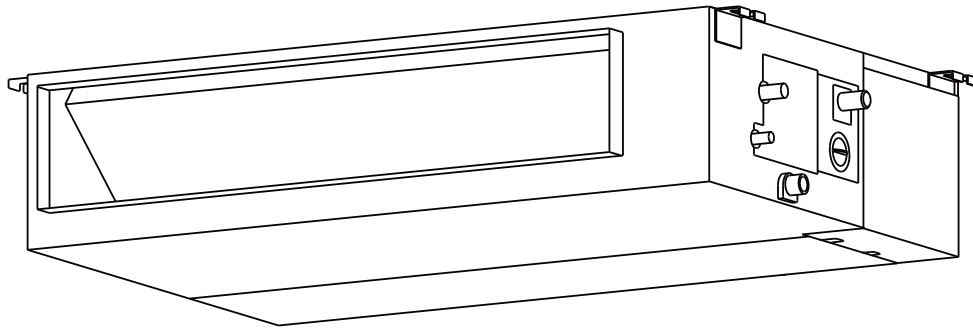


INSTALLATION MANUAL

**SLIM DUCTED INDOOR UNIT
SPLIT-STYLE AIR CONDITIONER**

DRAD09F1A, DRAD12F1A, DRAD18F1A, DRAD24F1A



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 owner's manual carefully to help you use and maintain your 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.

WARNINGS

Symbols Used in This Manual



The warning symbol indicates cautionary information for the user. Extra care and precautions should be taken to ensure the user's safety.



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



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.

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 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.
- 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.
- After removing the filter, do not touch the fins in order to avoid injury.
- Maintenance must be performed by qualified professionals. Otherwise, you may experience personal injury or damage to the air conditioner and surrounding property.
- Do not repair the air conditioner by yourself. It may cause electric shock or damage. Please contact a qualified service representative when you need to repair the air conditioner.
- Do not block the air outlet or air inlet. This could cause a malfunction.
- Do not spill water on the remote control as this can permanently damage the remote.
- 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.
- If the air conditioner operates under abnormal conditions, it may cause malfunctions, electric shock, or fire hazard.
- When turning the unit on or off via the emergency operation switch, press the switch with an insulated object other than metal.
- 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.
- Cleaning and user maintenance should not be performed by children without supervision.
- Do not spray water on the indoor unit. This could cause electric shock or a unit malfunction.
- 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 use fire or a hair dryer to dry the filter. This could cause a deformation or fire hazard.
- Do not wash the air conditioner with water as this could cause an electric shock.
- Disconnect the power supply by turning it off at the circuit breaker when cleaning the air conditioner. Otherwise, you could risk electric shock.



Electrical Safety

- Only use the specified power cord. If the power cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a hazard.
- Keep the 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 the 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 connect the air conditioner to a multi-purpose socket. Doing so could cause a fire hazard.
- 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.
- 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.
- The air conditioner's circuit board (PCB) is designed with a fuse to provide overcurrent 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.

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 and unplug the unit during storms.
- 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.

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	62°F - 90°F (17°C - 32°C)	32°F - 86°F (0°C - 30°C)	50°F - 90°F (10°C - 32°C)
Outdoor Air Temperature	-13°F - 122°F (-25°C - 50°C)	-13°F - 86°F (-25°C - 30°C)	32°F - 122°F (0°C - 50°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 -13°F (-25°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.


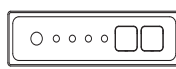



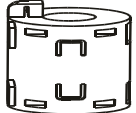

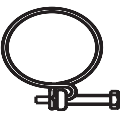

NOTE

 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.

ACCESSORIES

INCLUDED INSTALLATION ACCESSORIES

The air conditioning system comes with the following accessories.

Accessory	Quantity	Image	Accessory	Quantity	Image
Manual	1-2		Display Panel	1	
Soundproof Insulation Sheath	1		Wired Thermostat	1	
Cord Protector	1		Magnetic Ring (Some Models)	1-2	
Copper Nut	2		Drain Pipe Worm Clamp	2	
Drain Pipe Insulation Sheath	1				

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

TOOLS NEEDED

The following tools are required for installation.

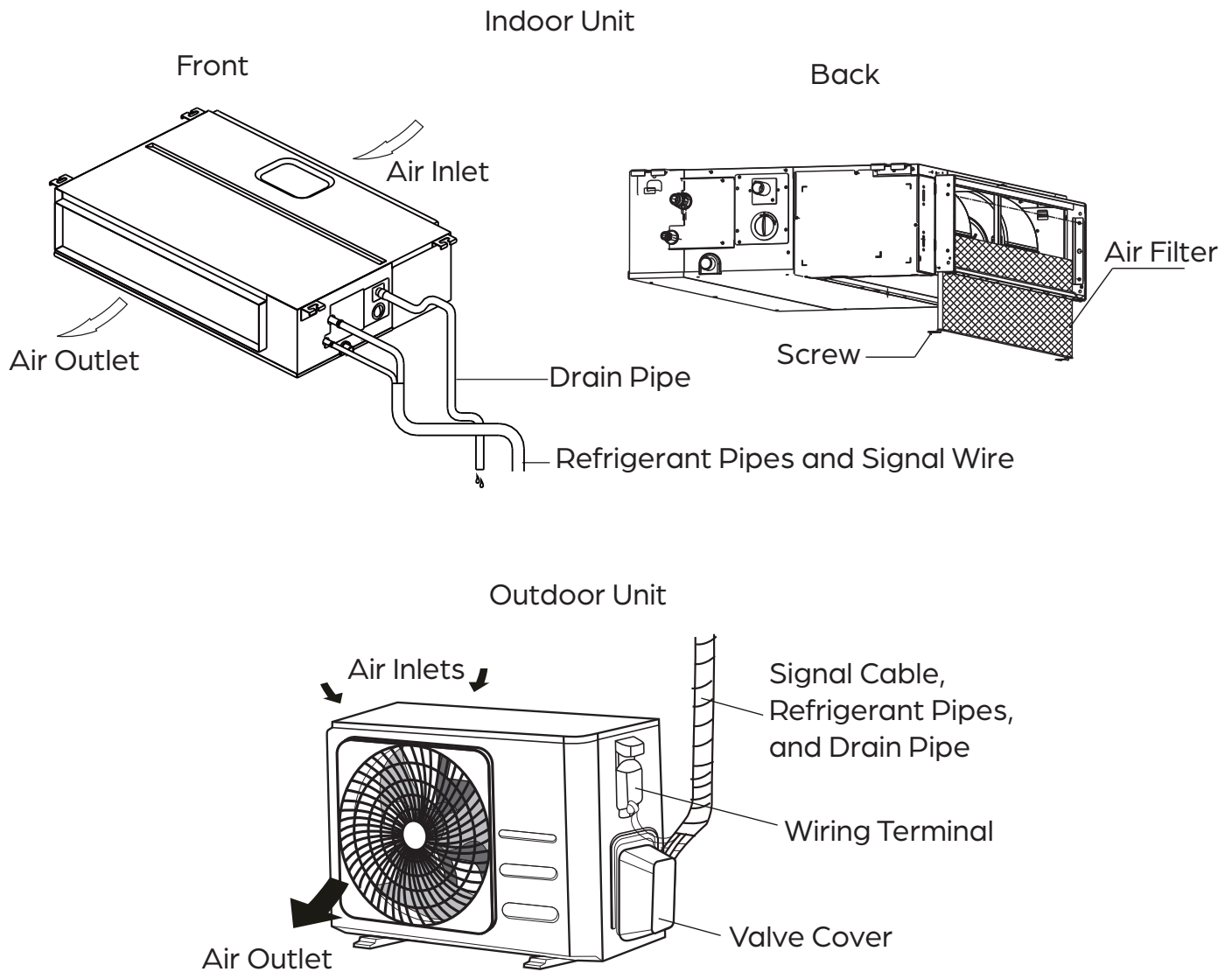
- Phillips screwdriver
- Drill with 2 1/2" or 3 1/2" (indoor unit model depending) core bit
- Vacuum pump
- HVAC manifold gauge set
- Refrigerant leak detector
- Copper pipe cutter
- Flaring tool
- Burr reamer
- Crescent or spanner wrench
- Hexagonal wrench set
- Torque wrench
- Multimeter
- Electroprobe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

PARTS IDENTIFICATION



NOTE

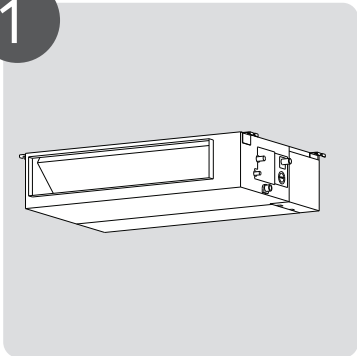
The installation must be performed in accordance with the required local and national standards. The installation may be slightly different in different markets.



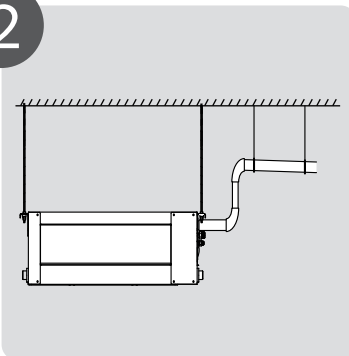
NOTE

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

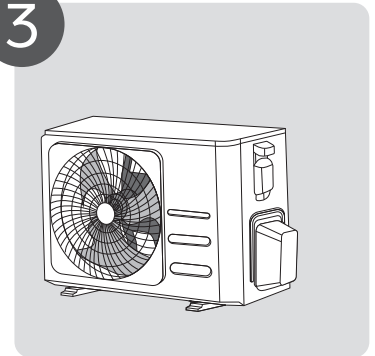
INSTALLATION OVERVIEW – INDOOR UNIT

1

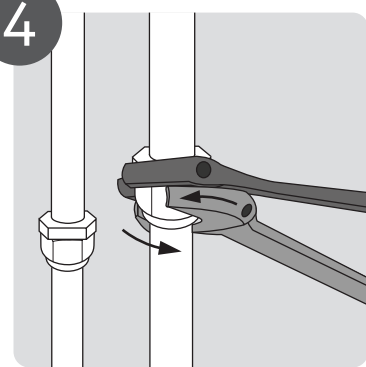
Install the indoor unit

2

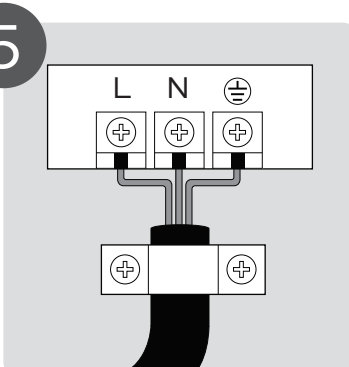
Install the drain pipe

3

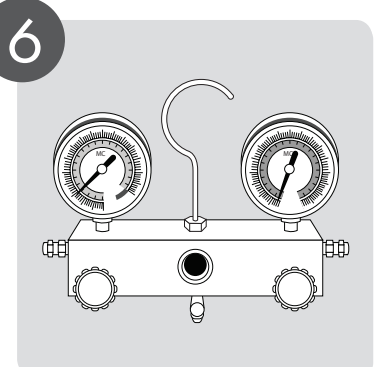
Install the outdoor unit

4

Connect the refrigerant pipes

5

Connect the wires

6

Evacuate and charge the refrigeration system

7

Perform a test run

INDOOR UNIT INSTALLATION

STEP 1: SELECT INSTALLATION LOCATION

Before installing the indoor unit, you must choose an appropriate location. The following standards should 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

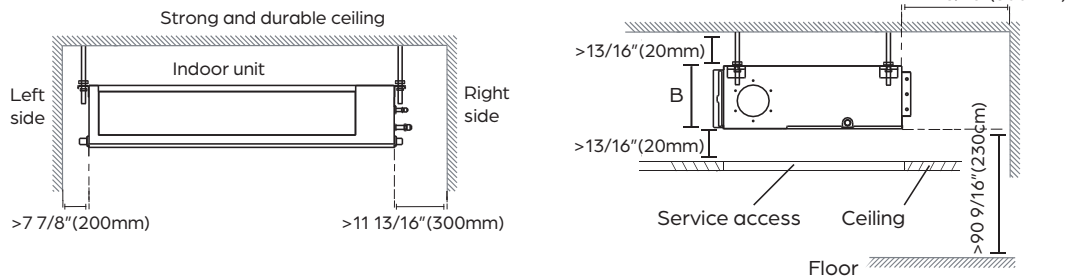


NOTE

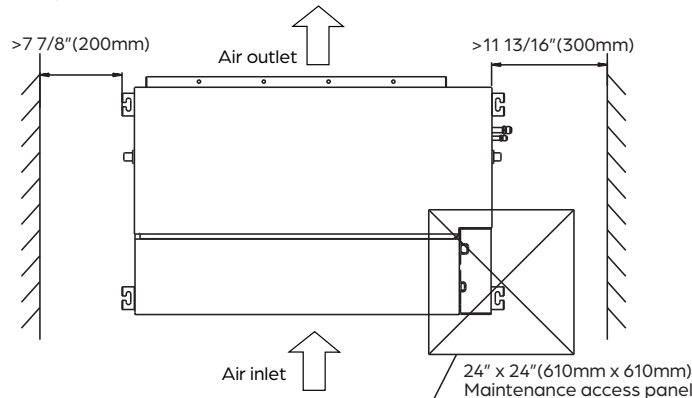
This model is designed for horizontal installation only.

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

Installation clearances



Maintenance access panel



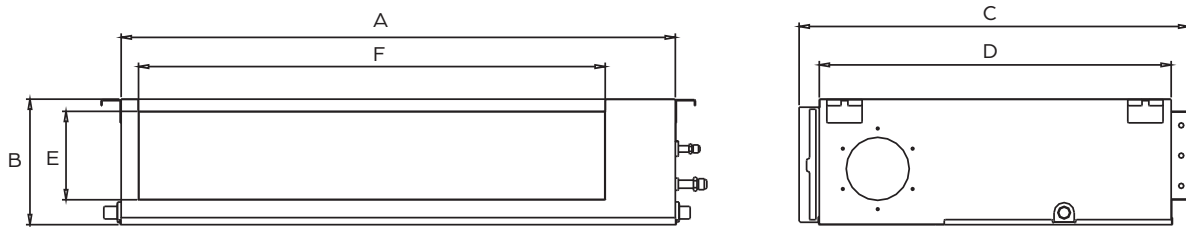
NOTE

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.

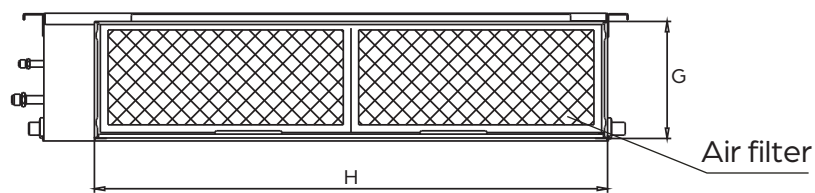
STEP 2: HANG INDOOR UNIT

1. Refer to the following diagrams for unit dimensions and locations for the four suspension bolt holes required to hang the indoor unit.

Unit and air outlet dimensions

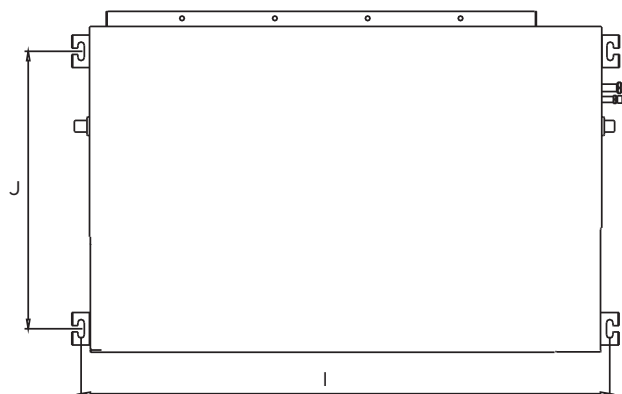


Air inlet dimensions



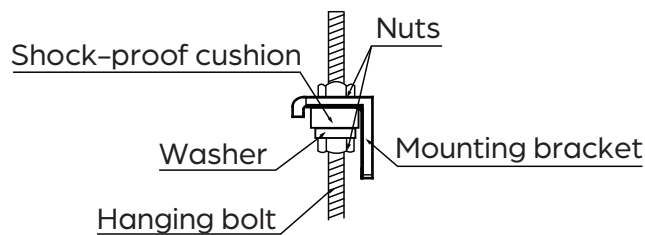
Model	A	B	C	D	E	F	G	H
DRAD09F1A DRAD12F1A	27 9/16" (700mm)	7 7/8" (200mm)	19 15/16" (506mm)	17 3/4" (450mm)	6" (152mm)	21 1/8" (537mm)	7 5/16" (186mm)	23 9/16" (599mm)
DRAD18F1A	34 5/8" (880mm)	8 1/4" (210mm)	26 9/16" (674mm)	23 5/8" (600mm)	5 3/8" (136mm)	27 13/16" (706mm)	7 1/2" (190mm)	30 13/16" (782mm)
DRAD24F1A	43 5/16" (1100mm)	9 13/16" (249mm)	30 1/2" (774mm)	27 9/16" (700mm)	6 7/8" (175mm)	36 7/16" (926mm)	9" (228mm)	39 7/16" (1001mm)

Mounting dimensions for ceiling bolts



Model	I	J
DRAD09F1A DRAD12F1A	29 3/16" (741mm)	14 3/16" (360mm)
DRAD18F1A	36 1/4" (920mm)	20" (508mm)
DRAD24F1A	44 7/8" (1140mm)	23 9/16" (598mm)

2. Before drilling the holes in the ceiling and mounting the unit, align the refrigerant pipes, drain pipe, and electric cable connection points with the direction they will be drawn out and connected to the outdoor unit through the wall hole (see *Step 3: Drill Wall Hole For Connective Piping*).
3. Drill four holes 4" 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.
4. Using a hammer, insert the suspension bolt anchors into the pre-drilled holes.
5. Install the four suspension bolts.
6. 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 (see diagram below). Make sure the unit is level.

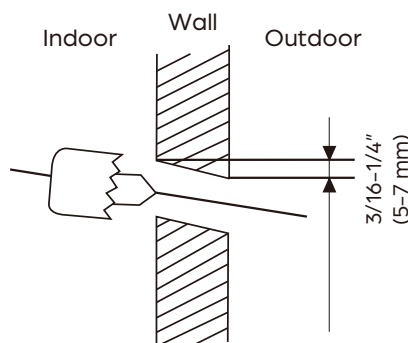


WARNING

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

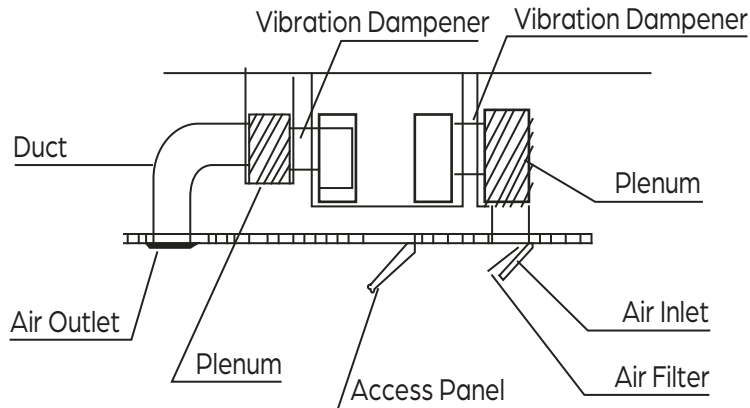
1. Determine the location of the wall hole based on the location of the outdoor unit.
2. Using a 2 1/2" (65mm) core drill for units with a gas side connective pipe less than 5/8" (16mm), or 3 1/2" (90mm) for units with a gas side pipe greater than or equal to 5/8" (16mm), drill a hole in the wall. Make 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 (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: DUCT AND ACCESSORIES INSTALLATION

Once the unit is hung, you may install any additional ducting required. The diagram below illustrates one example of installing the unit with hidden ducting. The unit may also be installed exposed, depending on your needs.



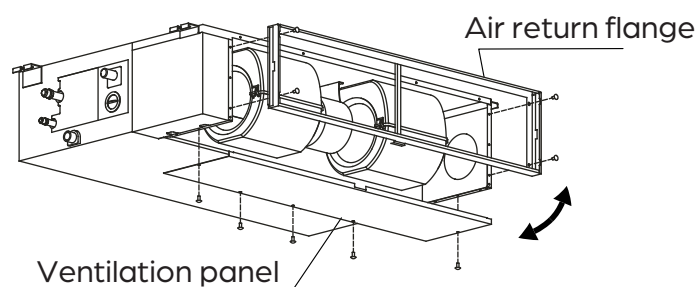
INSTALLATION TIPS

- Air filters help remove dust and particles from the circulating air. They should be installed on the air inlet side according to the size of the inlet on the unit.
- Vibration dampeners are recommended to be installed between the unit and the ductwork. They will decrease vibrations and noise coming from the unit. They also provide some flexibility when installing and positioning the ductwork.
- The air inlet and air outlet should be far enough apart to avoid short-circuiting the air flow and provide proper circulation in the room.
- Do not place the connecting duct weight on the unit. Provide proper support for the ductwork independent of the unit supports.
- All ductwork should be properly insulated to prevent condensation.
- Refer to the following static pressure guidelines when installing the indoor unit:

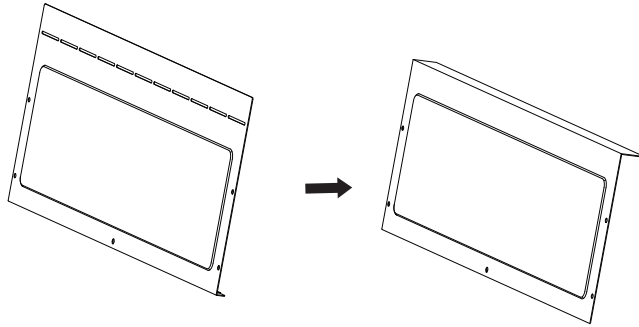
Model	Static Pressure (Pa / in. wc)
DRAD09F1A	0~50 / 0~0.2
DRAD12F1A	0~50 / 0~0.2
DRAD18F1A	0~100 / 0~0.4
DRAD24F1A	0~160 / 0~0.64

CHANGING THE AIR INLET DIRECTION (REAR TO UNDERSIDE)

1. Remove the ventilation panel and air return flange.

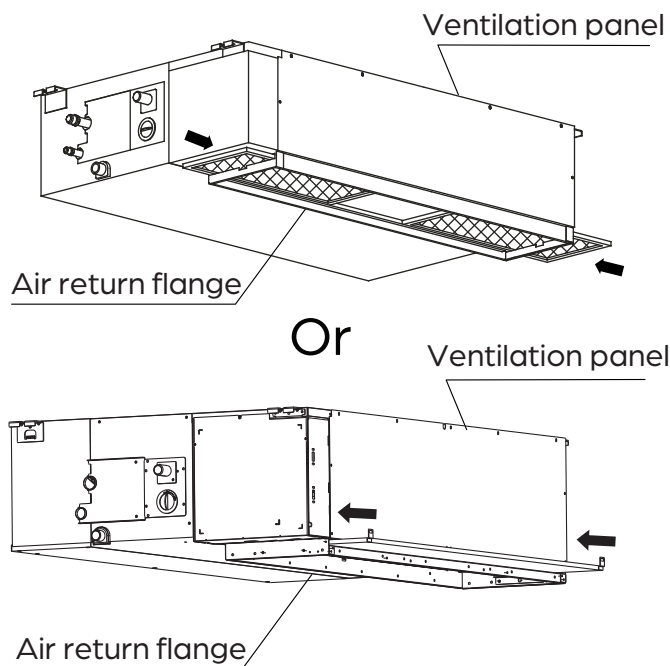


2. Bend the rear ventilation panel 90° along the dotted line (some models).



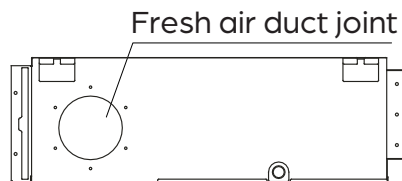
3. Swap the mounting positions of the ventilation panel and air return flange.

4. Install the filter mesh. Insert into flange as illustrated below.



FRESH AIR DUCT INSTALLATION

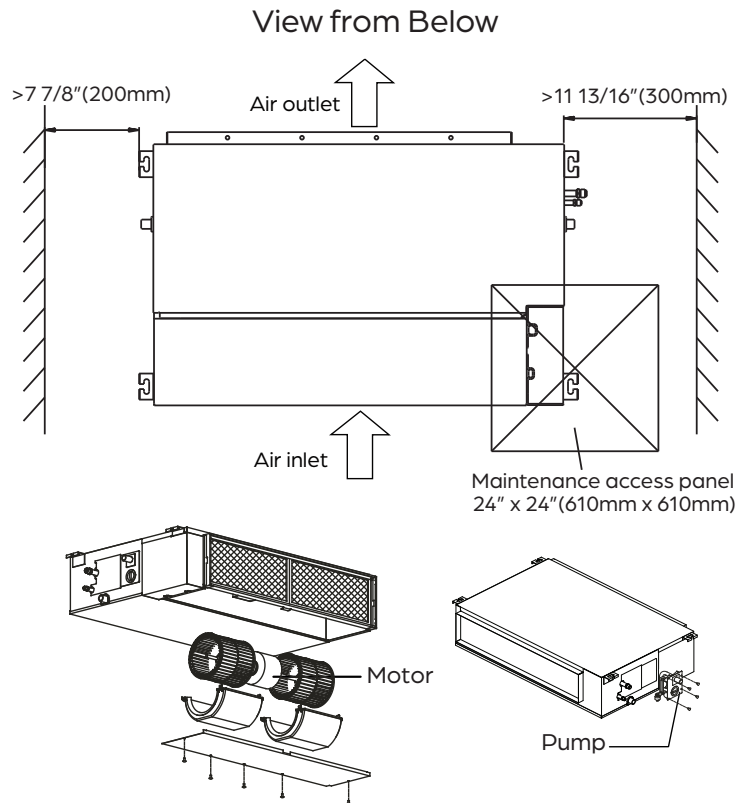
This unit allows for a fresh air duct to be installed. Duct location and dimensions are shown below.



DRAD09F1A & DRAD12F1A	DRAD18F1A & DRAD24F1A

MAINTENANCE ACCESS PANEL

If this unit is located in a sub-ceiling, an access panel should be installed in order to gain access to the unit for routine maintenance. Common maintenance items are shown below for consideration when designing panel size and location. A minimum panel size of 2' x 2' is recommended.

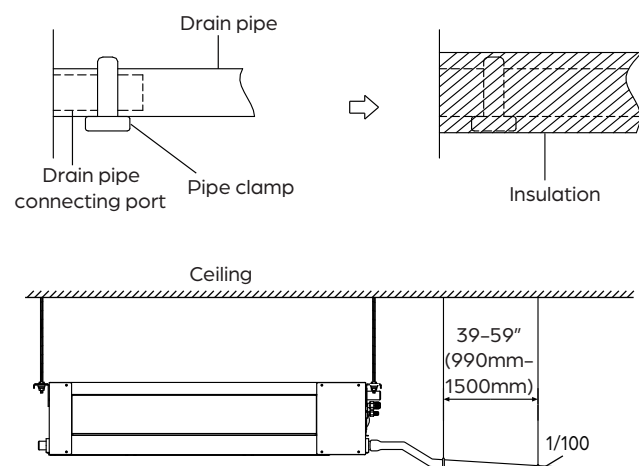


STEP 5: CONNECT DRAIN PIPE

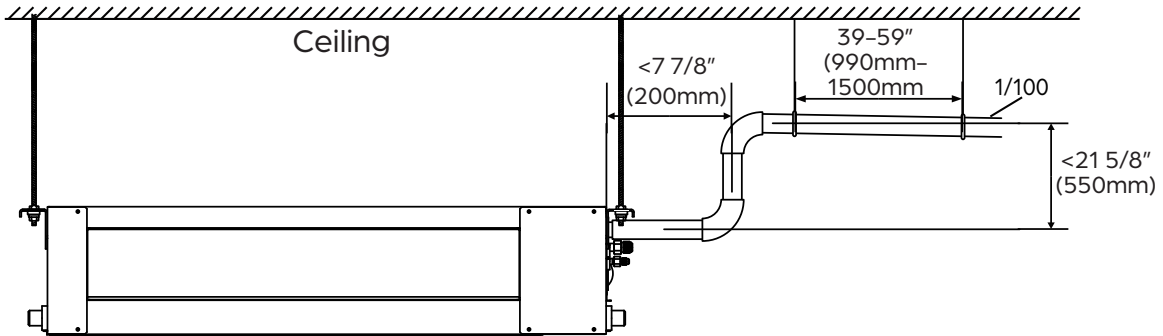
The drain pipe is used to drain condensate water away from the unit. Improper installation may cause leaks and unit or property damage.

1. Connect the drain pipe (field supplied) to the appropriate unit's connecting port using a metal worm clamp. Make sure it is secured tightly and cannot be easily pulled loose.
2. Insulate the connecting port and pipe with the accessory sheath provided.
3. For gravity draining, install the drain pipe to the lower drain connecting port 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 39 - 59". Wrap the remaining indoor portion of the drain pipe with foam pipe insulation to prevent condensation.

Model	Drain Pipe Inner Diameter
DRAD09F1A	1" (25mm)
DRAD12F1A	1" (25mm)
DRAD18F1A	1" (25mm)
DRAD24F1A	1" (25mm)

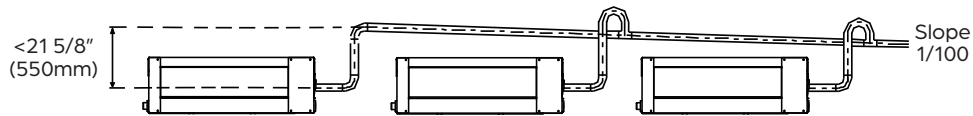


4. This unit is equipped with a drain pump that allows the outlet of the drain pipe to be higher than the pipe's connecting port. For pump assisted draining, install the drain pipe to the upper connecting port. The vertical lift pipe must be installed no higher than 21 5/8" (550mm) from the drain connection port with a maximum distance of 7 7/8" (200mm) between the unit and the lift pipe. To prevent air bubbles, make sure the pipe between the unit and the lift pipe is level or slightly tilted up (0 - 1"). Install hanging wires every 39 - 59" 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.

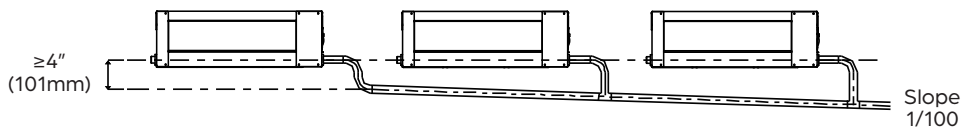


5. If connecting multiple drain pipes, install the pipes as illustrated below.

Using pump



Not using pump



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 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.

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 (if applicable): H05VV-F or H05V2V2-F
- Outdoor Power Cable: H07RN-F
- Signal Cable: H07RN-F

CABLE SIZING

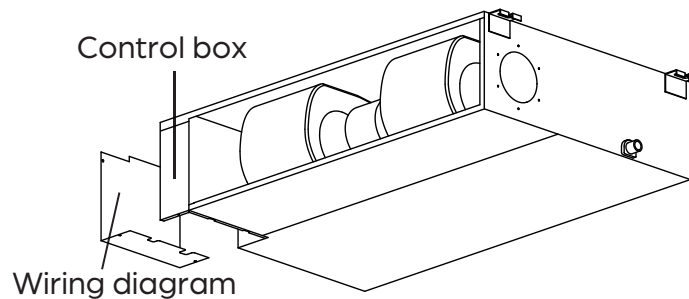
Use a minimum of 16 AWG for power and signal cables connected to and between the indoor and outdoor units.

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.

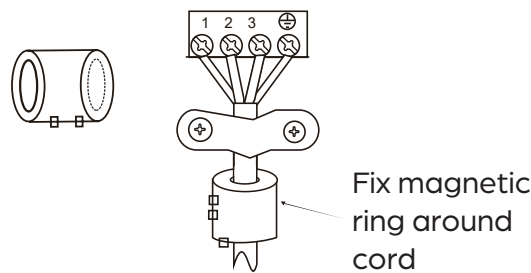
Wiring the Indoor Unit

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 and locate the wiring diagram on the inside.



3. Unscrew the cable clamp below the terminal block and place it to the side.
4. Feed the cable through the magnetic ring (some models) and secure the ring in place.

Magnetic ring (if supplied with accessories)



5. 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.
6. 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.
7. 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.

STEP 7: PREPARE REFRIGERANT PIPING

1. If pre-existing refrigerant piping is already embedded in the wall, 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.



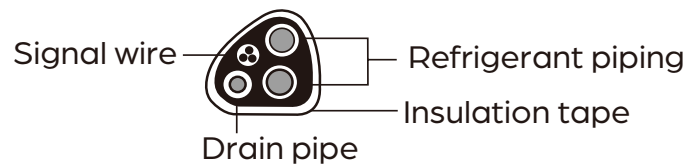
WARNING

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 8: 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 hose, refrigerant pipes, and signal cable as shown below:



NOTE

The drain hose **MUST** be at the bottom of the bundle. Putting the drain hose 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 hose to the underside of the refrigerant pipes.
3. Using insulation tape, wrap the signal wire, refrigerant pipes, and drain hose 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 the outdoor unit's installation manual).

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: <ul style="list-style-type: none"> • 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
	Excessive heat is generated by sunlight	Close windows and curtains during periods of high heat or bright sunshine
	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	Excessive heat is generated by sunlight
	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 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	<p>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.</p> <p>If not, disconnect the power, then connect it again. Turn the unit on.</p> <p>If the problem persists, disconnect the power and contact your nearest customer service center.</p>	



NOTE

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

WIRING DIAGRAM

DRAD09F1A, DRAD12F1A, DRAD18F1A and DRAD24F1A

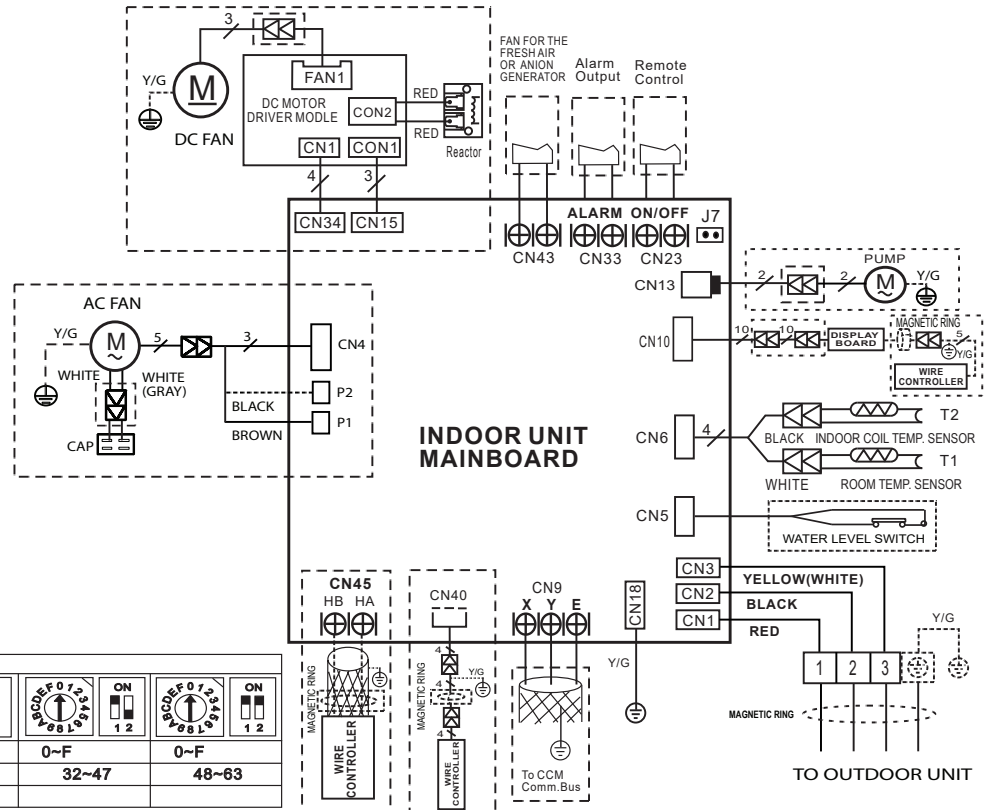
- NOTE:
1. The parts with dotted lines indicate optional features.
 2. Remove the short connector of J7 when you use the "on-off" function.
 3. When the wire controller uses the shielded wire, the shielded wire should be properly grounded.

FOR TEMP. COMPENSATION(HEATING)				
SW6	<input type="checkbox"/> ON <input type="checkbox"/> 1 2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2
CODE	6 ₀	2 ₀	4 ₀	EEPROM DEFAULT
FACTORY SETTING			<input checked="" type="checkbox"/>	

FOR ANTI-COLD WIND				
SW1	<input type="checkbox"/> ON <input type="checkbox"/> 1 2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2
TELO	24 ₀	15 ₀	8 ₀	EEPROM DEFAULT
FACTORY SETTING	<input checked="" type="checkbox"/>			

FOR SETTING AUTO-RESTART		
SW3	<input type="checkbox"/> ON <input type="checkbox"/> 1	<input type="checkbox"/> ON <input type="checkbox"/> 1
MODE	AUTO-RESTART	NOT AUTO-RESTART
FACTORY SETTING	<input checked="" type="checkbox"/>	

FOR SETTING NET ADDRESS				
S1+S2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2	<input type="checkbox"/> ON <input type="checkbox"/> 1 2
CODE	0~F	0~F	0~F	0~F
NETADDRESS	0~15	16~31	32~47	48~63
FACTORY SETTING	<input checked="" type="checkbox"/>			



ERROR CODES – INDOOR UNIT

Running lamp	Timer lamp	Display	Malfunction or Protection
★1 time	X	E0	Indoor EEPROM malfunction
★2 times	X	E1	Indoor and outdoor unit communication malfunction
★4 times	X	E3	Indoor fan speed malfunction
★5 times	X	E4	Indoor room temperature sensor error
★6 times	X	E5	Evaporator coil temperature sensor error
★7 times	X	EC	Refrigerant leak detection system malfunction
★8 times	X	EE	Water level alarm malfunction
★11times	X	Ed	Wrong outdoor unit
★1 time	●	F0	Overload protection
★2 times	●	F1	Outdoor temperature sensor error
★3 times	●	F2	Outdoor condenser pipe sensor error
★4 times	●	F3	Discharge air temperature sensor error
★5 times	●	F4	Outdoor EEPROM error
★6 times	●	F5	Outdoor fan speed (DC fan motor only) malfunction
★7 times	●	F6	T2b sensor error
★8 times	●	F7	Auto-lifting panel communication error
★9 times	●	F8	Auto-lifting panel malfunction
★10times	●	F9	Auto-lifting panel is open
★1 time	★	P0	Inverter module IPM protection
★2 times	★	P1	High/Low voltage protection
★3 times	★	P2	Compressor top overheating protection
★4 times	★	P3	Outdoor low temperature protection
★5 times	★	P4	Compressor drive error
★6 times	★	--	Mode conflict
★7 times	★	P6	Compressor low-pressure protection
★8 times	★	P7	Outdoor IGBT sensor error

NOTE: ★ flashing ● light on X light off

