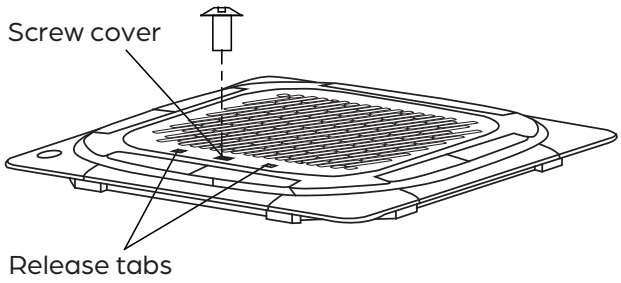
When wrapping the bundle, keep the ends of the piping unwrapped. You need to access them to test for leaks at the end of the installation process (refer to the *Electrical and Gas Leak Checks* section of the outdoor unit's installation manual).

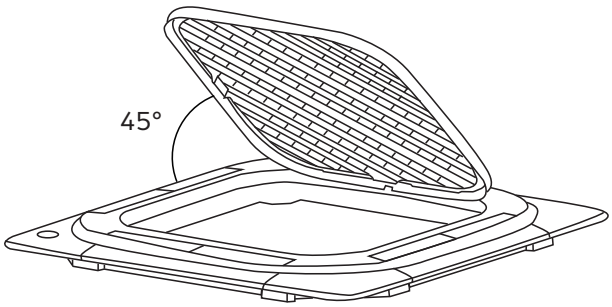
STEP 8: INSTALL PANEL

CAUTION

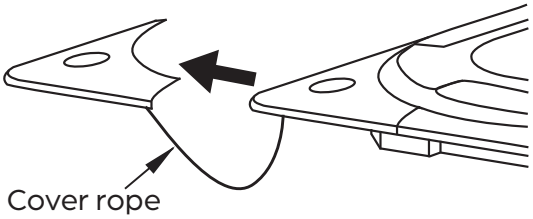
DO NOT place the panel face down on the floor, against a wall, or on uneven surfaces. Damage to the panel may result.

1. Remove the inner panel.
   - Push down on one side of the screw cover to expose and remove the grill screw.
   - Push both of the release tabs towards the middle simultaneously to unlock the latch on the panel.
   - Hold the panel at a 45°angle, lift it up slightly, and detach it from the main panel body.

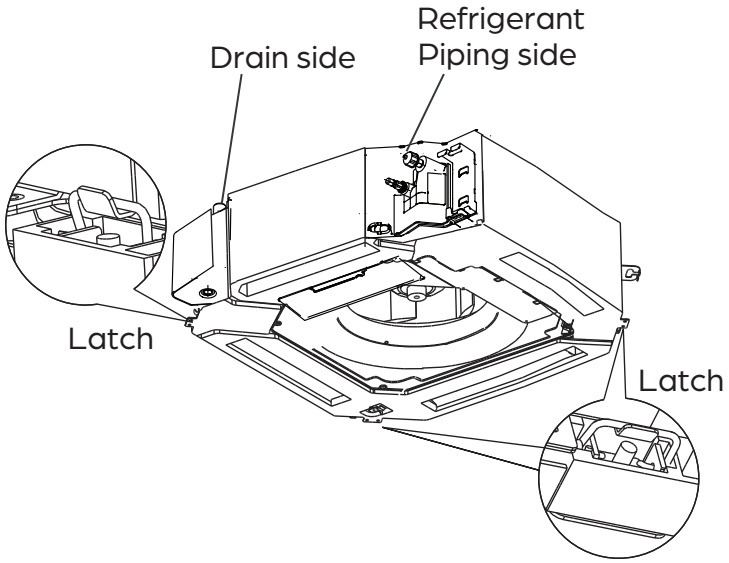




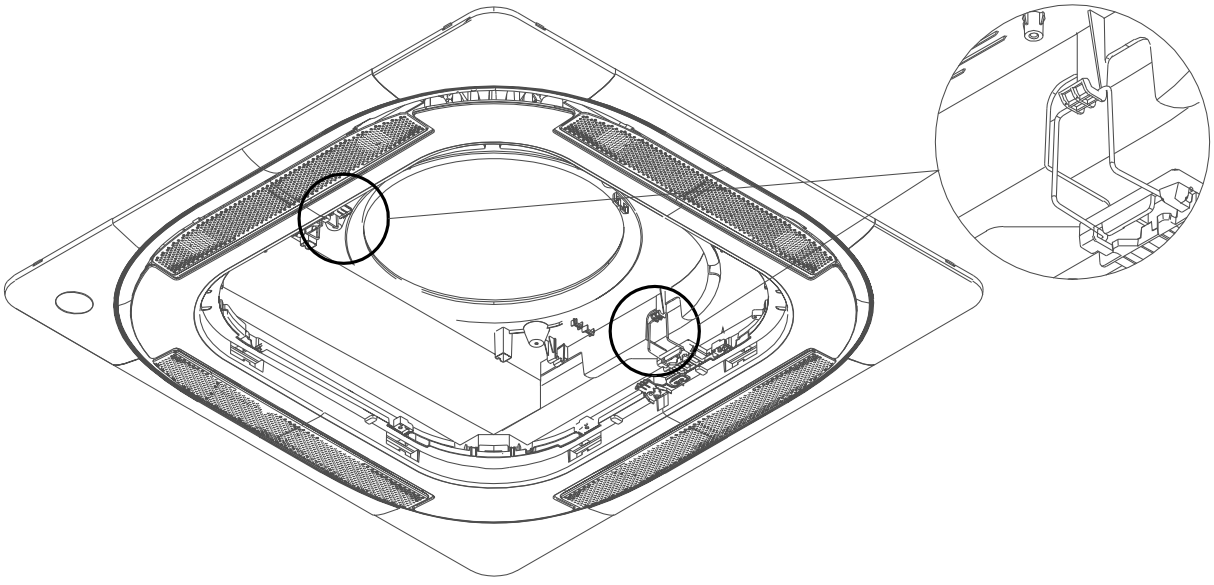
2. **On the 24k model (panel DRACPANB1B):** Remove the installation covers at each of the four corners in order to access the hooks on the main body when hanging the panel. Short ropes will keep the corners attached to the panel.



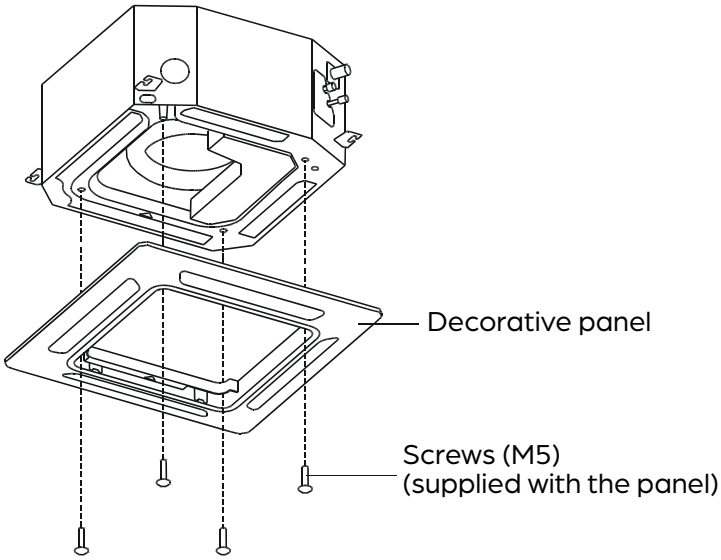
3. Install the main panel body by aligning the panel with the unit, taking into account the position of the refrigerant piping and drain sides. Hang the panel on these hooks to assist with the wiring and mounting process.



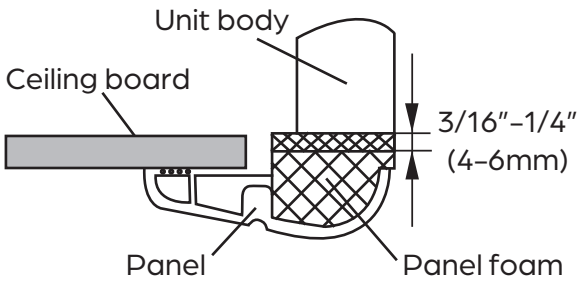
4. **On the 9–18k model (panel DRACPANA2A):** The unit has hooks on the inside air flow ring. Hang the panel on these hooks to assist with the wiring and mounting process.



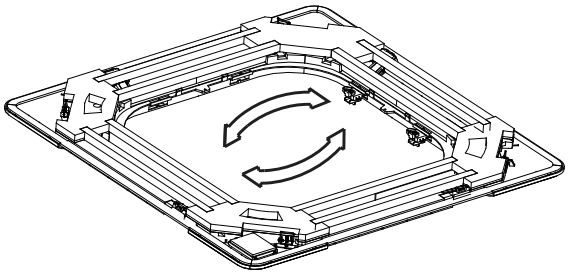
5. Screw the panel into the unit body.



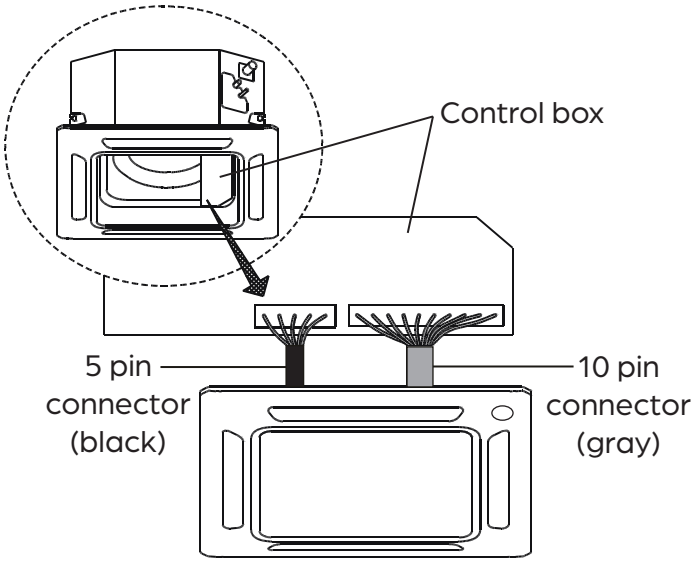
6. Tighten the panel hook screws evenly at the four corners so that the foam seal between the main panel and unit compacts to 3/16"–1/4" (4–6mm). The edge of the panel should be in contact with the ceiling board.



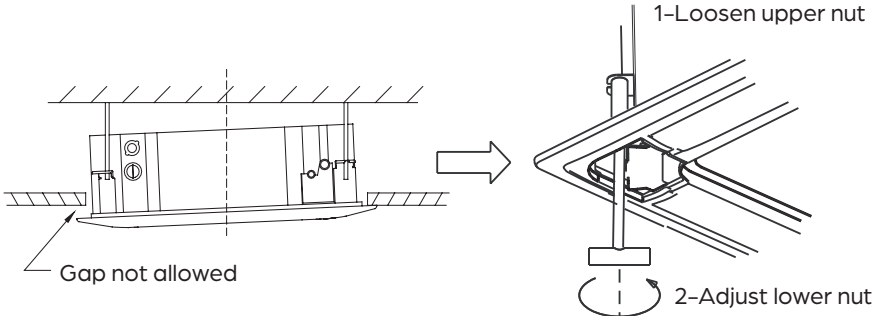
7. Carefully adjust the panel so that the ceiling opening is completely covered.



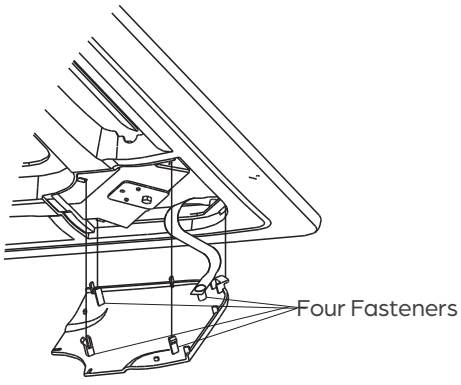
8. Connect the louver and display control cables to their corresponding sockets in the control box.



9. Remove the foam stops from inside the fan.
10. Attach and hang the inner panel from the panel main body.
11. Close the inner panel and replace the screw.
10. Reattach the installation covers at all four corners by snapping their fastener tabs into the corresponding slots on the panel.
11. Ensure that there is no space between the unit and panel. Any gaps may allow air to leak through and cause condensation leaks. If necessary, the height can be adjusted by loosening the upper nut, and adjusting the lower nut at each of the corners. Make sure the internal wiring and drain pipe are not affected by this adjustment.



12. Reinstall the installation cover plate by fixing the installation cover plate rope to the pillar of the installation plate and gently pressing the installation cover plate into the panel. When installing the cover, slide the four slide fasteners into the corresponding slots on the panel.



STEP 9: COMPLETE A WATER DISCHARGE TEST

Before the test, make sure that the water discharge pipeline is sloped smoothly and check that each connection is sealed properly. Conduct the water discharge test in the new room before the ceiling is installed.

1. Connect the power supply and set the air conditioner to operate in the cool mode. Check the running sound of the drainage pump.
2. Keep cool mode running for at least 10 min.
3. Stop the air conditioner. Wait for three (3) minutes, and then check if there is anything unusual. If the water discharge piping layout is not correct, the excessive water flow will cause the water level error and "EHOE" error code will be displayed on the display panel. There may even be water overflowing from the water pan.
4. If the water is not draining properly check the rise height and slope of the drain tubing. Also check to make sure there is not an obstruction.

TROUBLESHOOTING

SAFETY PRECAUTIONS

If ANY of the following conditions occurs, turn off your unit immediately!

• The power cord is damaged or abnormally warm

• 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!

COMMON ISSUES

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 three minutes of being turned off.
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 during the defrosting process.
The indoor unit makes noises	A rushing air sound may occur when the louver resets its position.
	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 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 operations.
	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.
Operation is erratic, unpredictable, or unit is unresponsive	Interference from cell phone towers and remote boosters may cause the unit to malfunction. In this case, try the following: • Disconnect the power, then reconnect. • Press ON/OFF button on remote control to restart operation.

NOTE

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

TROUBLESHOOTING

When troubles occur, 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.
	Low refrigerant due to leak or long-term use.	Check for leaks, re-seal if necessary and top off refrigerant.
	Excessive heat is generated by sunlight.	Block sunlight in installation area. 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 amount of heat sources.
Poor Heating Performance	The outdoor temperature is extremely low.	This model is designed to work down to -13°F, however, heating performance is impacted at temperatures below freezing.
	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.	Check for leaks, re-seal if necessary, and top off refrigerant.
The unit starts and stops frequently	There's too much or too little refrigerant in the system.	Check for leaks and recharge the system with refrigerant.
	Incompressible gas or moisture has entered the system.	Evacuate and recharge the system with refrigerant.
	The compressor is broken.	Replace the compressor.
	The voltage is too high or too low.	Install a manostat to regulate the voltage.

PROBLEM	POSSIBLE CAUSES	SOLUTION
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.
	Remote control batteries are dead.	Replace the batteries.
	The Unit's 3-minute protection has been activated.	Wait three minutes after restarting the unit.
	Timer is activated.	Turn timer off.
Indicator lamps continue flashing or error code appears	The unit may stop operation or continue to run safely. If the indicator lamps continue to flash or error codes appear, wait for about 10 minutes. The problem may resolve itself. If the problem persists, contact your nearest service technician.	

NOTE

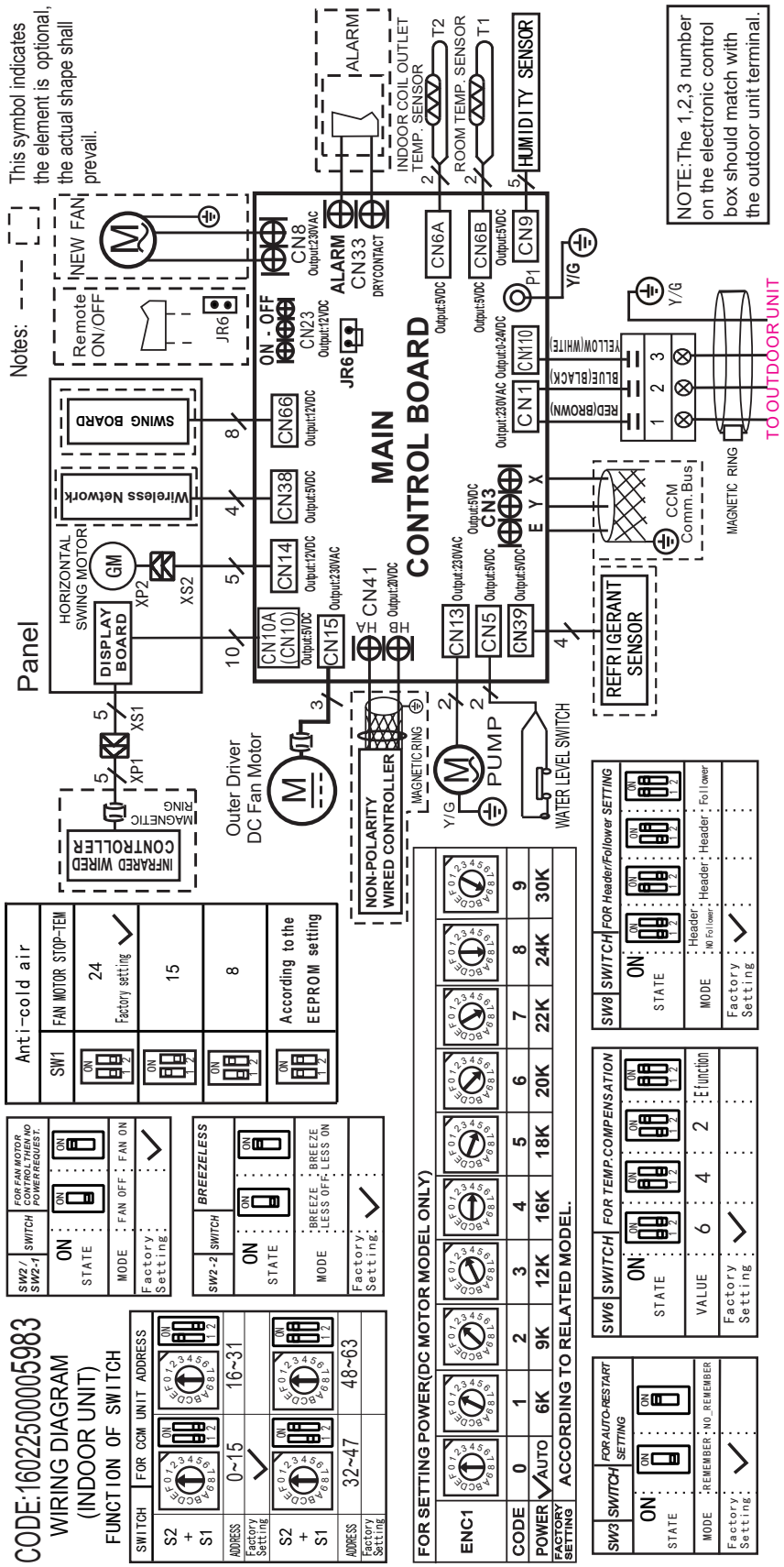
If your problem persists after performing the checks and diagnostics above, turn off your unit immediately and contact an authorized service center.

WARNING

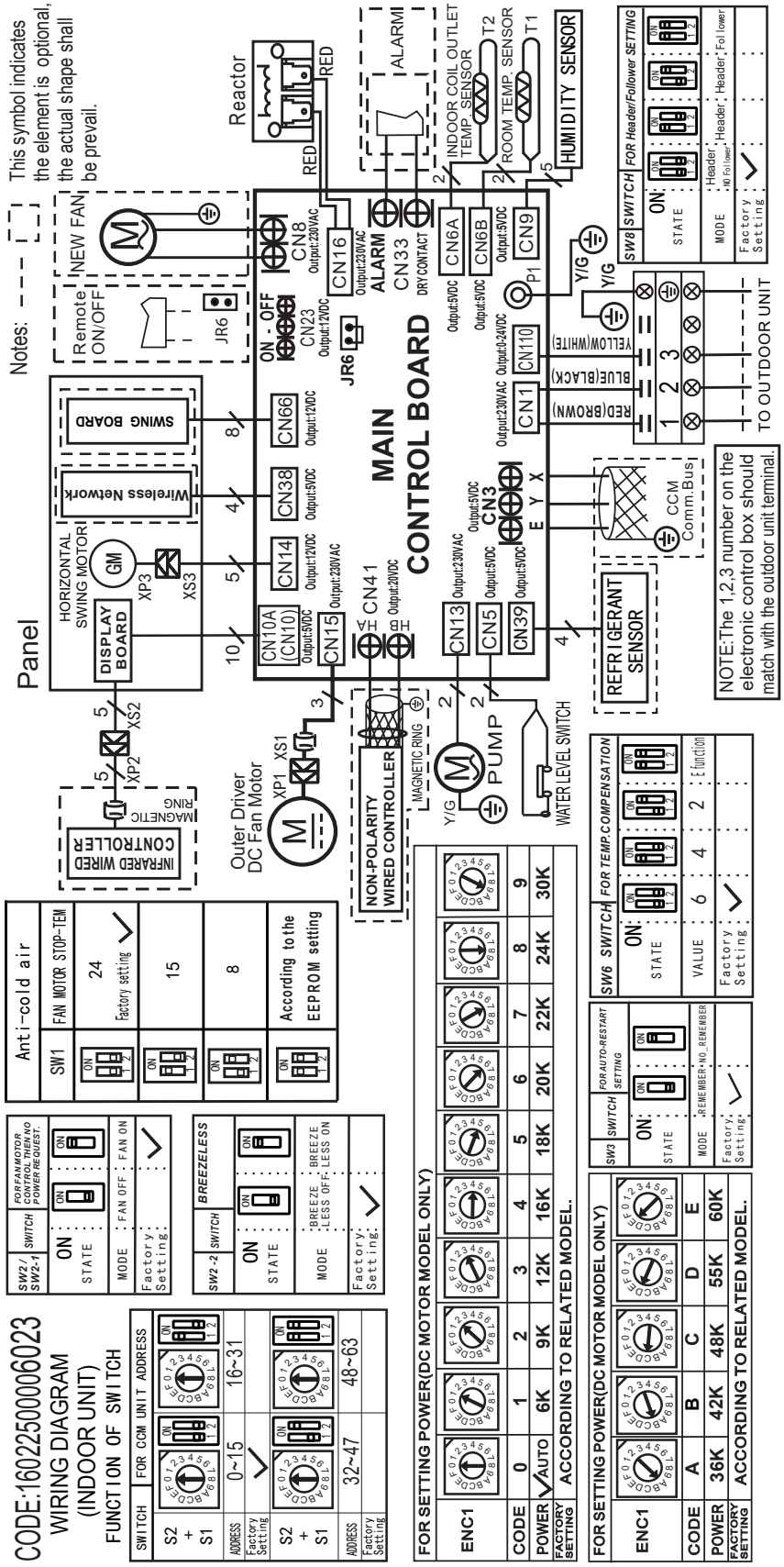
If error codes EHC1 or EHC2 flash, a refrigerant leak is detected. A buzzer will continue to beep for 5 to 6 minutes before stopping. You can also press any button on the remote controller to stop the buzzer. The unit will go into Turbo to mitigate the leak. Check connections and perform a leak test as described in the outdoor unit installation manual.

WIRING DIAGRAMS

DRAC0912F2A, DRAC18F2A



DRAC24F2A


CODE:1602250006023
WIRING DIAGRAM
(INDOOR UNIT)
FUNCTION OF SWITCH
Notes:
This symbol indicates the element is optional, the actual shape shall be prevail.
Panel
MAIN CONTROL BOARD
DISPLAY BOARD
HORIZONTAL SWING MOTOR
SWING BOARD
Wireless Network
Remote ON/OFF
NEW FAN
Reactor
ALARM
INDOOR COIL OUTLET TEMP. SENSOR
ROOM TEMP. SENSOR
HUMIDITY SENSOR
INFRARED WIRED CONTROLLER
NON-POLARITY WIRED CONTROLLER
MAGNETIC RING
Outer Driver DC Fan Motor
PUMP
WATER LEVEL SWITCH
REFRIGERANT SENSOR
CCM Comm.Bus
RED(BROWN)
BLUE(BLACK)
YELLOW(WHITE)
Y/G
TO OUTDOOR UNIT
NOTE:The 1,2,3 number on the electronic control box should match with the outdoor unit terminal.
Anti-cold air
FAN MOTOR STOP-TEM
Factory setting
According to the EEPROM setting
BREEZELESS
FOR FAN MOTOR CONTROL THEN NO POWER REQUEST.
FAN ON
FAN OFF
BREEZE LESS OFF
BREEZE LESS ON
FOR SETTING POWER(DC MOTOR MODEL ONLY)
ACCORDING TO RELATED MODEL.
FOR AUTO-RESTART SETTING
REMEMBER
NO REMEMBER
FOR TEMP.COMPENSATION
Function
FOR COM UNIT ADDRESS
0~15
16~31
32~47
48~63

ERROR CODES – INDOOR UNIT

CODE DISPLAYED	OPERATION OR ERROR DESCRIPTION
dF	Defrost (not an error code)
FC	Forced cooling (not an error code)
EC07	ODU fan speed out of control
EC51	ODU EEPROM parameter error
EC52	ODU coil temp. sensor (T3) error
EC53	ODU ambient temp. sensor (T4) error
EC54	COMP. discharge temp. sensor (TP) error
EC56	IDU coil outlet temp. sensor (T2B) error
ECC1	Other IDU refrigerant sensor detects leakage (Multi-zone)
EH00	IDU EEPROM malfunction
EH03	IDU fan speed out of control
EH0A	IDU EEPROM parameter error
EH0E	Water-level alarm malfunction
EH12	Main unit or secondary units malfunction
EH3A	External fan DC bus voltage is too low protection
EH3b	External fan DC bus voltage is too high fault
EH60	IDU room temp. sensor (T1) error
EH61	IDU coil temp. sensor (T2) error
EHbA	Communication error between the indoor unit and the external fan module
EHC1	Refrigerant sensor detects leakage
EHC2	Refrigerant sensor is out of range and leakage is detected
EHC3	Refrigerant sensor is out of range
EL01	IDU & ODU communication error
EL0C	System lacks refrigerant
EL11	Communication malfunction between main unit and secondary units
FHCC	Refrigerant sensor error
PC00	ODU IPM module protection
PC01	ODU voltage protection
PC02	Compressor top (or IPM) temp. protection
PC03	Pressure protection (low or high pressure)
PC04	Inverter compressor drive error
PC0L	Low ambient temperature protection
----	IDUs mode conflict (Multi-zone)