DURASTAR

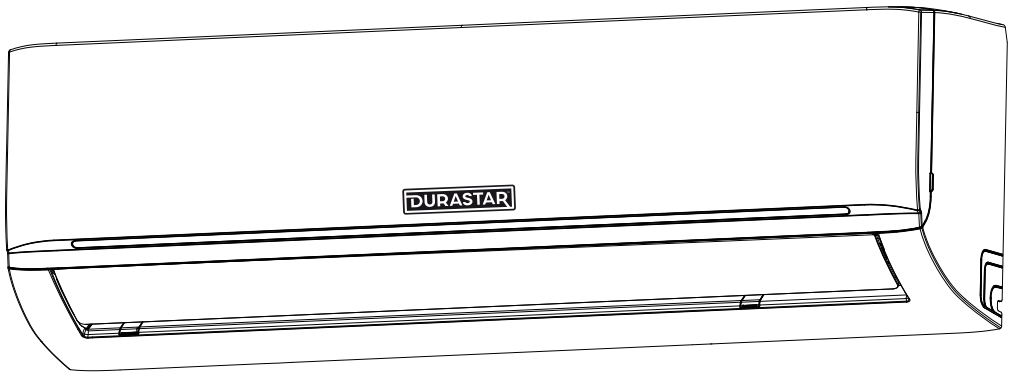
INSTALLATION MANUAL

WALL MOUNTED INDOOR UNIT

SPLIT-STYLE AIR CONDITIONER

DRAW06F2A, DRAW09F2A, DRAW12F2A,
DRAW18F2A, DRAW24F2A, DRAW33F2A

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.

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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 install this air conditioner.
- 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. 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.

5. Cabling

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.

6. 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.

7. 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.

8. 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.

9. 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.

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.

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.

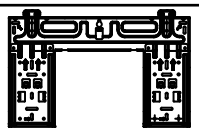
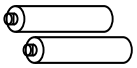
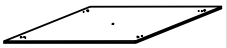
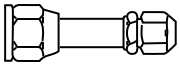
A_{min}: REQUIRED MINIMUM ROOM AREA: ft² (m²)

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.					

ACCESSORIES

INCLUDED INSTALLATION ACCESSORIES

The air conditioning system comes with the following accessories.

Accessory	Quantity	Image	Accessory	Quantity	Image
Manual	1–2		Remote Control	1	
Mounting Plate	1		Battery	2	
Wall Anchor	5–8 (depending on model)		Remote Control Holder	1	
Mounting Plate Screw	5–8 (depending on model)		Remote Control Holder Mounting Screw	2	
Copper Nut	2		Installation Template	1	
Drain Joint	1		Carbon Filter	2	
Drain Joint Seal	1		Refrigerant Pipe Adapter (included with DRAW33F2A)	1	 3/4" –> 5/8"

NOTE

When the DRAW33F1B indoor unit is installed with a multi-zone outdoor unit, you must purchase refrigerant pipe with a liquid side size of Φ3/8in (Φ9.52mm) and a gas side size of Φ5/8in (Φ16mm). The refrigerant pipe adapter included with the indoor unit must be installed on the indoor unit.

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
- Wiring u-lugs

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

SPECIFICATION OVERVIEW

The table below includes basic specifications for this unit. For more detailed specifications please refer to the submittals on DURASTAR.COM. Durastar reserves the right to change specifications without notice.

MODEL	BTUH	LIQUID PIPE	SUCTION PIPE	NET WEIGHT	INDOOR UNIT DIMENSIONS					
					W		H		D	
		in (mm)	in (mm)	lbs (kg)	In	mm	In	mm	In	mm
DRAW06F2A	6,000	1/4 (6.35)	3/8 (9.52)	18 (8)	28-11/16	729	11-1/2	292	7-7/8	200
DRAW09F2A	9,000	1/4 (6.35)	3/8 (9.52)	19 (9)	31-9/16	802	11-5/8	295	7-5/8	200
DRAW12F2A	12,000	1/4 (6.35)	3/8 (9.52)	19 (9)	31-9/16	802	11-5/8	295	7-5/8	200
DRAW18F2A	18,000	1/4 (6.35)	1/2 (12.7)	30 (14)	42-9/16	1082	13-1/4	337	9-5/8	234
DRAW24F2A	24,000	3/8 (9.52)	5/8 (15.9)	31 (14)	42-9/16	1082	13-1/4	337	9-5/8	234
DRAW33F2A	33,000	3/8 (9.52)	3/4 (19)*	43 (20)	49-9/16	1259	14-1/4	362	11-1/8	283

* Use 3/4" (19mm) to 5/8" (16mm) refrigerant pipe adapter provided for multi-zone applications.

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

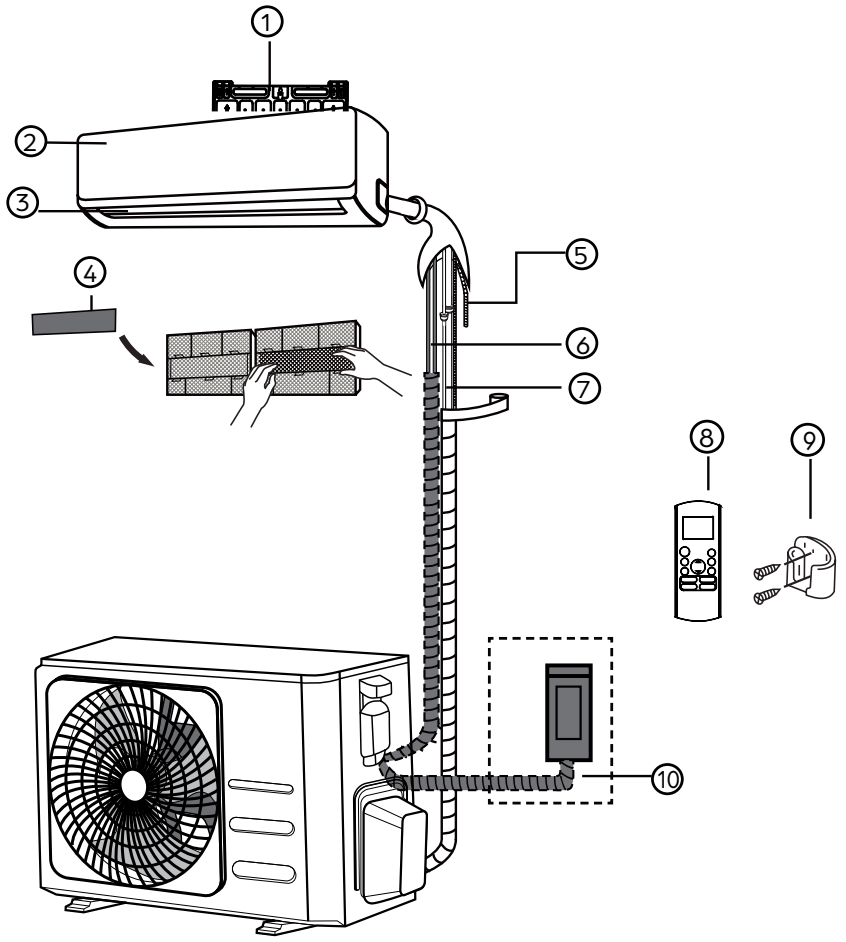
Your Durastar air conditioner's outdoor unit is equipped with a base pan heater, allowing it to continue to operate at freezing temperatures as low as –22°F (–30°C). When outdoor air temperatures are at or below 32°F (0°C), we strongly recommend keeping the unit plugged in at all times to ensure smooth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

PARTS IDENTIFICATION

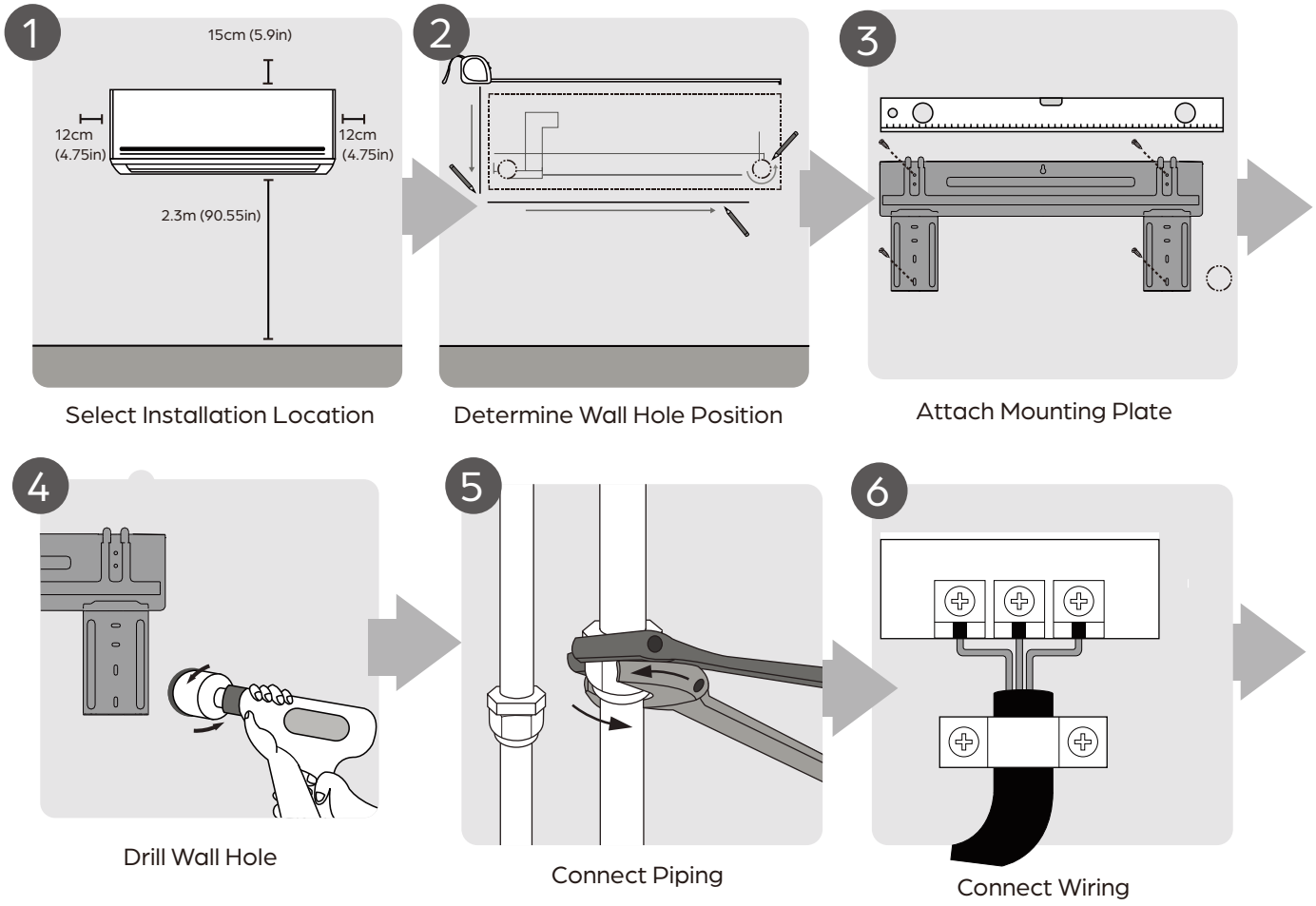
NOTE
The installation must be performed in accordance with the required local and national standards. The installation may be slightly different in different areas.



1. Wall Mounting Plate
2. Front Panel
3. Air Flow Louver
4. Air Freshness (Carbon) Filter
5. Drain Pipe
6. Signal Cable
7. Refrigerant Piping
8. Remote Controller
9. Remote Controller Holder
10. Outdoor Unit Power Cable

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

INSTALLATION OVERVIEW – INDOOR UNIT



INDOOR UNIT INSTALLATION

STEP 1: SELECT INSTALLATION LOCATION

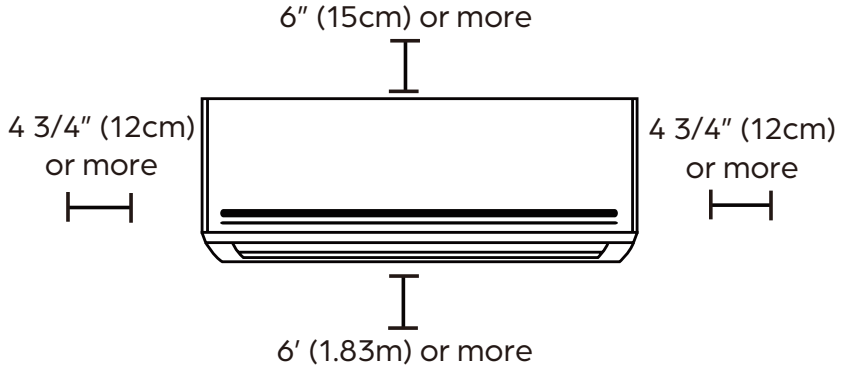
Before installing the indoor unit, you must choose an appropriate location. The following standards must be met for an appropriate location for the unit:

- 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 three feet (one meter) from all other electrical devices (e.g., TV, radio, computer)

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 diagram to ensure proper distance from walls and ceiling:

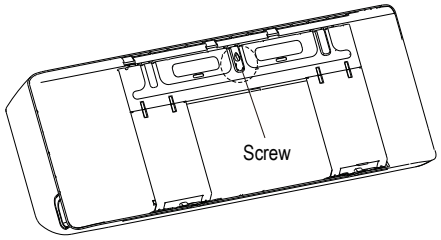


NOTE

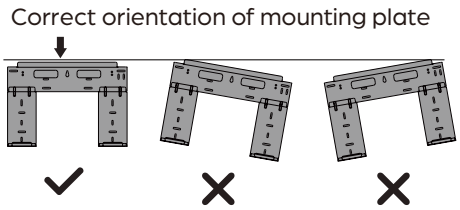
If there is no pre-existing refrigerant piping, when choosing a location, leave ample room for a wall hole (see *Step 3: Drill Wall Hole for Connective Piping*) for the signal cable and refrigerant piping that connect the indoor and outdoor units. The default position for all piping is the right side of the indoor unit (while facing the unit). However, the unit can accommodate piping to either the left or right.

STEP 2: ATTACH MOUNTING PLATE TO WALL

1. Remove the screw that attaches the mounting plate to the back of the indoor unit. The mounting plate is the bracket on which you will mount the indoor unit.



2. Secure the mounting plate to the wall with the anchors and screws provided. Make sure that mounting plate is flat against the wall, and is level.



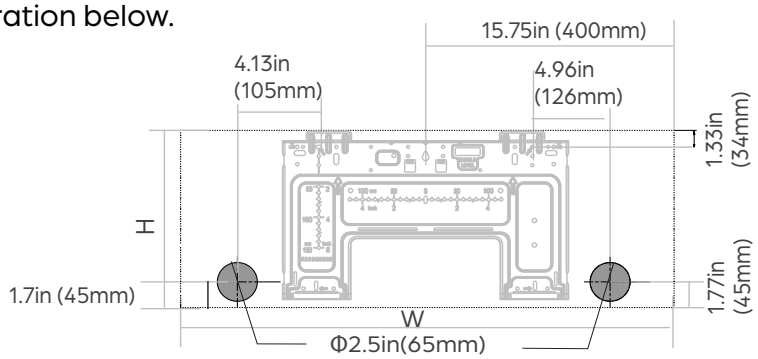
NOTE

If the wall is made of brick, concrete, or similar material, drill 5mm–diameter (0.2in diameter) holes in the wall and insert the sleeve anchors provided. Then secure the mounting plate to the wall by tightening the screws directly into the clip anchors.

STEP 3: DRILL WALL HOLE FOR CONNECTIVE PIPING

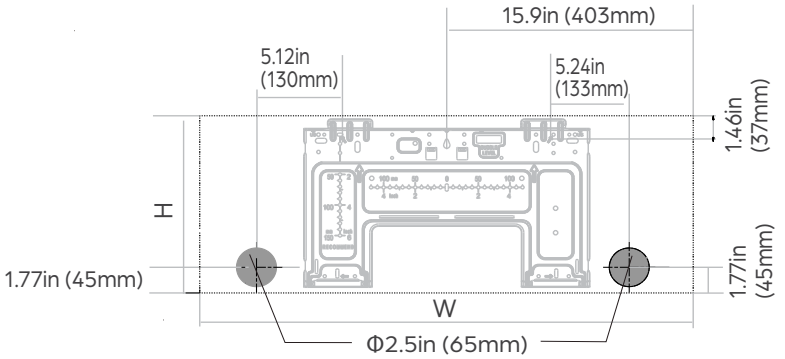
1. Determine the location of the wall hole based on your unit's mounting plate dimensions. Use the installation template provided with the indoor unit to correctly position the wall hole, or refer to the illustration below.

DRAW06F2A



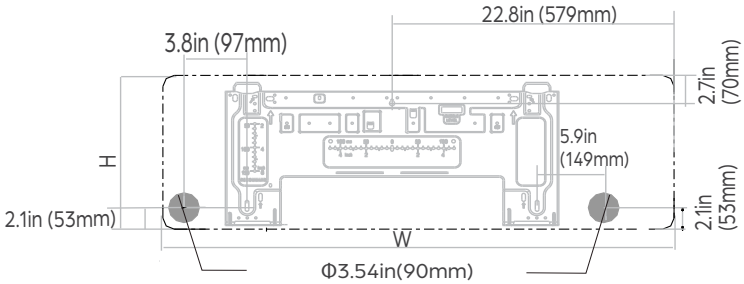
Indoor unit dimensions (WxH):
28.7in (729mm) x 11.5in (293mm)

DRAW09F2A & DRAW12F2A



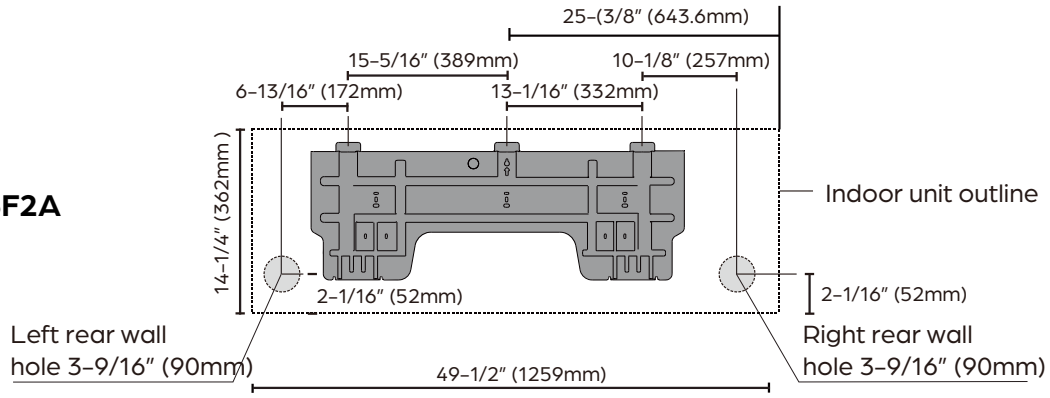
Indoor unit dimensions (WxH):
31.7in (806mm) x 11.65in (296mm)

DRAW18F2A & DRAW24F2A

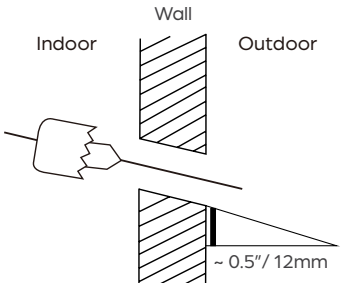


Indoor unit dimensions (WxH):
42.6in (1082mm) x 13.3 (338mm)

DRAW33F2A



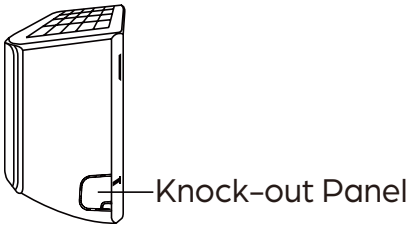
2. Using a 2-1/2" (65mm) core drill for units with a gas side connective pipe less than 5/8" (16mm), or 3-1/2" (90mm) for units with a gas side pipe greater than or equal to 5/8" (16mm), drill a hole in the wall. Make sure that the hole is drilled at a slight downward angle, so that the outdoor end of 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 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 cover to the wall sleeve on the outside end. Make sure the cover is flush with the outside wall.

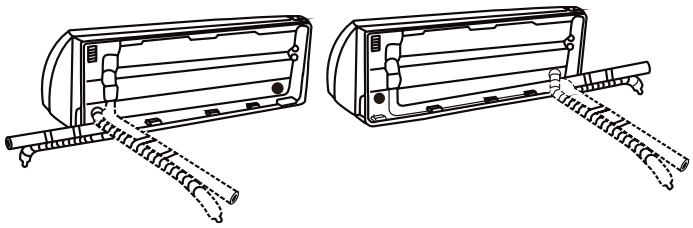
STEP 4: PREPARE REFRIGERANT PIPING

1. Based on the position of the wall hole relative to the mounting plate, choose the side from which the piping will exit the unit (left or right).
2. If the wall hole is behind the unit, do not remove the knock-out panel. If the wall hole is to the side of the indoor unit, remove the plastic knock-out panel from that side of the unit. This will create a slot through which your piping can exit the unit. Use needle nose pliers or cutters if the plastic panel is too difficult to remove by hand. Grooves have been made in the knock-out panel in order to cut it to size conveniently. The size of the piece removed is determined by the diameter of the piping.



3. If pre-existing connective piping is already embedded in the wall, proceed directly to *Step 5: Connect the Drain Pipe*. 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 your outdoor unit's installation manual for detailed instructions.

4. Position the piping to align with the wall hole. The refrigerant piping can exit the indoor unit from four different angles: left-hand side, right-hand side, left rear, or right rear.

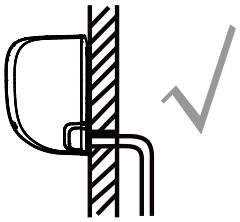


WARNING
Be extremely careful not to dent or damage the piping while bending them away from the unit. Any dents in the piping will affect the unit's performance.

STEP 5: CONNECT THE DRAIN PIPE

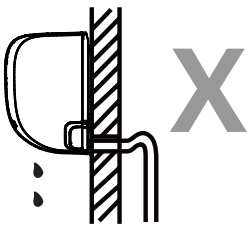
By default, the unit's drain pipe is attached to the left-hand side of unit (when you're facing the back of the unit). However, it can also be attached to the right-hand side. To ensure proper drainage, attach the drain pipe on the same side that your refrigerant piping exits the unit. Attach any drain pipe extension (purchased separately) to the end of the drain pipe. Any drain pipe extension must have an inner diameter of 5/8" (16mm) and tightly fit the unit's existing drain pipe.

- Wrap the connection point firmly with Teflon tape to ensure a good seal and to prevent leaks.
- For the portion of the drain pipe that will remain indoors, wrap it with foam pipe insulation to prevent condensation.
- Remove the air filter and pour a small amount of water into the drain pan to make sure that water flows from the unit smoothly.
- Make sure to arrange the drain pipe according to the following illustration.



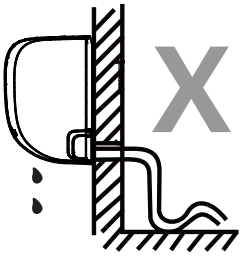
CORRECT

Make sure there are no kinks or dents in drain pipe to ensure proper drainage.



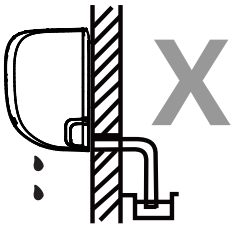
NOT CORRECT

Kinks in the drain pipe will create water traps.



NOT CORRECT

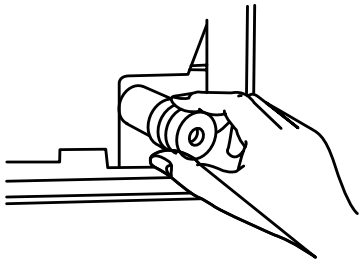
Kinks in the drain pipe will create water traps.



NOT CORRECT

Do not place the end of the drain pipe in water or in containers that collect water. This will prevent proper drainage.

WARNING
PLUG THE UNUSED DRAIN HOLE. To prevent unwanted leaks you must plug the unused drain hole with the rubber plug provided.



STEP 6: CONNECT SIGNAL CABLE

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. If the unit has an auxiliary electric heater, it must be installed at least 40" away from any combustible materials.
12. 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.

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

WARNING
DO NOT MIX UP LIVE AND NULL WIRES
This is dangerous, and can cause the air conditioning unit to malfunction.

The signal cable enables communication between the indoor and outdoor units. You must first choose the right cable size before preparing it for connection. Run a continuous length of cable and avoid splicing the cable.

CABLE SIZING

USE THE RIGHT CABLE

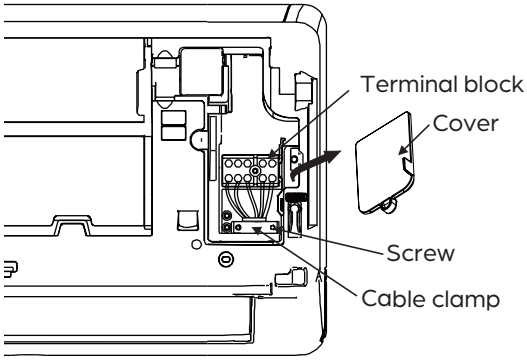
- Indoor Power/ Signal Cable: 14/4 stranded, unshielded
- Outdoor Power Cable: Determined by amperage of system and the local codes in your area.

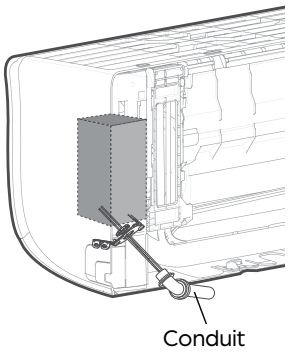
Choose the correct size of cable

The size of the power supply 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

1. Open front panel of the indoor unit.
2. Using a screwdriver, open the wire box cover on the right side of the unit. This will reveal the terminal block.
3. Unscrew the cable clamp below the terminal block and place it to the side.
4. Facing the back of the unit, remove the plastic knock-out panel on the bottom left-hand side.
5. Feed the signal wire through this slot, from the back of the unit to the front.





6. Connect a spade u-lug onto the end of each wire
7. Facing the front of the unit, connect the wire according to the indoor unit's wiring diagram and firmly screw each wire lug 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.
9. Replace the wire cover on the front of the unit and the plastic panel on the back.

WARNING

All wiring must be performed strictly in accordance with the wiring diagram located on the back of the indoor unit's front panel.

STEP 7: PREPARE REFRIGERANT PIPING

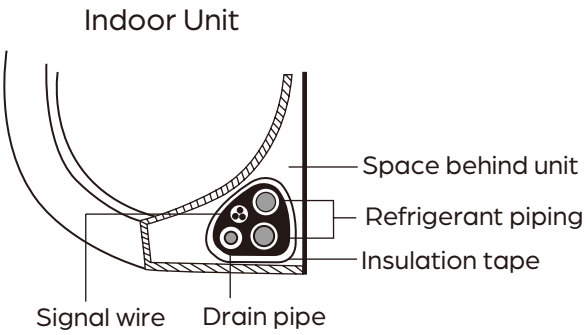
1. If pre-existing refrigerant piping is already embedded in the wall, skip to Step 9. Then, begin the outdoor unit installation. Refer to the *Refrigerant Piping Connections* section of the outdoor unit's installation manual for detailed instructions.
2. If there is no pre-existing piping, connect the 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
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.

STEP 8: WRAPPING THE CABLES

Before passing the 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 Electrical and Gas Leak Checks section of this manual).

STEP 9: MOUNT INDOOR UNIT

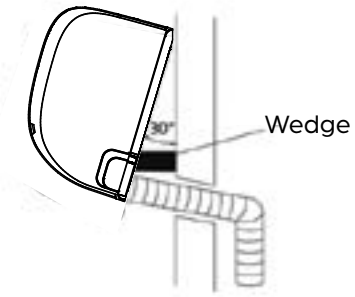
If you installed new connective piping to the outdoor unit, do the following:

1. If you have already passed the refrigerant piping through the hole in the wall, proceed to #4.

2. Double-check that the ends of the refrigerant pipes are sealed to prevent dirt or foreign materials from entering the pipes.
3. Slowly pass the wrapped bundle of refrigerant pipes, drain pipe, and signal wire through the hole in the wall.
4. Hook the top of the indoor unit on the upper hook of the mounting plate.
5. Check that the unit is hooked firmly on the mounting by applying slight pressure to the left- and right-hand sides of the unit. The unit should not jiggle or shift.
6. Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.
7. Again, check that the unit is firmly mounted by applying slight pressure to the left and the right-hand sides of the unit.

If refrigerant piping is already embedded in the wall, do the following:

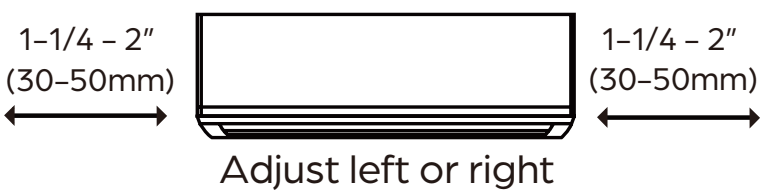
1. Hook the top of the indoor unit on the upper hook of the mounting plate.
2. Use a bracket or wedge to prop up the unit, giving you enough room to connect the refrigerant piping, signal cable, and drain pipe.



NOTE
We recommend a second person is present to assist with supporting the indoor unit while the first person makes all applicable connections.

3. Connect drain pipe and refrigerant piping (refer to the Refrigerant Piping Connections section of the outdoor unit installation manual for instructions).
4. Keep pipe connection point exposed to perform the leak test (refer to Electrical and Gas Leak Checks section of the outdoor unit's installation manual).
5. After the leak test, wrap the connection point with insulation tape.
6. Remove the bracket or wedge that is propping up the unit, if applicable.
7. Using even pressure, push down on the bottom half of the unit. Keep pushing down until the unit snaps onto the hooks along the bottom of the mounting plate.

NOTE
The indoor unit is adjustable. The hooks on the mounting plate are smaller than the holes on the back of the unit. If you find that you don't have ample room to connect embedded pipes to the indoor unit, the unit can be adjusted left or right by about 1-1/4-2" (30-50mm), depending on the model.



Adjust left or right

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.

ISSUE	POSSIBLE CAUSES
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.

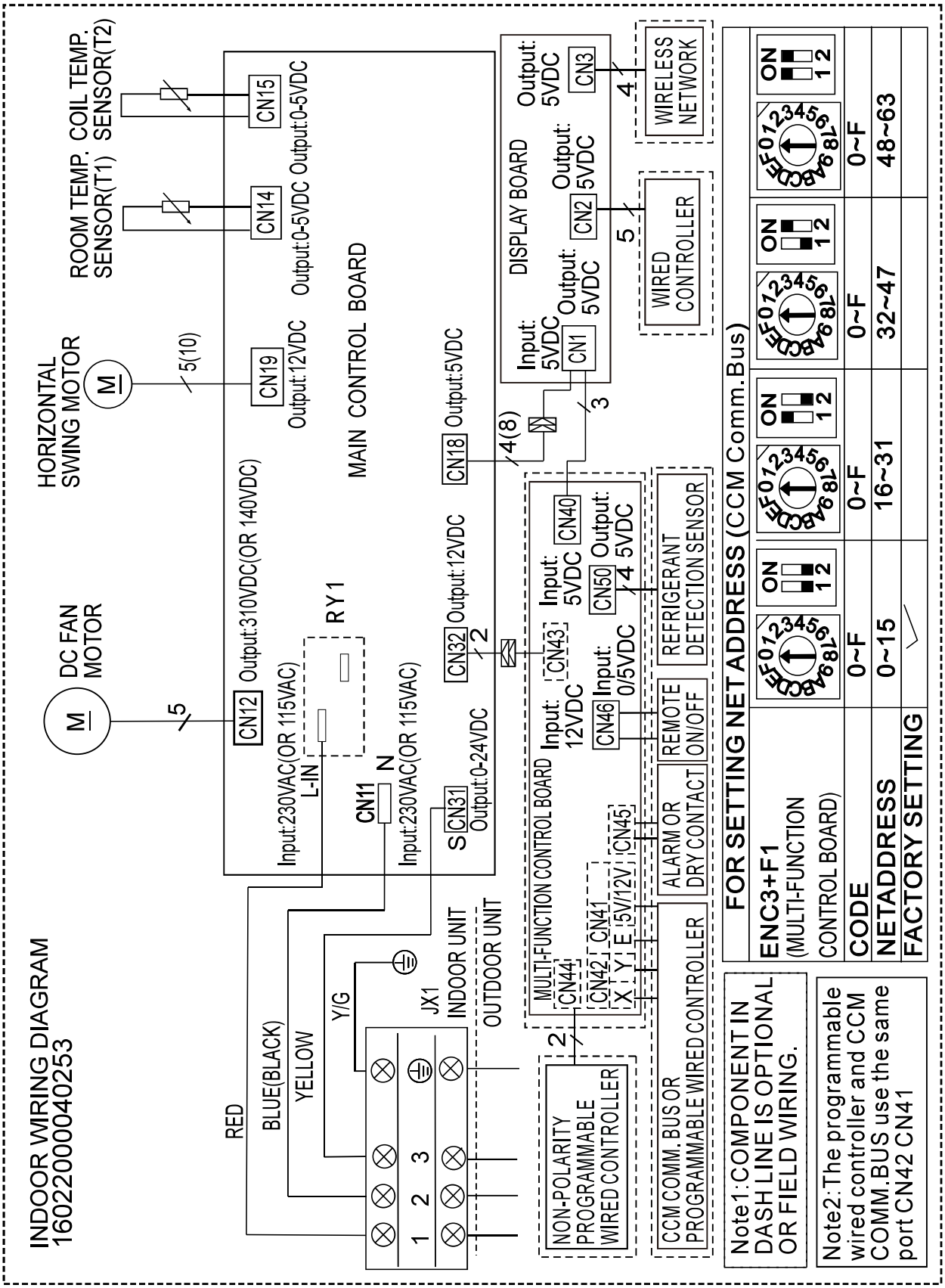
PROBLEM	POSSIBLE CAUSES	SOLUTION
Poor Cooling Performance	Temperature setting may be higher than ambient room temperature.	Lower the temperature setting.
	The heat exchanger on the indoor or outdoor unit is dirty.	Clean the affected heat exchanger.
	The air filter is dirty.	Remove the filter and clean 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.
	Low refrigerant due to leak or long-term use.	Check for leaks, re-seal if necessary and top off refrigerant.
	SILENCE function is activated	SILENCE function can lower product performance by reducing operating frequency. Turn off SILENCE function.
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	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 not, disconnect the power, then connect it again. Turn the unit on. If the problem persists, disconnect the power and contact your nearest customer service center.	

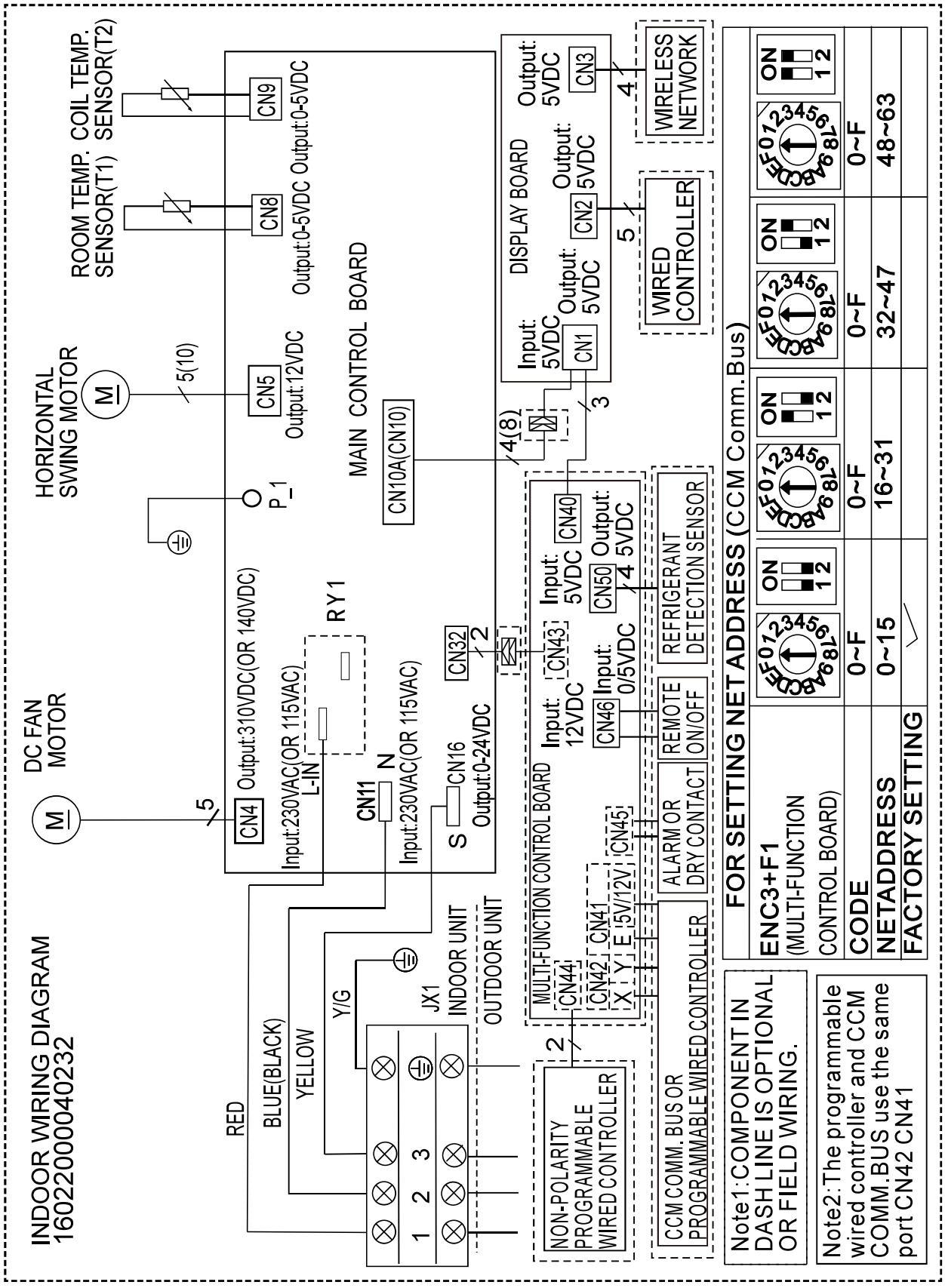
NOTE
If your problem persists after performing the checks and diagnostics above, turn off your unit immediately and contact an authorized service center.

WIRING DIAGRAMS

DRAW06F2A, DRAW09F2A, and DRAW12F2A



DRAW18F2A, DRAW24F2A, and DRAW33F2A



ERROR AND OPERATING CODES

CODE DISPLAYED	OPERATION OR ERROR DESCRIPTION
dF	Defrost
CL	Filter cleaning reminder (power on display for 15 seconds)
CL	Active clean
F	Filter replacement reminder (power on display for 15 seconds) (for some models)
FP	Heating in room temperature under 8°C
FC	Forced cooling
AP	AP mode of WIFI connection
CP	Remote switched off
EC 07	ODU fan speed out of control
EC 51	ODU EEPROM parameter error
EC 52	ODU coil temp. sensor (T3) error
EC 53	ODU ambient temp. sensor (T4) error
EC 54	COMP. discharge temp. sensor (TP) error
EC 56	IDU coil outlet temp. sensor (T2B) error(Multi-zone)
EC C1	Other IDU refrigerant sensor detects leakage (Multi-zone)
EH 00	IDU EEPROM malfunction
EH 02	Zero-crossing signal detection error
EH 03	IDU fan speed out of control
EH 0A	Indoor EEPROM parameter error
EH 0b	IDU main control board and display board communication error
EH 60	IDU room temp. sensor (T1) error
EH 61	IDU pipe temp. (T2) sensor error
EH C1	Refrigerant sensor detects leakage
EH C2	Refrigerant sensor is out of range and leakage is detected
EH C3	Refrigerant sensor is out of range
EL 01	IDU & ODU communication error
EL 0C	System lacks refrigerant
FH CC	Refrigerant sensor error
PC 00	ODU IPM module protection
PC 01	ODU voltage protection
PC 02	Compressor top (or IPM) temp. protection
PC 03	Pressure protection(low or high pressure)(for some models)
PC 04	Inverter compressor drive error
PC 0L	Low ambient temperature protection(for some models)
----	IDUs mode conflict(Multi-zone)

When the unit detects a refrigerant leak, the indoor unit will operate in Turbo mode to mitigate refrigerant collecting in the unit. The minimum airflow of the indoor unit is as follows:

MODEL	NOMINAL AIR VOLUME	
DRAW06F2A	400m³/h	235CFM
DRAW09F2A	500m³/h	295CFM
DRAW12F2A	500m³/h	295CFM
DRAW18F2A	850m³/h	500CFM
DRAW24F2A	1000m³/h	590CFM
DRAW33F2A	1150m³/h	675CFM

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