Installation, Operation, and Maintenance

Variable Refrigerant Flow System

Convertible Air Handler: 0.75–1.5 Ton

Models:

4TVM0009C100N*
4TVM0012C100N*
4TVM0018C100N*

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

June 2017

VRF-SVX040E-EN

Ingersoll Rand

Introduction

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
NOTICE	Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants—including industry replacements for CFCs and HCFCs such as saturated and unsaturated HFCs and HCFCs.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified. The Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state electrical codes. Failure to follow code could result in death or serious injury.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate MSDS/SDS and OSHA/GHS (Global Harmonized System of Classification and Labelling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

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Revision History

The Digit 14 change to the unit model number represents a firmware revision which enables compatibility between the indoor unit and the second generation outdoor unit (ODU) series: model numbers 4TVH/R****D, 4TVP****C); and the second generation mode control unit (MCU) series model numbers 4MCUTV****A. Additional miscellaneous corrections were made for consistency and accuracy.

Table of Contents

Model Number Description

4	T	V	M	0	0	0	9	C	1	0	0	N	*
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Digit 1: Refrigerant

4 = R410A

Digit 2: Brand name

T = Trane

Digit 3: System type

V = Variable Refrigerant Flow

Digit 4: Configuration Type

M = Convertible air handler

Digit 5: Reserved for future use

0 = Not currently used

Digit 6, 7, 8: Nominal capacity (Btu/h x 1,000)

009 = 9,000 Btu/h
012 = 12,000 Btu/h
018 = 18,000 Btu/h

Digit 9: Major development sequence

A = First development sequence
B = Second development sequence
C = Third development sequence

Digit 10: Electric power supply characteristics

1 = 208–230/60/1

Digit 11, 12: Reserved for future use

0 = Not currently used

Digit 13: Region of sale

N = North America (UL or ETL)

Digit 14: Minor design sequence

A = First design sequence
B = Second design sequence

Preparing for Installation

The following literature is supplied with this unit:

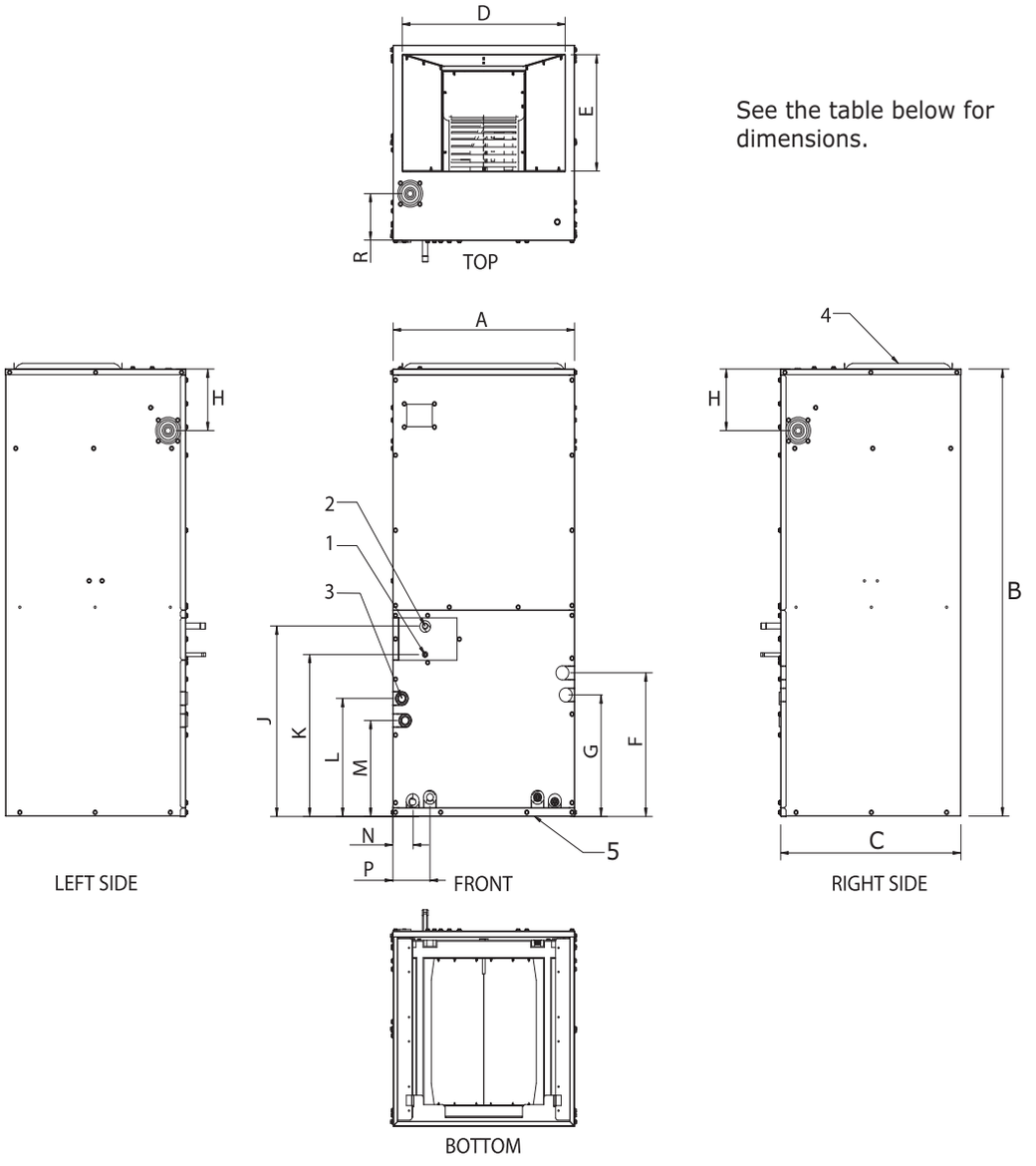
- Installation manual
- Warranty card

Installation Considerations

When installing the indoor unit, the following factors must be considered:

- The air inlet and outlet must be unobstructed.
- The floor or ceiling must support the weight of the unit.
- The floor or ceiling must not be subject to vibration.
- Pre-plan for easy and short routing of the refrigerant tubing and wiring to the outdoor unit.
- The air must circulate freely in the area to be cooled/heated.
- Sufficient clearance must be maintained around the unit.
- Condensate must be managed correctly and safety away from the unit.
- The unit should be installed in a way that prevents unauthorized access.
- The unit must not be installed in an area that is damp or could come into contact with water (such as a laundry room).
- The unit must not be exposed to direct sunshine or to other direct heat sources.
- The filter must be able to be removed and cleaned easily.
- The unit should be placed as far as possible from fluorescent lights so the remote control is not subject to interference.
- Care should be taken to prevent harmonics generated by loose or unsupported material in close proximity to a running unit.
- The unit must not be installed in an area that is exposed to salt, machine oil, sulfide gas, or corrosive environmental conditions.
- If you are installing the unit in an unconditioned space such as an attic or crawl space, you must ensure that the area provides sufficient air circulation to prevent moisture collection on the cabinet during high dew point conditions. A drain pan must be installed under the entire unit when it is installed in or above a finished ceiling or in an unconditioned space. Some states, counties, and cities require additional insulation to be installed on the exterior casing of the indoor unit to prevent sweating. Refer to the state, county, city, or local code for insulation requirement to ensure that the installation is in compliance.

Unit Dimensions



See the table below for dimensions.

Dimensions are in inches:

A	B	C	D	E	F	G	H	J	K	L	M	N	P	R
17-1/2	43	21	15-1/2	12-1/2	13-1/2	11	6-3/4	16-3/4	14	11	8-1/2	2	4	2

1	2	3	4	5
Liquid pipe connection: 1/4 in.	Gas pipe connection: 1/2 in.	Drain pipe connection: 3/4 in. NPT	Air outlet	Air intake

Clearances

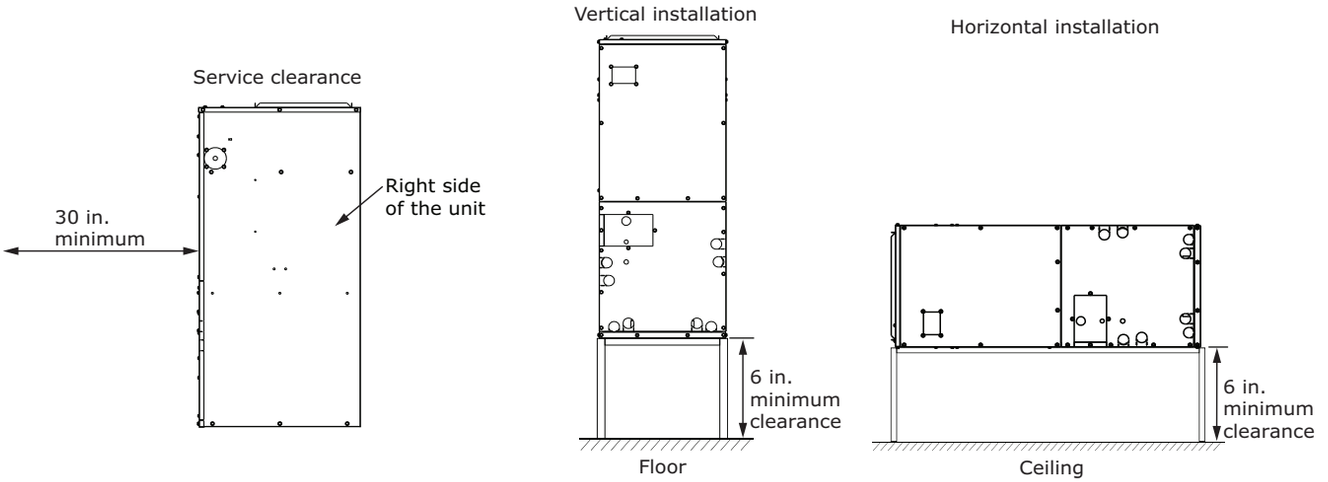
Service Clearances

Provide a minimum of 30 inches in front of the unit for access to the control box, heating elements, blower, and air filters. This access may be provided by a closet door or by locating the appliance so that a wall or partition is not less than 30 inches from the front access panel (refer to Figure 1).

Drainage Slope

Ensure that 6 inches minimum of space exists at the bottom of the unit so that a downward slope of 1:100 is maintained for drain piping. (Refer to Figure 1.)

Figure 1. Clearances



Combustible Material Clearances

The unit is approved for 0 in. of clearance from combustible material on any part of the indoor unit exterior casing and the inlet or outlet ducts provided that an electric heater is *not* being used.

When an electric heater is installed in the unit, a minimum clearance of 1 in. from the supply plenum and supply air duct is required. Refer to Table 1.

Table 1. Combustible material clearances

Top	Back	Sides	Front		Duct
			Alcove	Closet	
0	0	0	30 in.	6 in.	1 i[(a)]

(a) If electric heat kit is installed.

Application Options

The unit is shipped from the factory ready to be installed in an upflow or horizontal left (right to left air flow) position. The unit is field convertible to a horizontal right (left to right) air flow position.

Upflow Applications

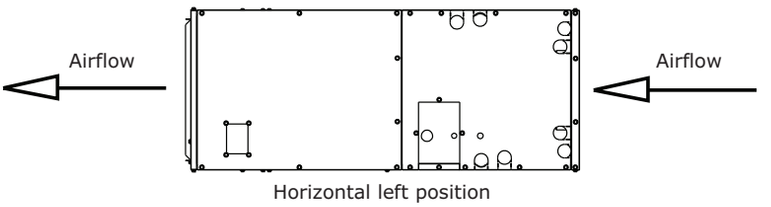
In upflow applications, the discharge outlet is at the top of the unit.

Horizontal Applications

Horizontal left position (right to left)

The unit is shipped ready to be installed without modification in a horizontal left position. Horizontal left means that when the unit is laid on its side and you are facing the unit, the supply air opening is to the left and the return air opening is to the right. (Refer to Figure 2.)

Figure 2. Horizontal left position

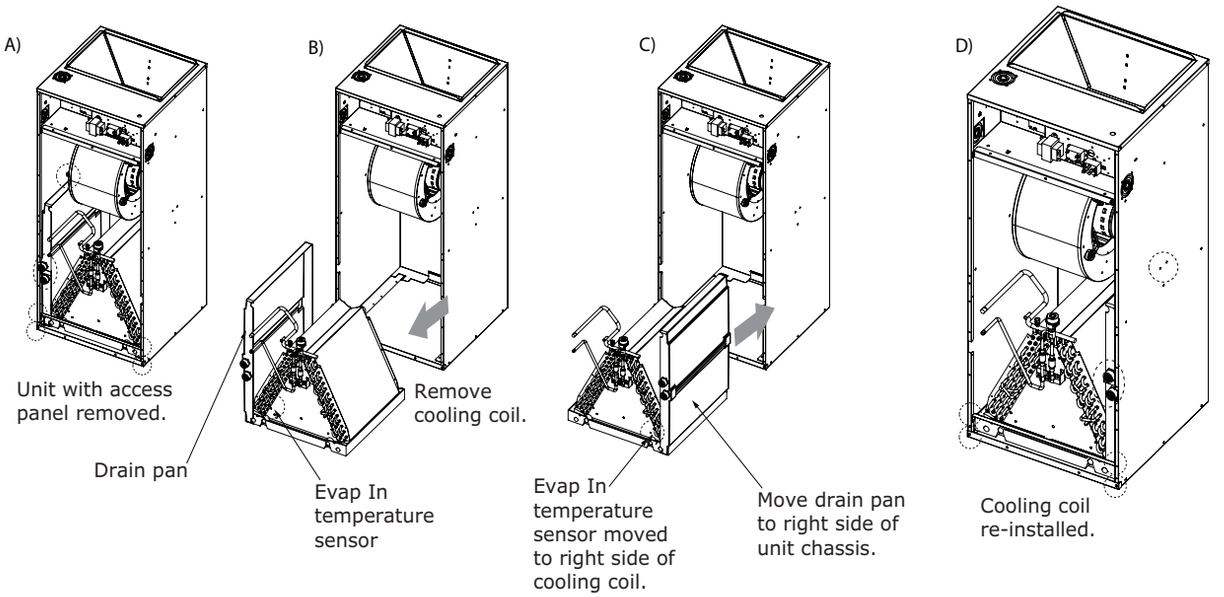


Horizontal right position (left to right)

Horizontal right position means that when the unit is laid on its side and you are facing the unit, the supply air opening is to the right and the return air opening is to the left. To install the unit in a horizontal right position, follow this procedure and refer to Figure 3:

1. Remove the unit access panels; see A).
2. Remove the cooling coil after disassembling the coil bracket and plate; see B).
3. Move the condensate drain pan to the right side of the cooling coil and re-insert into the air handler chassis; see C).
4. Move the Evap In temperature sensor to holder of the right side of cooling coil; see C).
5. Re-install the cooling coil; see D).

Figure 3. Modifying unit for horizontal right position



Installation

Review “Installation Considerations” before proceeding with installation.

Note: *If the unit is to be installed in an upflow position, it must comply with the minimum clearance specified in Figure 1, p. 9.*

1. Ensure that openings with a minimum of 200 in^2 have been made for return air to enter the unit.

Important: *Failure to comply may cause a reduction in the amount of return air available to the blower. Insufficient heating and cooling may result. The reduced air flow may cause the indoor unit to cycle on thermal limits, causing premature heating element failure if an electric heat kit is installed.*

2. Remove the blower and control box access panel. Save the screws.
3. Remove the coil compartment access panel. Save the screws.
4. Place the unit into position by sliding it over the duct opening until the opening in the unit lines up with the opening in the floor.
5. Secure the unit to the floor by drilling two holes through the unit base at the left and right front inside corners of the cabinet. Use two screws to secure the unit to the floor.
6. Use caulk and/or tape to seal between the floor base and the opening on the unit or between the opening on the unit and the duct in the floor.
7. Connect the supply air outlet to a plenum to the top of the unit and secure it with screws. Use a non-tape sealant such as mastic or an aerosol sealant to seal duct leakage.
8. If installed in a basement, run supply and return duct work in accordance with local codes.

Return Air Filter

A filter must be used to cover the return air opening. Ensure that it is sealed to prevent air by-passing the filter. Filter location options are shown in Figure 4 and Figure 5.

Minimum filter sizes are shown in Table 2.

Table 2. Filter sizes

Standard disposable air filter @300 ft/min or less	Pleated air filter @500 ft/min or less
800 CFM = 20 x 20 x 1	800 CFM = 16 x 16 x 1

Figure 4. Options for return air openings and filter locations: upflow position

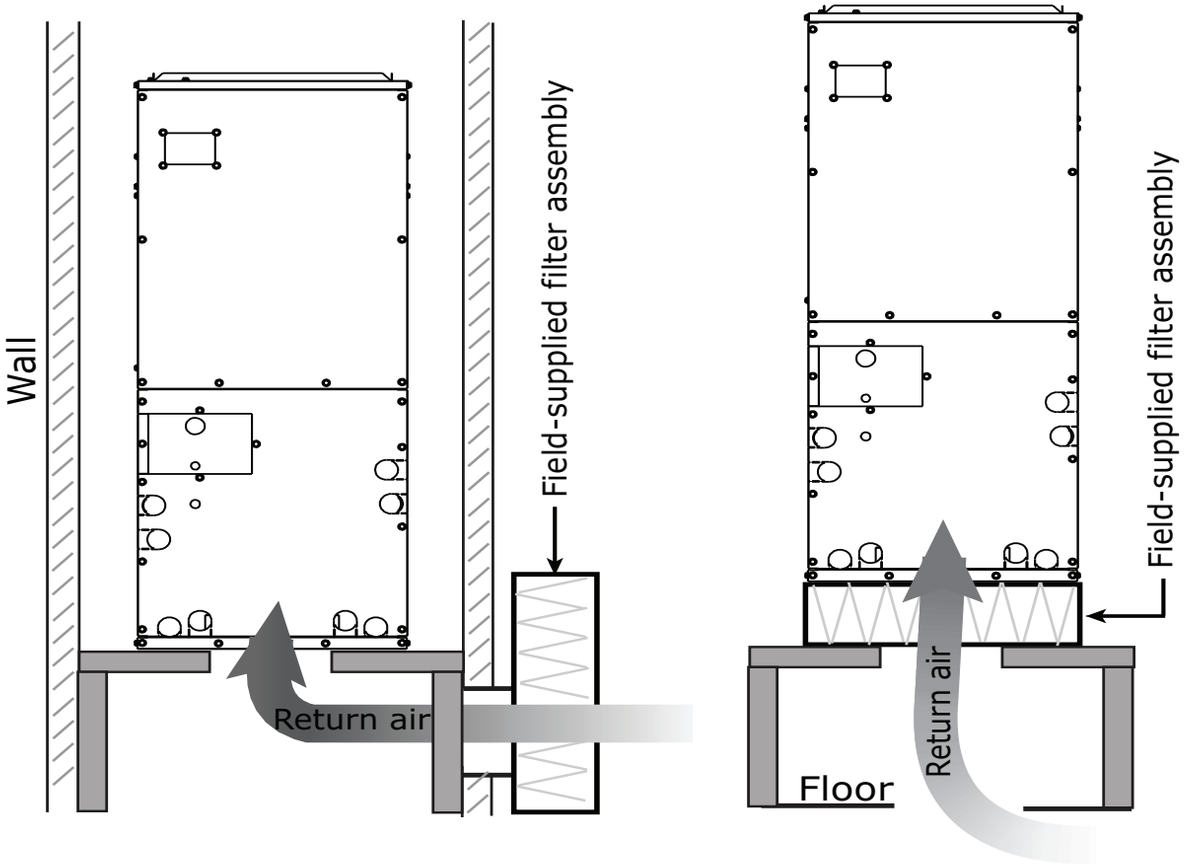
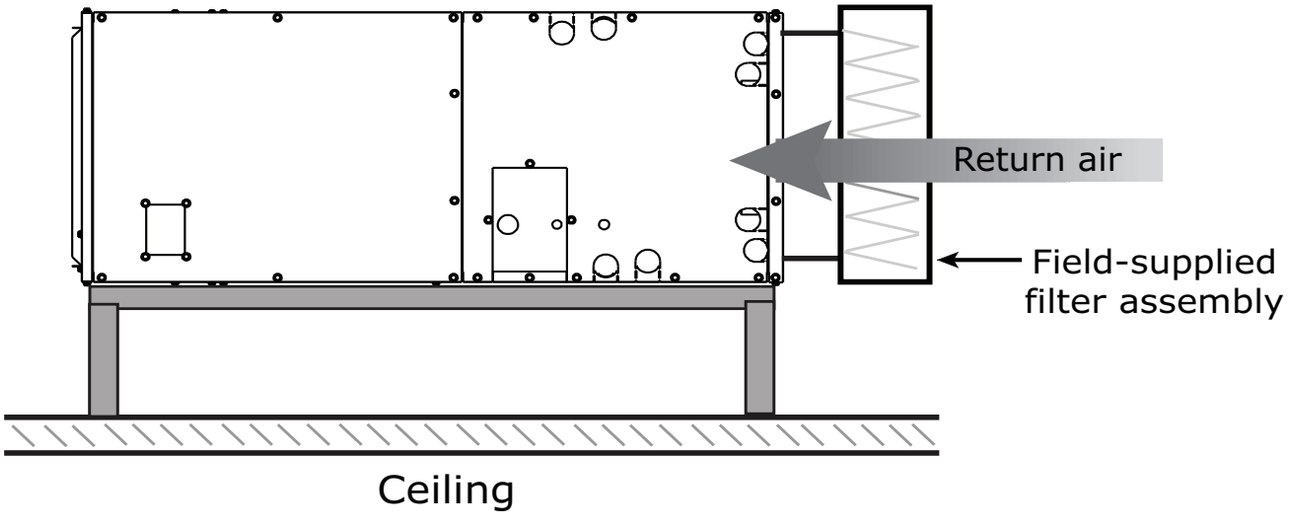


Figure 5. Options for return air openings and filter locations: horizontal position

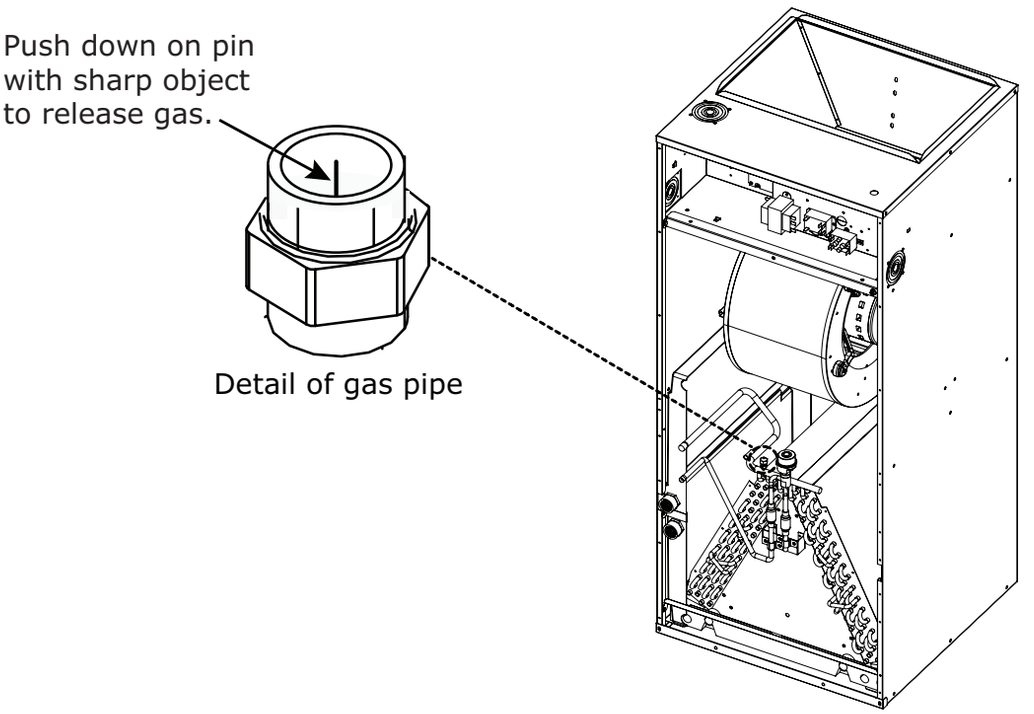


Purging the Unit

The unit is shipped from the factory with a holding charge of nitrogen. All of this gas must be purged from the unit.

1. Remove the cap from the gas pipe.
2. Using a sharp object, push down on the pin in the center of the pipe and release the gas from the unit. Make sure all gas has escaped before connecting the piping.

Note: *To prevent dirt or foreign objects from getting into the pipes during installation, do not remove the cap from the pipe until you are ready to connect the piping.*



Installing Refrigerant Piping

Connect field-supplied piping by brazing. The large unit port is for gas refrigerant; the small one is for liquid refrigerant.

Cut or extend field-supplied piping as needed. Use the following procedures.

NOTICE

System Failure!

When brazing is used for pipe connections, a nitrogen purge is required to prevent the formation of copper oxides inside the piping. Failure to follow this procedure could damage the system.

- Before connecting the pipes, make sure they are free of dirt and debris.
- Use insulated, unwelded, degreased, and deoxidized copper pipe (Cu-DHP type according to ISO 1337 or UNI EN 12735-1) suitable for an operating pressure of at least 609.15 psi and a burst pressure of at least 3002.28 psi. Copper pipe for hydro-sanitary applications is unsuitable.
- For sizing and limits (height difference, line length, maximum bends, refrigerant charge, and so on) see the outdoor unit installation manual.
- All refrigerant connections must be accessible for servicing and maintenance.

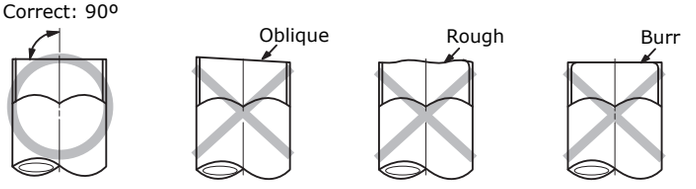
Pipe Cutting

Required tools:

- Pipe cutter
- Reamer
- Pipe holder

1. Using a pipe cutter, cut the pipe so that the cut edge is at 90° to the side of the pipe.
2. Use a reamer to remove all burrs at the cut edge.

   See examples of correctly and incorrectly cut pipes.



Nitrogen Flushing While Brazing

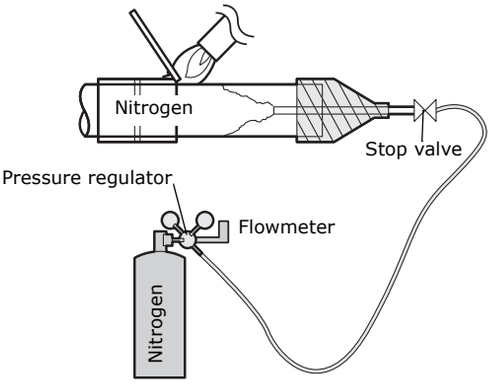
NOTICE

Avoid Unit Damage!

Never braze pipe connections without performing nitrogen flushing. Failure to perform this procedure will damage the unit, resulting in capacity loss and reduced long-term reliability.

While brazing refrigerant pipes, flush them with nitrogen gas. Use a pressure regulator to maintain a flow rate of 1.76 ft^3/h or more.

1. **Nitrogen flushing wh**



Leak Testing Pipe Connections

⚠WARNING

Confined Space Hazards!

Do not work in confined spaces where refrigerant or other hazardous, toxic or flammable gas may be leaking. Refrigerant or other gases could displace available oxygen to breathe, causing possible asphyxiation or other serious health risks. Some gases may be flammable and or explosive. If a leak in such spaces is detected, evacuate the area immediately and contact the proper rescue or response authority. Failure to take appropriate precautions or to react properly to such potential hazards could result in death or serious injury.

⚠WARNING

Explosion Hazard!

Never use an open flame to detect gas leaks. It could result in an explosion. Use a leak test solution for leak testing. Failure to follow recommended safe leak test procedures could result in death or serious injury or equipment or property-only-damage.

Use only dry nitrogen with a pressure regulator for pressurizing unit. Do not use acetylene, oxygen or compressed air or mixtures containing them for pressure testing. Do not use mixtures of a hydrogen containing refrigerant and air above atmospheric pressure for pressure testing as they may become flammable and could result in an explosion. Refrigerant, when used as a trace gas should only be mixed with dry nitrogen for pressurizing units. Failure to follow these recommendations could result in death or serious injury or equipment or property-only damage.

Do not exceed unit nameplate design pressures when leak testing system. Failure to follow these instructions could result in an explosion causing death or serious injury.

Notes:

- *All required piping pressure tests must be completed in accordance with national and/or local codes.*
- *When leak-testing refrigerant systems, observe all safety precautions.*
- *Leak test only one circuit at a time to minimize system exposure to potentially harmful moisture in the air.*
- *Use R-410A refrigerant gas as a tracer for leak detection and use oil-pumped dry nitrogen to develop required test pressures.*

1. Close liquid line angle valve.
2. Connect R-410A refrigerant cylinder to high side charging port (at condenser or field supplied discharge line access port). Add refrigerant to reach pressure of 12 to 15 psig.
3. Disconnect refrigerant cylinder. Connect dry nitrogen cylinder to high side charging port and increase pressure to 150 psig. Do not exceed high side (discharge) unit nameplate design pressure. Do not subject low side (suction) components to high side pressure.
4. Check all piping joints, valves, etc. for leaks. Recommend using electronic detector capable of measuring 0.1 oz/year leak rate.
5. If a leak is located, use proper procedures to remove the refrigerant/nitrogen mixture, break connections and make repairs. Retest for leaks.
6. Make sure all service valves are open.

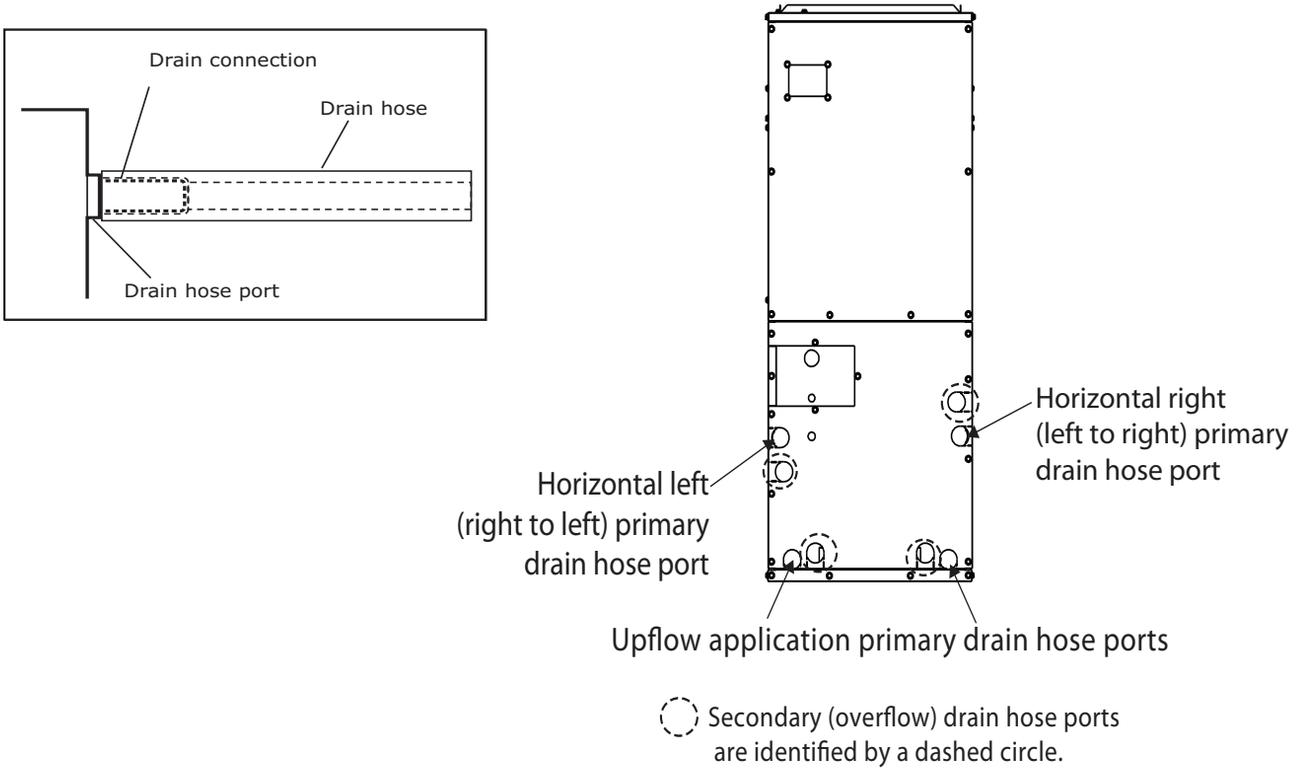
Installing the Drain System

The indoor unit "A" coil drain pan has ¾ in. NPT female connections: two primary and two secondary (left and right sides). The horizontal drain pan has two ¾ in. NPT female (one primary and one secondary) connections.

Figure 6 shows the four primary and four secondary (overflow) drain hose port locations. The configuration of the unit will determine which drain hose port location to use.

Important: *In all horizontal applications in which the unit is installed above a finished ceiling and/or living space, a secondary drain pan (field supplied) is recommended to be installed under the unit to avoid damage to the ceiling in the event of condensate overflow.*

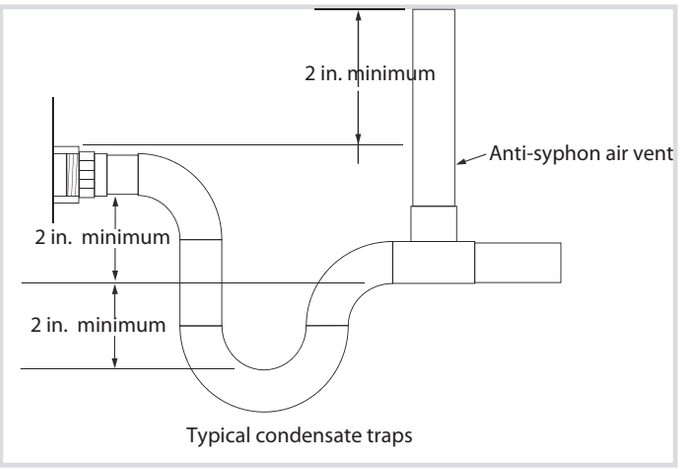
Figure 6. Drain hose port locations



Follow this procedure:

1. Push the supplied drain hose as far as possible over the drain hose port. Do not apply excessive force to the piping on the unit side when connecting the drain hose.
2. Wrap the insulation (supplied) around the drain hose and clamp the connection as tightly as possible until you can see at least 8 holes.
3. Install the drain pipe into the drain hose. Secure it with PVC adhesive and clamps as necessary to ensure a tight fit with no leakage.
4. To prevent condensate from being drawn into the blower, install traps on the primary (main) and secondary (overflow) drain lines. Piping from each fitting should have 2 in. minimum trap and each run in such a manner as to provide enough slope (1:100) for adequate drainage to a visible area. See Figure 7.

Figure 7. Trap requirements



Notes:

- *Do not pipe these two fittings together into a common drain.*
- *Prime drain with water before operating the unit by pouring water into the condensate pan.*
- *Cap unused drain piping connections.*

Testing the Drainage

After completing the installation, test the drainage to make sure there are no leaks:

1. Operate the unit in cool mode.
2. Squirt water into the drain pan.
3. Confirm that the water flows out through the drain hose and that no leakage occurs at any of the connections.

Insulation

After determining that there are no leaks in the refrigerant pipes or drainage hose, insulate them as described in these sections.

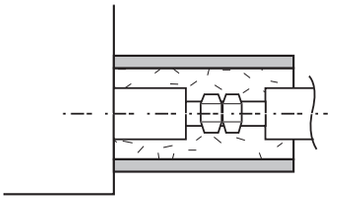
Insulating Refrigerant Piping

1. Use the table below to select the insulation size according to pipe size.

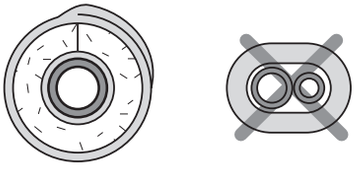
Pipe	Pipe size (in.)	Insulation, EPDM or NBR (in.)	
		Standard conditions (86°F [30°C], 85%)	High humidity conditions[a] (86°F [30°C], over 85%)
Liquid pipe	1/4 – 3/8	3/8	3/8
Gas pipe[b]	1/4	1/2	3/4
	3/8 – 1	3/4	1.0

(a) When installing insulation in any of the following environments, use insulation required for high-humidity conditions: Buildings with close proximity to bodies of water or hot springs or on the side of a hill in which the building is partly covered by earth; ceilings frequently exposed to moisture such as in restaurants, saunas, swimming pools, and corridors of dormitories or studios near a frequently-used outdoor exit; buildings with no ventilation system.
(b) Internal temperature of gas pipe is higher than 248°F (120°C).

2. Wrap insulation around the entire surface of each pipe, from the indoor unit to the outdoor unit, overlapping insulation to avoid gaps. Clamp insulation tightly to pipe.



- Do not wrap the gas and liquid refrigerant pipes together.



- Avoid compressing the insulation as much as possible.
- Be sure there are no cracks or deformities in the insulation at bends in pipes.
- If necessary double the insulation to prevent condensation from forming in warm or humid areas.
- Cut off excess insulation.

Insulating the Drain Hose

Insulate (field supplied) the entire surface of the drain pipe that is inside the building, including the connection between the drain hose and drain stub. Clamp tightly.

Wiring the Unit

Observe the following precautions when making electrical connections.

⚠WARNING

Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

NOTICE

Use Copper Conductors Only!

Unit terminals are not designed to accept other types of conductors. Failure to use copper conductors could result in equipment damage.

- Make all electrical connections in accordance with electrical codes and ordinances.
- Select the power cable in accordance with relevant local and national regulations.
- Wire size must comply with local and national code.
- Use grade H07RN-F or H05RN-F power cable.
- Connect the power cable into the power cable terminal and fasten it with a clamp.
- Unbalanced power must be maintained within 10% of supply rating among whole indoor units.
- Significantly unbalanced power may shorten the life of the system. If the unbalanced power is greater than 10% of supply rating, the unit will stop and an error code will be generated.
- Connect the power cable to the auxiliary circuit breaker. An all-pole disconnection from the power supply must be incorporated in the field wiring (1/8 in.).
- All wiring must be protected from weather and damage.
- Maintain a distance of 2 in. or more between power and communications cables to prevent interference.
- Maintain a voltage drop of less than 10% between the power source and the unit(s).
- Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will strip the head and make proper tightening impossible.
- Over-tightening the terminal screws may break them.
  Tightening torque for M4 screws: 0.86–1.06 lbf·ft.
- After making a knockout hole, apply rust-preventive paint to the bare metal around the hole.
- Secure the cable conduit to the outdoor knockout using the proper connector and bushing.

Power Wiring

Connect high-voltage supply wire to each indoor unit as follows. Refer to Figure 8, p. 21 and Figure 9, p. 21.

1. Connect the black supply wire to high-voltage terminals 1(L).
2. Connect the white supply wire to high-voltage terminals 2(N).
3. Connect the green wire to the ground lug, leaving slack in the ground wire to allow service to the unit without disconnecting the ground wire.

Note: *If an optional electric heat kit is to be installed in the indoor unit, refer to "Electric Heat Kit (optional) Installation," p. 26.*

Figure 8. Wiring diagram for individual control

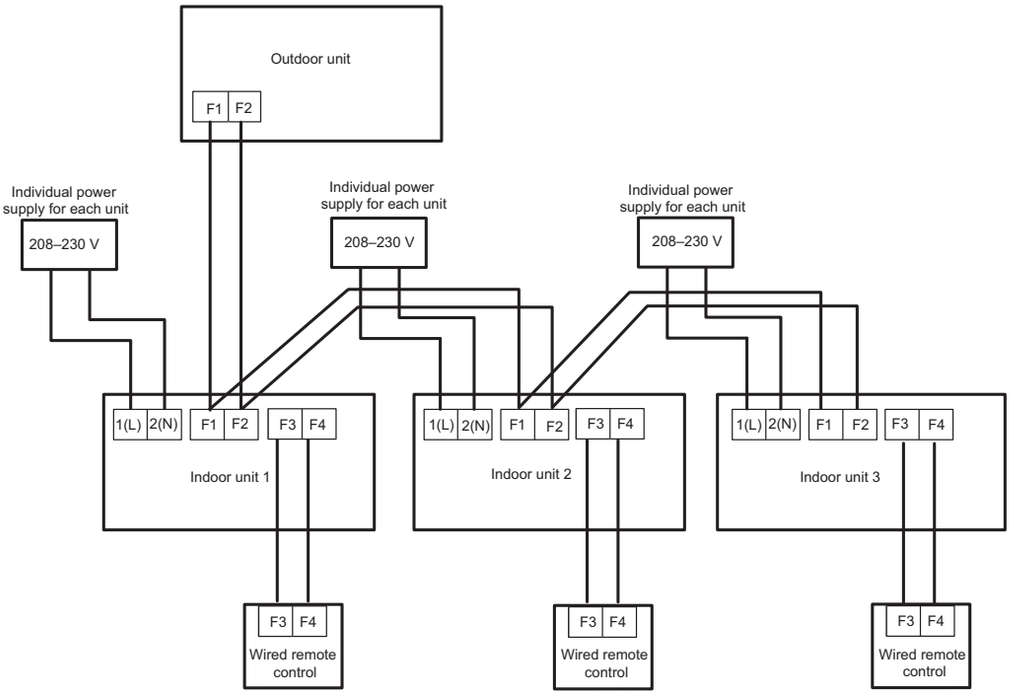
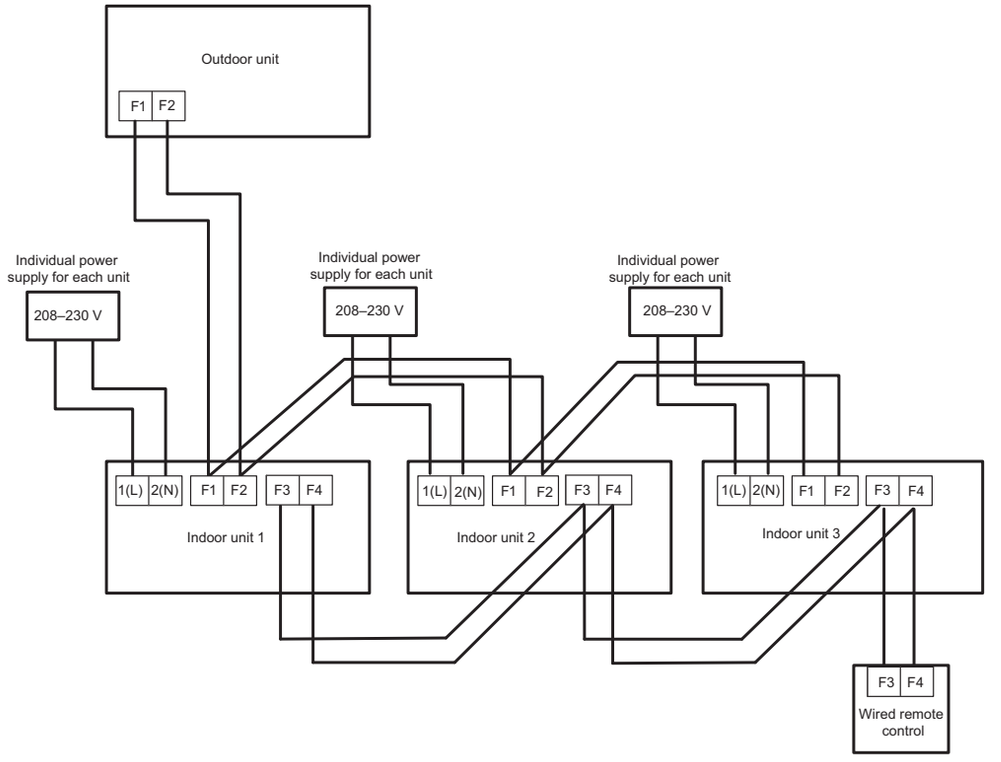


Figure 9. Wiring diagram for group control



Communications Wiring

For communications wiring, use 18 AWG, 25 pF/ft nom., 60.7 Ω impedance, braid or foil shielded, twisted pair wire that is rated for 600 V minimum and has insulation rated for temperatures up to 194°F. Refer to Figure 10 and Figure 11.

Figure 10. Cabinet openings for communication wiring conduit

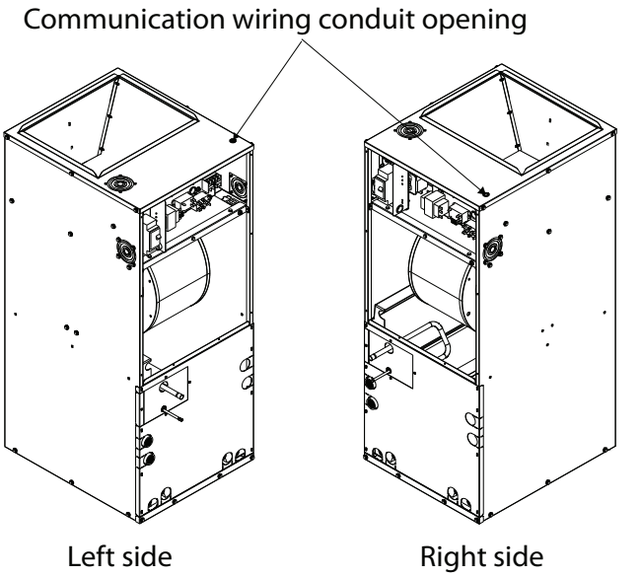
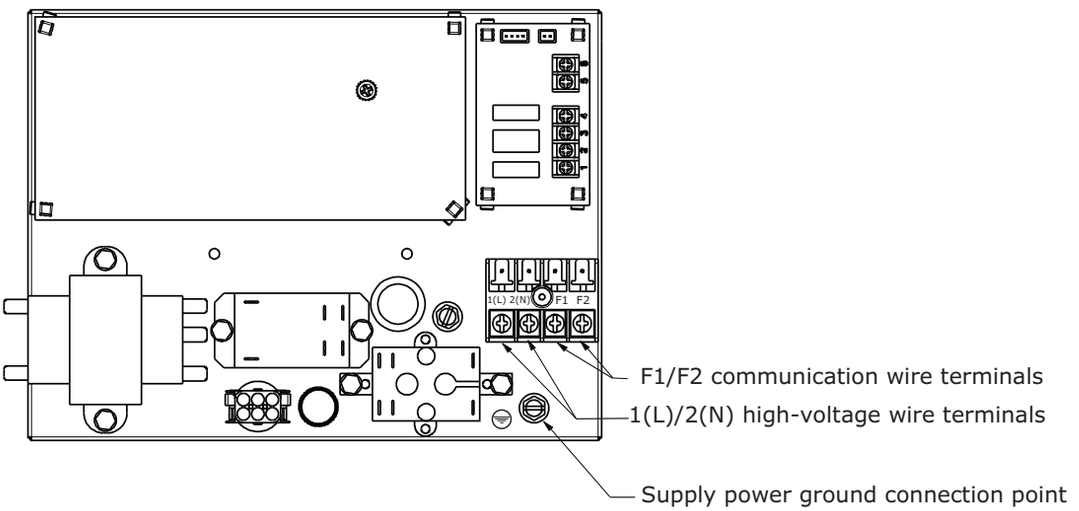
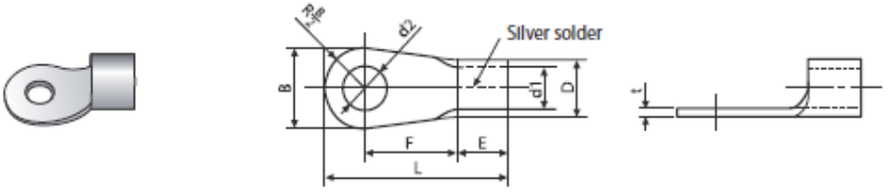


Figure 11. CAHU wiring terminal connections



Selecting compressed ring terminal



Norminal dimensions for cable (inch²)	Norminal dimensions for screw (inch)	B		D		d1		E	F	L	d2		t
		Standard dimension (inch)	Allowance (inch)	Standard dimension (inch)	Allowance (inch)	Standard dimension (inch)	Allowance (inch)	Min.	Min.	Max.	Standard dimension (inch)	Allowance (inch)	Min.
0.0023	0.16	0.26	±0.0079	0.13	+0.012 -0.0079	0.067	±0.0079	0.16	0.24	0.63	0.17	±0.0079 0	0.028
	0.16	0.31											
0.0039	0.16	0.26	±0.0079	0.17	+0.012 -0.0079	0.091	±0.0079	0.24	0.24	0.69	0.17	±0.0079 0	0.031
	0.16	0.33											
0.0062	0.16	0.37	±0.0079	0.22	+0.012 -0.0079	0.134	±0.0079	0.24	0.20	0.79	0.17	±0.0079 0	0.035

Specification of electronic wire

Power supply	MCCB	ELB or ELCB	Power cable	Earth cable	Communication cable
Max : 242 V Min : 198 V	XA	XA, 30 mA 0.1 sec	0.0039 inch² (2.5 mm²)	0.0039 inch² (2.5 mm²)	0.0012~0.0023 inch² (0.75~1.5 mm²)

※ Run transmission wiring between the indoor and outdoor units through a conduit to protect against external forces, and feed the conduit through the wall together with refrigerant piping.

- Decide the capacity of ELCB(or MCCB+ELB) by below formula.

The capacity of ELCB(or MCCB+ELB) X [A] = 1.25 X 1.1 X ΣAI

※ X : The capacity of ELCB(or MCCB+ELB).

※ ΣAI : Sum of Rating currents of each indoor unit.

※ Refer to each installation manual about the rating current of indoor unit.

- Decide the power cable specification and maximum length within 10% power drop among indoor units.

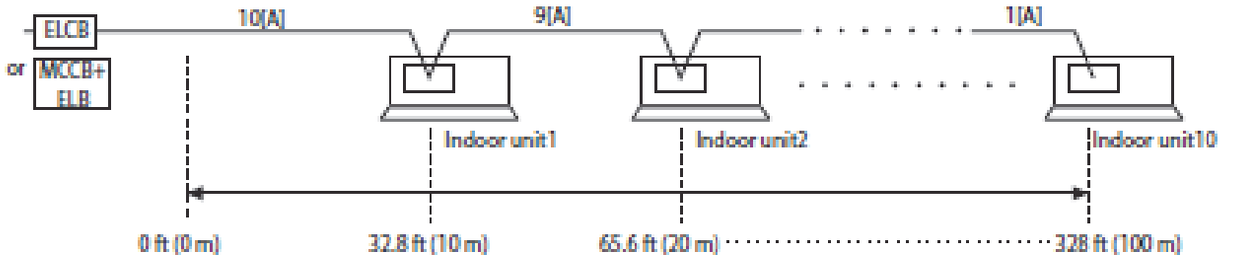
$$\sum_{k=1}^{n} \left(\frac{Coef \times 35.6 \times L_k \times I_k}{1000 \times A_k} \right) < 10\% \text{ of input voltage[V]}$$

※ Coef: 1.55

※ L_k: Distance among each indoor unit[m]
A_k: Power cable specification[mm²] I_k:
Running current of each unit[A]

Example of Installation

- Total power cable length L = 328 ft(100 m), Running current of each units 1[A]
- Total 10 indoor units were installed

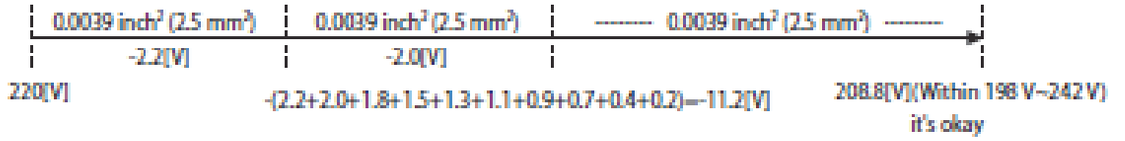


- Apply following equation.

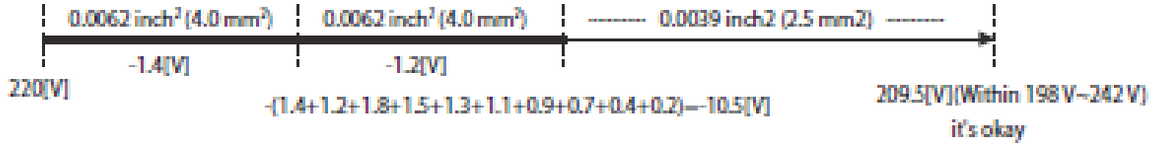
$$\sum_{k=1}^{n} \left(\frac{\text{Coef} \times 35.6 \times L_k \times I_k}{1000 \times A_k} \right) < \text{10 \% of Input voltage[V]}$$

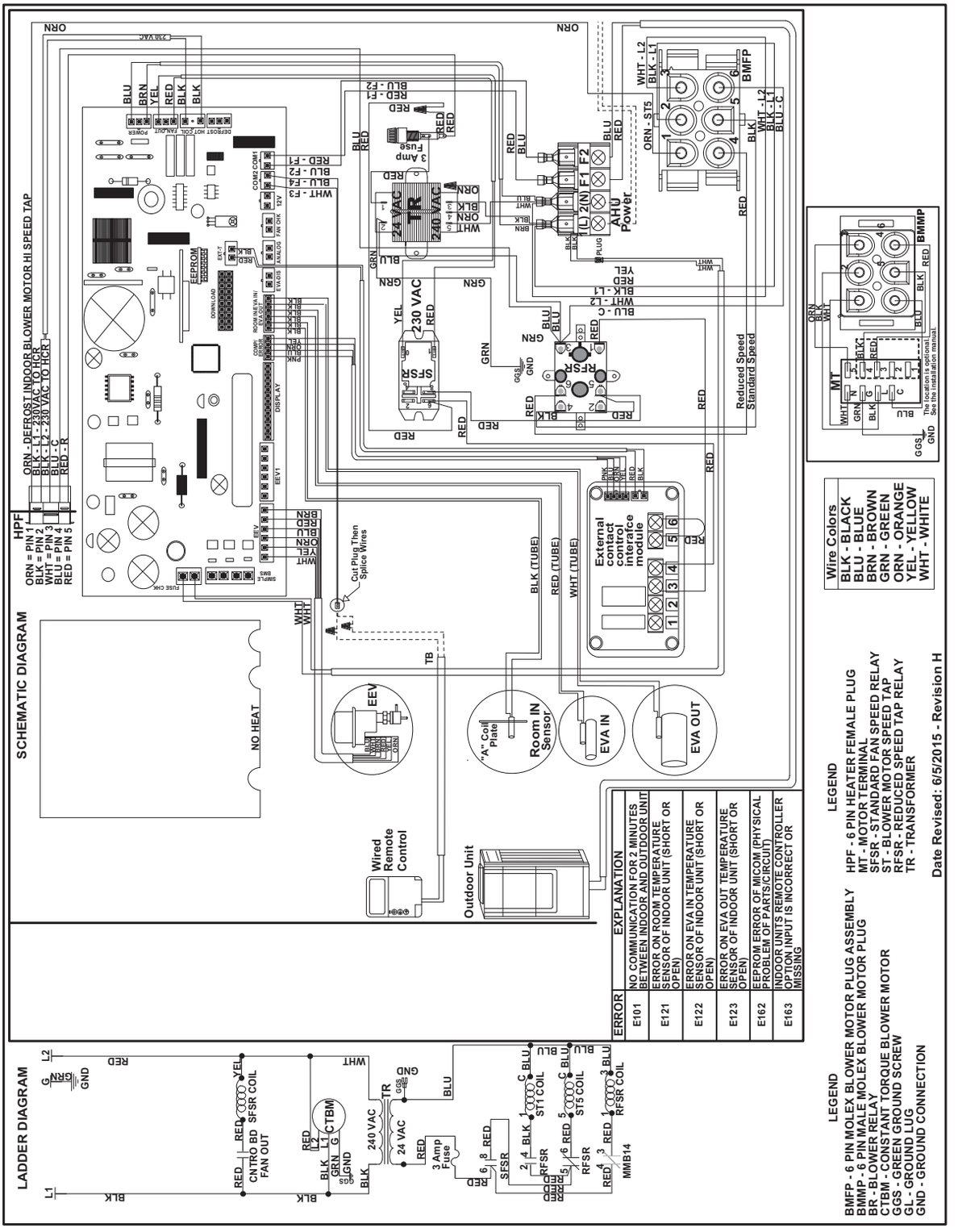
❉ Calculation

- Installing with 1 sort wire.



- Installing with 2 different sort wire.




SCHEMATIC DIAGRAM
LADDER DIAGRAM
ORN - DEFROST INDOOR BLOWER MOTOR HI SPEED TAP
BLK - L1 - 230VAC TO HCR
BLU - C - 230 VAC TO HCR
RED - R
HPF
ORN = PIN 1
BLK = PIN 2
WHT = PIN 3
BLU = PIN 4
RED = PIN 5
NO HEAT
EEV
"A" Coil Plate
Room IN Sensor
EVA IN
EVA OUT
Wired Remote Control
Outdoor Unit
Cut Plug,Then Splice Wires
External contact control interafce module
TB
BLK (TUBE)
RED (TUBE)
WHT (TUBE)
230 VAC
24 VAC
TR
SFSR
RFSR
AHU Power
BMFP
BMMP
MT
Reduced Speed
Standard Speed
3 Amp Fuse
CNTRO BD FAN OUT
CTBM
MMB14
ST1 COIL
ST5 COIL
SFSR COIL
RFSR COIL
Wire Colors
BLK - BLACK
BLU - BLUE
BRN - BROWN
GRN - GREEN
ORN - ORANGE
YEL - YELLOW
WHT - WHITE
ERROR
EXPLANATION
E101
NO COMMUNICATION FOR 2 MINUTES BETWEEN INDOOR AND OUTDOOR UNIT
E121
ERROR ON ROOM TEMPERATURE SENSOR OF INDOOR UNIT (SHORT OR OPEN)
E122
ERROR ON EVA IN TEMPERATURE SENSOR OF INDOOR UNIT (SHORT OR OPEN)
E123
ERROR ON EVA OUT TEMPERATURE SENSOR OF INDOOR UNIT (SHORT OR OPEN)
E162
EEPROM ERROR OF MICOM (PHYSICAL PROBLEM OF PARTS/CIRCUIT)
E163
INDOOR UNITS REMOTE CONTROLLER OPTION INPUT IS INCORRECT OR MISSING
LEGEND
BMFP - 6 PIN MOLEX BLOWER MOTOR PLUG ASSEMBLY
BMMP - 6 PIN MALE MOLEX BLOWER MOTOR PLUG
BR - BLOWER RELAY
CTBM - CONSTANT TORQUE BLOWER MOTOR
GGS - GREEN GROUND SCREW
GL - GROUND LUG
GND - GROUND CONNECTION
HPF - 6 PIN HEATER FEMALE PLUG
MT - MOTOR TERMINAL
SFSR - STANDARD FAN SPEED RELAY
ST - BLOWER MOTOR SPEED TAP
RFSR - REDUCED SPEED TAP RELAY
TR - TRANSFORMER
Date Revised: 6/5/2015 - Revision H

Electric Heat Kit (optional) Installation

Prior to installation, observe these warnings and all electrical wiring precautions given on p. 20.

⚠WARNING

Hazardous Voltage!

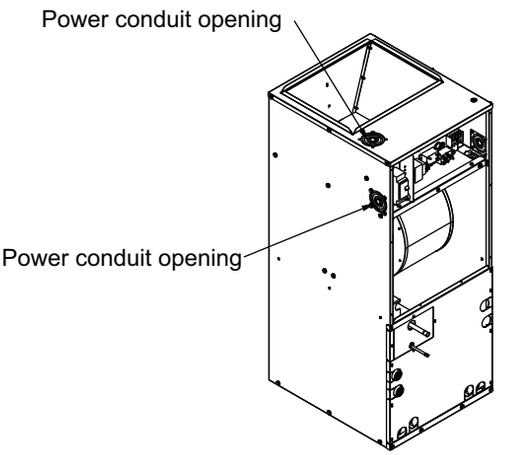
Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Note: *Install separate power supplies for the electric heat kit and the indoor unit.*

To install the electric heat kit, follow this procedure:

1. Remove the blower and control box access panel (door).
2. Install cable connectors in either of the 7/8 in. power conduit openings on the left side of the control box.

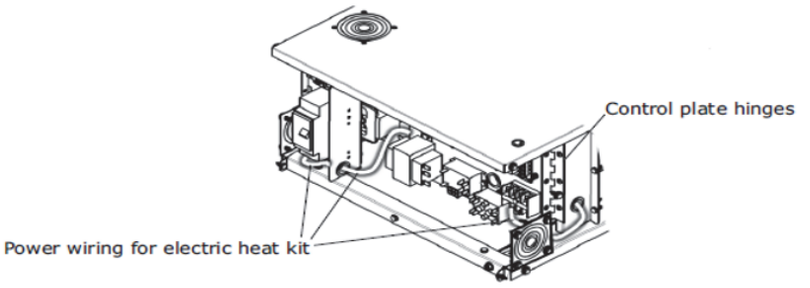
Figure 12. Power conduit openings in indoor unit



3. Connect the provided power pigtail leads with ring connectors (included with the heat kit) to 1(L) and 2(N) terminals located on the right side of the control box (see Figure 11, p. 22 for terminal locations).
4. Route the power pigtail leads through the control box opening pictured in Figure 13, p. 27 and continue routing them to the left side of the control box for connection to the heat breakers in a later step.
5. Remove the screws holding the hinged control plate to the indoor unit and swing the control plate outward to expose the back side of the control box.
6. Remove the screws securing the electric heat hit block-off plate and remove the plate. Save the screws.

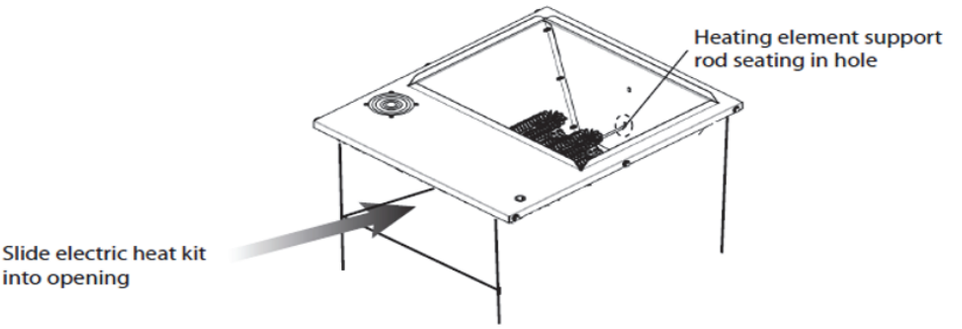
   Note: *The back side of the control box and block-off plate cannot be seen in Figure 13 because the control box is still in place.*

Figure 13. Cutaway of indoor unit showing route of electric heat kit wiring



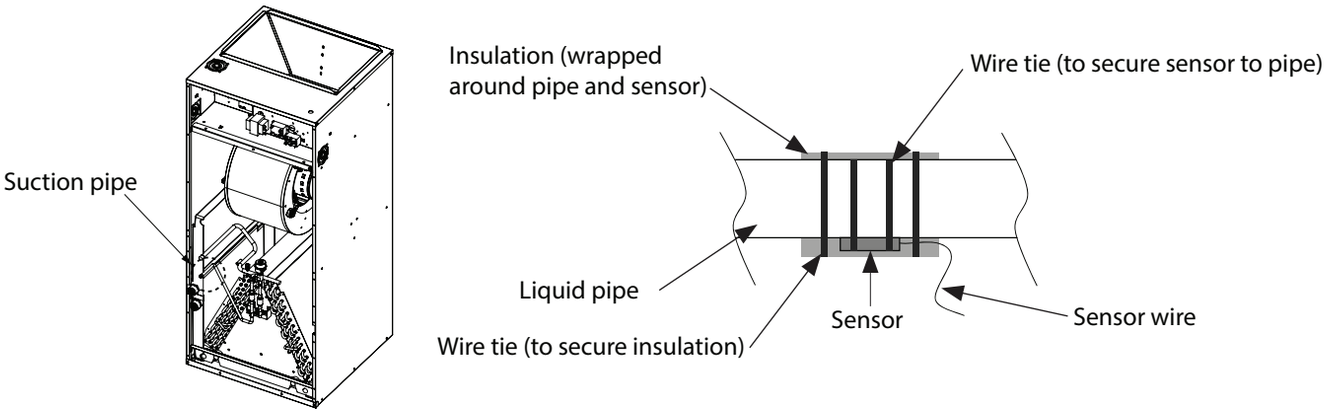
7. Carefully insert the electric heat kit into the opening that was covered by the block-off plate and secure the heating element with the screws from Step 6. The heating element support rod must be seated in the hole on the opposite side of the discharge. See Figure 14.

Figure 14. Top of indoor unit showing control box with access panel removed



8. Install the breakers at the front left of the control box.
9. Connect the power pigtail leads that are connected at 1(L) and 2(N) to the bottom of the breakers.
10. Insert the power wires through the holes in the casing and through the cable connectors.
11. Connect the black supply wire to the high-voltage connection lug on the heat kit breaker.
12. Connect the white supply wire to the other high-voltage connection lug on the heat kit breaker.
13. Connect the green (ground) wire to the ground lug to the left of the accessory heat kit breakers and tighten the ground lug screw. Leave slack in the ground wire to allow service to the unit without disconnecting the ground wire.
14. Connect the six-pin male plug on the electric heater assembly to the six-pin female plug mounted at the bottom of the control assembly door.
15. Remove the wiring diagram from the electric heat kit. Remove the paper that covers the adhesive back and place the electric heat wiring diagram over the wiring diagram located on the blower housing.
16. Route the temperature sensor from the electric heat kit to the lower section of the indoor unit cabinet. Attach the sensor to the bottom of the liquid pipe using the included wire ties (see Figure 15).

Figure 15. Attaching temperature sensor to the indoor unit



17. Wrap included insulation around the sensor and secure with included wire ties.
18. Remove the breaker opening cover plate on the indoor unit door and secure the doors to the unit.

Note: *Each electric heat kit has one circuit breaker included. Circuit breakers protect the wiring inside the indoor unit in the event of a short circuit and they provide a means of disconnecting power to the unit. The circuit breakers in the air handling units are not meant to protect the branch circuit wiring between the unit and the building breaker panel. If sheathed cable is used, refer to NFPA 70: National Electrical Code® (NEC®) or CSA 22.1: Canadian Electrical Code, Part I, and local codes for additional requirements concerning supply circuit wiring. Refer to Table 3 for electrical data.*

Important: *All field wiring must be rated at 140°F (60°C) or higher. Refer to the wiring diagrams on the unit or in this manual for more information, and to NFPA 70: National Electrical Code® (NEC®) or CSA 22.1: Canadian Electrical Code, Part I, and local codes for wiring material requirements.*

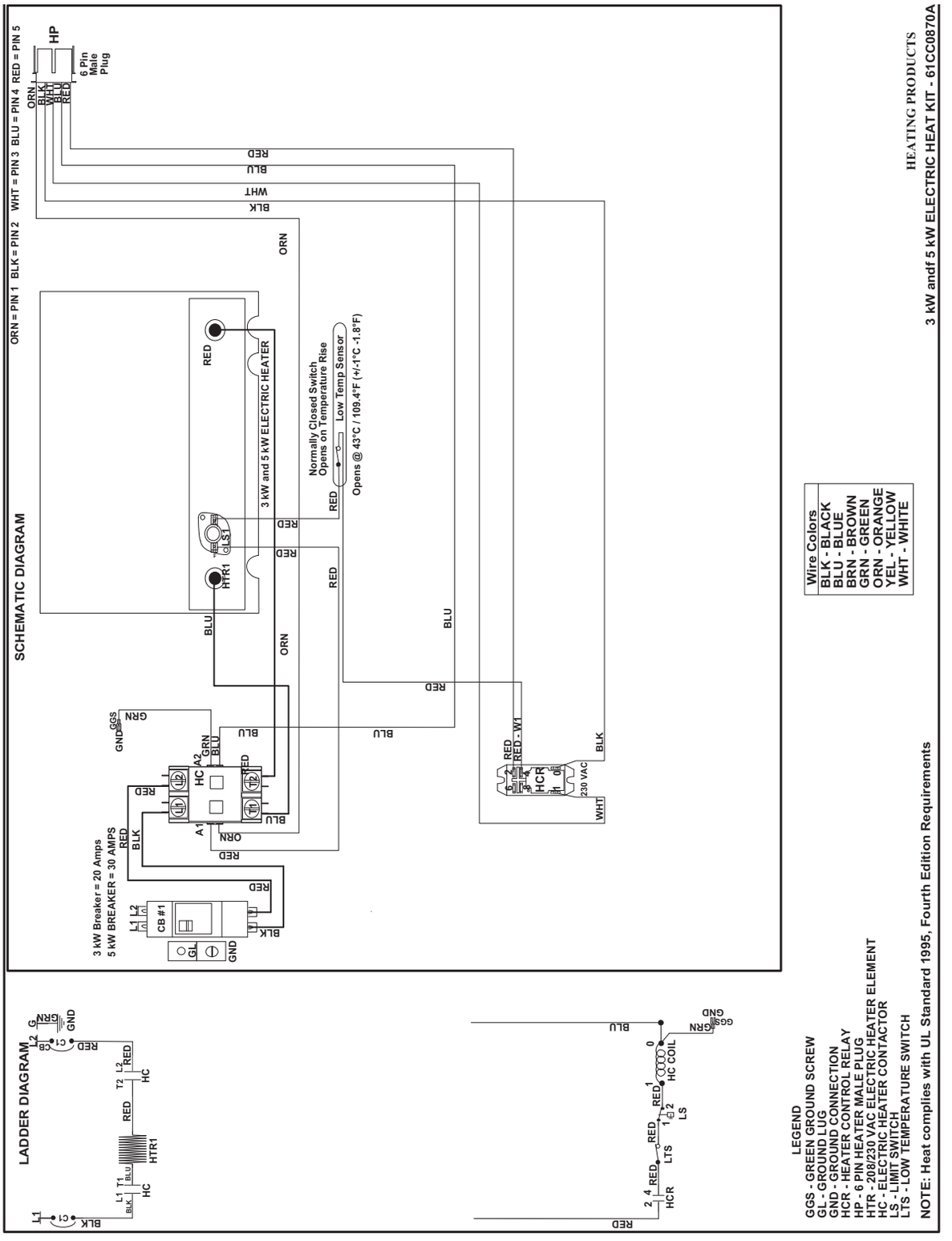
Power Supply Connections for Electric Heaters

If the indoor unit was installed prior to installing the electric heater or if an older indoor unit is being replaced, the supply power wires must be checked to make sure they are the proper sizes to handle the current load for the heaters. Refer to Table 3 for the correct wire size.

Table 3. Electrical data

Model	Electric heater				Minimum circuit ampacity (MCA)		Maximum overcurrent protection (MOCP)		Minimum wire size (AWG)
	Circuit breaker quantity	kW	Amperes						
			208 V	240 V	208 V	240 V	208 V	240 V	
4TVM0009C100N* 4TVM0012C100N*	N/A	N/A	N/A	N/A	1.04	0.90	15	15	#14
	1	3	10.82	12.50	14.56	16.53	15	20	#12
4TVM0018C100N*	N/A	N/A	N/A	N/A	1.04	0.90	15	15	#14
	1	3	10.82	12.50	14.56	16.53	15	20	#12
	1	5	18.03	20.83	23.57	26.94	25	30	#10

Figure 16. Electric heat kit wiring diagram



Motor Speed Selection

The indoor unit uses a 240 Vac constant-torque, high-efficiency motor with motor speed taps at 24 Vac, 0.03 A, 60 Hz, 1 ph. The 24 Vac circuit has a total amperage of 0.14 A.

Motor speed taps can be adjusted according to installation needs. Table 4 shows motor wire terminal definitions and default seed tap settings. Table 5 contains airflow data.

To change motor speeds, follow this procedure:

1. Turn off all electrical supply circuits to the indoor unit at the main service panel.
2. Remove the fan motor door and switching off the indoor unit circuit breaker(s).
3. Disconnect the wire from the isolation relay terminal and reconnect the desired wire to the terminal. The BLACK wire is high (standard) speed. The WHITE wire is low (reduced) speed. The ORANGE wire is electric heat high fan speed. The ORANGE wire must be connected to speed tap 5, which will provide sufficient airflow for the size of the electric heat kit.
4. Restore power by switching on the circuit breaker(s) and re-install the indoor unit fan door.
5. Turn on all electrical supply circuits to the indoor unit at the main service panel.
6. If the BLACK wire (standard) is connected to tap 5, the orange wire that was originally connected to tap 5 can be connected to any tap except 5.

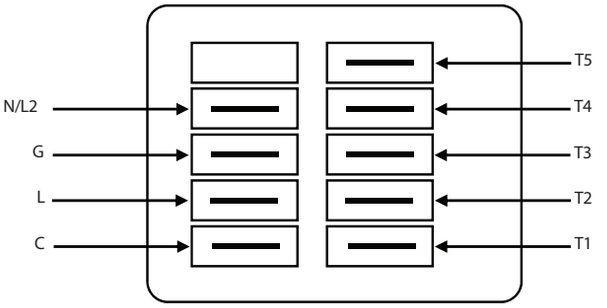


Table 4. Motor wiring terminals and default speed tap settings

Terminal	Connection	Default speed tap settings
C	Speed tap common: 24 Vac common	
L	Supply voltage: 240 Vac line 1	
G	Ground connection	
N/L2	Supply voltage: 240 Vac line 2	
T1	Low speed tap: 24 Vac input	
T2	Medium-low speed tap: 24 Vac input	
T3	Medium speed tap: 24 Vac input	“Reduced” speed
T4	Medium high-speed tap: 24 Vac input	“Standard” speed
T5	High-speed: 24 Vac input	High speed for electric heat

Table 5. Airflow data: 0.75 ton and 1 ton units

Motor speed tap	4TVM0009C100N* 4TVM0012C100N*		
	External static pressure (inch)	Cubic ft/min (CFM)	Revolutions/minute (RPM)
5	0.1	545	603
	0.2	496	670
	0.25	492	719
	0.3	475	745
	0.4	423	817
	0.5	382	903
4	0.1	523	590
	0.2	449	647
	0.25	426	681
	0.3	400	717
	0.4	373	796
	0.5	302	882
3	0.1	519	586
	0.2	426	634
	0.25	399	670
	0.3	374	703
	0.4	**320**	**816**
	0.5	269	873
2	0.1	512	585
	0.2	399	626
	0.25	374	657
	0.3	346	694
	0.4	280	817
	0.5	234	860
1	0.1	502	578
	0.2	376	609
	0.25	346	646
	0.3	320	684
	0.4	241	819
	0.5	179	894

Notes: Default motor tap settings

- Standard speed (heat or cool): light shaded cells
- Reduced speed (fan only): darker shaded cells and bold font

Table 6. Airflow data: 1.5 ton units

Motor speed tap	4TVM0018C100N*		
	External static pressure (inch)	Cubic ft/min (CFM)	RPM
5	0.1	685	765
	0.2	658	812
	0.25	639	839
	0.3	634	873
	0.4	610	921
	0.5	575	970
	0.6	532	1029
	0.7	495	1080
4	0.1	630	717
	0.2	595	763
	0.25	580	785
	0.3	575	834
	0.4	531	882
	0.5	508	934
	0.6	455	995
	0.7	411	1053
3	0.1	549	642
	0.2	525	718
	0.25	504	748
	0.3	485	780
	0.4	**467**	**846**
	0.5	427	901
	0.6	458	996
	0.7	416	1053
2	0.1	528	629
	0.2	485	692
	0.25	488	730
	0.3	463	768
	0.4	423	828
	0.5	405	896
	0.6	288	987
	0.65	271	1008
1	0.1	491	596
	0.2	446	662
	0.25	425	695
	0.3	397	734
	0.4	351	801
	0.5	296	901
	0.55	248	923

Notes: Default motor tap settings
- Standard speed (heat or cool): light shaded cells
- Reduced speed (fan only): darker shaded cells and bold font

External Contact Control

The indoor unit has an external contact control interface module installed in it by default. (See the small control board in the center of Figure 17.)

A jumper is installed on this board between terminals 5 and 6. As programmed from the factory, if this jumper is removed, the indoor unit will shut down and any connected wired controllers will be disabled.

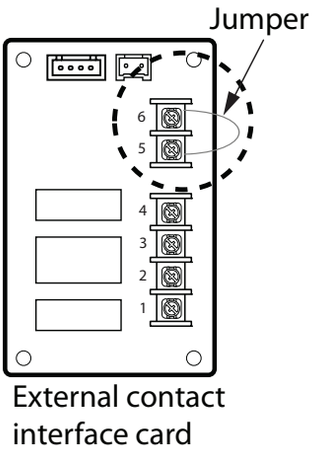
Remove this jumper to connect a condensate drain line float switch or auxiliary drain pan float switch. A dry contact, normally closed switch is required.

NOTICE

Avoid control board damage!

Connect only a dry contact, normally closed switch to these terminals. If a switch with voltage is connected, it will damage the external contact interface card and the main control board.

Figure 17. External contract interface card



Configuration

Use the Technician Utilities Tool (TUT) to change the configuration of the CAHU according to the following procedure:

1. At the Indoor Unit Option Writer screen on the TUT, select the desired option codes by referring to Table 7, p. 35 and Table 8, p. 36.

   In addition, use the following table and notes to determine which digits can be modified.

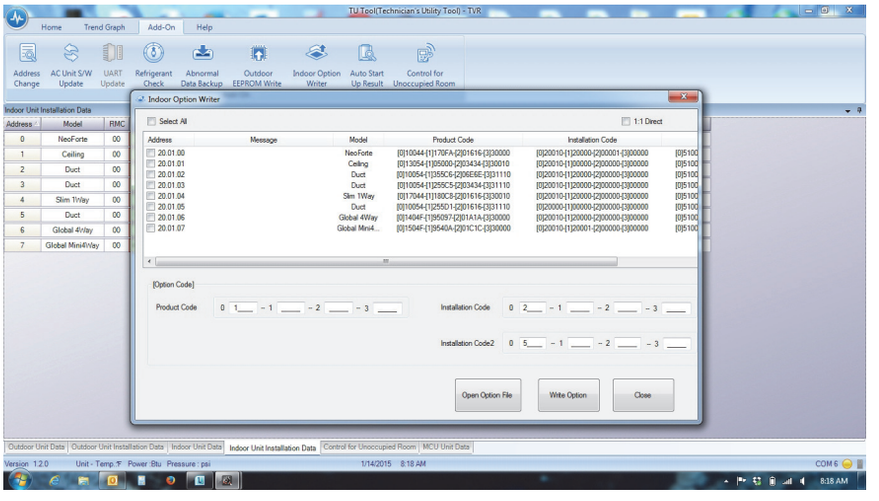
Digit	1	2	3	4	5	6	7	8	9	10	11	12
Installation Option #1	[0]	2	0	0	1	0	[1]	0	0	0	0	0
Installation Option #2	[0]	5	0	0	0	0	[1]	0	0	0	0	0

Digit	13	14	15	16	17	18	19	20	21	22	23	24
Installation Option #1	[2]	0	0	0	0	0	[3]	0	0	0	0	0
Installation Option #2	[2]	0	0	0	0	0	[3]	0	0	0	0	0

Notes:

1. Digits 1, 7, 13 and 19 (in brackets) are factory set and cannot be changed.
2. For Installation Option #1, digit 2 will always be "2". See Table 7 for the option code settings.
3. For Installation Option #2, digit 2 will always be "5". See Table 8 for the option code settings.
4. Digits shown in black boxes should always be set to "0".

2. To save your settings, select the **Write Option** button. See the figure below for an example of the Indoor Unit Option Writer screen on the TUT.



Installation Option #1

With Installation Option #1, **digit 2** is set to "**2**". The options shown in Table 7 can then be set to the values in the right column.

Table 7. Option setting mode: Digit 2 = 2

Digit	Option	Set digit to...
1	Not seen in configuration mode.	Factory set to 0. Cannot be changed.
2	Option setting mode	2
4	Remote temperature sensor/ minimizing fan operation when thermostat is Off	**Remote temperature sensor** / **Minimizing fan operation when thermostat is Off** 0: Disable / Disable 1: Enable / Disable 2: Disable / Enable heating only 3: Enable / Enable heating only 4: Disable / Enable cooling only 5: Enable / Enable cooling only 6: Disable / Enable all 7: Enable / Enable all **Notes:** • Minimizes fan operation when thermostat is turned Off. Fan operates for 20 seconds at an interval of 5 minutes in heat mode. • Fan stops when thermostat is off in cooling mode. • If there is a need to minimize fan operation in the off mode, a wired controller or an external room temperature sensor is required. If using a wired controller, you will need to set the wired controller to sense temperature at the internal temperature sensor in the wired controller.
5	Central control	0: Disabled 1: Enabled
7	Not seen in configuration mode.	Factory set to 1. Cannot be changed.
9	Electronic heater	0: Disabled 1: Enabled (fan runs continually when the heater is turned on)
11	EEV position when heating is satisfied	0: EEV step is minimum (default) 1: Reduced noise setting
13	Not seen in configuration mode.	Factory set to 2. Cannot be changed.
14	External controller—CAHU	0: Disabled 1: On/Off control 2: Off-only control
19	Not seen in configuration mode.	Factory set to 3. Cannot be changed.
21	Heat setting compensation	**Heat setting compensation** / **Removing condensate in heating mode** 0: Default[a] / Disable 1: 3.6°F (2°C) / Disable 2: 9°F (5°C) / Disable (a) Default setting value: 3.6°F (2°C)
22	EEV step of stopped unit during oil return/defrost mode	0: EEV step is minimum 1: Oil return or reduce noise in defrost mode

Installation Option #2

With Installation Option #2, **digit 2** is set to "**5**". The options shown in Table 8 can then be changed to the values in the right column.

Table 8. Option setting mode: Digit 2 = 5

Digit	Option	Set digit to...
1	Not seen in configuration mode.	Factory set to 0. Cannot be changed.
2	Option setting mode	5
3	Auto-changeover (HR only)	0: Disabled 1: Enabled
4	Heating deadband ***Note:*** *Applies only when digit 3 is set to "1" (auto-changeover mode is enabled). See Figure 18, p. 37.*	0: Disabled 1: 0.9°F (0.5°C) 2: 1.8°F (1°C) 3: 2.7°F (1.5°C) 4: 3.6°F (2°C) 5: 4.5°F (2.5°C) 6: 5.4°F (3°C) 7: 6.3°F (3.5°C)
5	Cooling deadband ***Note:*** *Applies only when digit 3 is set to "1" (auto-changeover mode is enabled). See Figure 18, p. 37.*	0: Disabled 1: 0.9°F (0.5°C) 2: 1.8°F (1°C) 3: 2.7°F (1.5°C) 4: 3.6°F (2°C) 5: 4.5°F (2.5°C) 6: 5.4°F (3°C) 7: 6.3°F (3.5°C)
6	Standard for auto-changeover (heating to cooling) ***Note:*** *Applies only when digit 3 is set to "1" (auto-changeover mode is enabled). See Figure 18, p. 37.*	0: 1.8°F (1°C) 1: 2.7°F (1.5°C) 2: 3.6°F (2°C) 3: 4.5°F (2.5°C) 4: 5.4°F (3°C) 5: 6.3°F (3.5°C) 6: 7.2°F (4°C) 7: 8.1°F (4.5°C)
7	Not seen in configuration mode.	Factory set to 1. Cannot be changed.
8	Standard for auto-changeover (cooling to heating) ***Note:*** *Applies only when digit 3 is set to "1" (auto-changeover mode is enabled). See Figure 18, p. 37.*	0: 1.8°F (1°C) 1: 2.7°F (1.5°C) 2: 3.6°F (2°C) 3: 4.5°F (2.5°C) 4: 5.4°F (3°C) 5: 6.3°F (3.5°C) 6: 7.2°F (4°C) 7: 8.1°F (4.5°C)
9	Time required for mode change **Note:** Applies only when digit 3 is set to "1" (auto-changeover mode is enabled).	0: 5 minutes 1: 7 minutes 2: 9 minutes 3: 11 minutes 4: 13 minutes 5: 15 minutes 6: 20 minutes 7: 30 minutes
10	Compensation option for height or pipe length difference between indoor units	0: Use default value 1: Use when height or pipe length difference is as specified.[a] 2: Use when height or pipe length difference is as specified.[b]

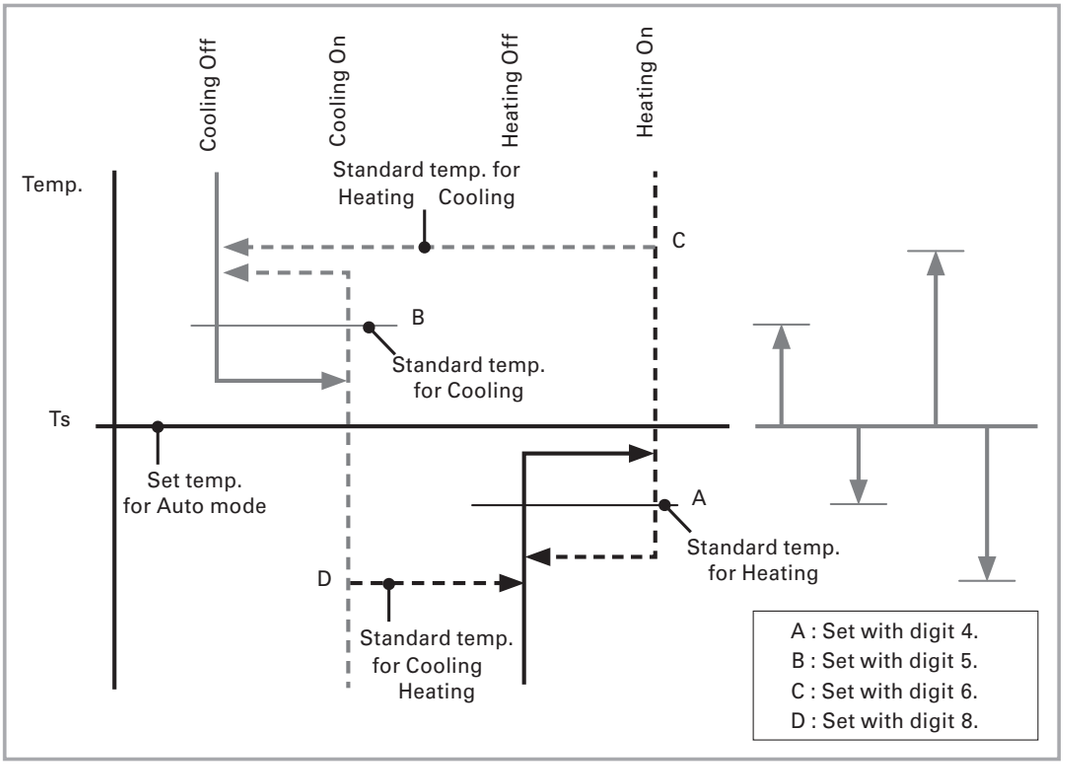
Table 8. Option setting mode: Digit 2 = 5 (continued)

Digit	Option	Set digit to...
18	Controller variables for auxiliary heater	**Set temperature for auxiliary heat On** / **Time delay for auxiliary heat On** 0: No temperature offset / No delay 1: No temperature offset / 10 minutes 2: No temperature offset / 20 minutes 3: 2.7°F (1.5°C) / No delay 4: 2.7°F (1.5°C) / 10 minutes 5: 2.7°F (1.5°C) / 20 minutes ***Note:*** *If further temperature offsets are desired, please contact technical support.*
19	Not seen in configuration mode.	Factory set to 3. Cannot be changed.

(a) Height difference between the indoor unit being configured and the lowest indoor unit is > 98.4 ft, or pipe length difference between the outdoor unit and the furthest indoor unit and the outdoor unit and the indoor unit being configured is > 360.9 ft.

(b) Height difference between the indoor unit being configured and the lowest indoor unit is 49.2–98.4 ft, or pipe length difference between the outdoor unit and the furthest indoor unit and the outdoor unit and the indoor unit being configured is 164–360.9 ft.
Example: If the unit being configured is 60 ft away from the outdoor unit, and the furthest indoor unit is 300 ft from the outdoor unit, the pipe length difference is 240 ft (300-60=240), so Digit 10 should be set to "2."

Figure 18. Heat recovery unit operating in Auto Changeover mode



Note: *Minimum compressor off time for heating or cooling is set by Digit 9.*

Operation

Operating Tips

Follow these tips when using your unit:

Cooling	If the outside temperature is much higher than the selected indoor temperature, it may take longer than expected to achieve the desired temperature. Avoid making extreme changes in the temperature setting. This practice wastes energy and does not cool the room faster.
Heating	Because the unit heats the room by removing heat energy from outdoor air, the heating capacity may decrease when outdoor temperatures are extremely low. If the unit provides insufficient heat, use an additional heating source in combination with the unit.
Defrost	When the unit runs in Heat mode, frost may form due to the temperature difference between the unit and the outside air. If this happens: • The unit stops heating. • The unit will operate automatically in Defrost mode for 10 minutes. • The steam produced on the outdoor unit in Defrost mode is safe. No intervention is required; after about 10 minutes, the unit will resume normal operation. The unit will not operate when it starts to defrost.
Fan	The fan may not operate for 3–5 minutes after turning on the unit, to prevents cold air from blowing on occupants while the unit is warming up.
High indoor and outdoor temperatures	If both indoor and outdoor temperatures are high and the unit is running in Heat mode, the outdoor unit fan and compressor may stop at times. This is normal; wait until the unit turns on again.
Power failure	A power failure will cause the unit to stop operating. When power returns, the unit will automatically resume operation.
Minimum Off Timer	If the unit has just been turned on, it will not produce cool/warm air for 3 minutes. This delay mechanism protects the outdoor unit compressor.

Internal Protections

Internal protections operate if an internal fault occurs in the unit.

Type	Description
Cold air dump	The internal fan will be off to prevent a cold air dump when the heat pump is in defrost mode.
Defrost cycle	The internal fan will be off to prevent a cold air dump when the heat pump is in defrost mode.
Anti-short cycle timer	The compressor observes a 3-minute off time when cycling power to the unit or after an outage.

Note: *If the heat pump is operating in Heat mode, a defrost cycle is activated to remove frost from an outdoor unit that may have accumulated at low temperatures. The internal fan is switched off automatically and restarted only after the defrost cycle is completed.*

Operating Ranges

For efficient use, operate the unit within the ranges shown in this table.

Mode	Outdoor temperature	Indoor temperature	Indoor humidity
Cooling	23°F (-5°C) to 118°F (48°C)	64°F (18°C) to 90°F (32°C)	80% or less
Heating	-13°F (-25°C) to 75°F (24°C)(a)	81°F (27°C) or less	—

Note: *The standard temperature for heating is 45˚F (7˚C). If the outdoor temperature drops to 32˚F (0˚C) or below, the heating capacity can be reduced depending on the temperature condition. If the indoor cooling temperature is set higher than 90˚F (32˚C), the unit will not cool to its full capacity.*

(a) For the single-phase (mini) outdoor unit, the outdoor operating minimum temperature is -4°F (-20°C) for heating mode.

Operating Mode for Heat Pump Systems

For heat pump systems, the main indoor unit controls whether the system operates in heating or cooling. If the main indoor unit calls for heating and sub-indoor units calls for cooling, the main indoor unit (and any other sub-indoor units that call for heating) will operate in heating mode, and the sub-indoor units that call for cooling will do nothing.

Maintenance

Cleaning the Exterior

NOTICE

Avoid equipment damage and risk of fire!

Avoid using benzene or other flammable solvents. They may damage the surface of the unit and increase the potential for fire.

Use a dry or damp cloth to wipe the surface of the unit as needed. If necessary, use mild soap and water on a damp cloth. Use a soft brush to remove dirt from the coil.

Periodic Maintenance Checks

Refer to the schedule given in Table 9 for proper unit maintenance.

Note: *If the unit will not be used for an extended period of time, operate it in Fan mode for 3–4 hours to thoroughly dry it and then disconnect the power plug. Moisture left in the components can cause odors and internal damage.*

Table 9. Maintenance schedule

Description	Monthly	Every 4 months	Once a year	As needed
Replace the air filter[a]				x
Clean the condensate drain pan[b]			x	
Thoroughly clean the heat exchanger[b]			x	
Clean the condensate drain pipe[b]		x		

(a) The type of filter will indicate the frequency. Replace it more frequently if the area is very dusty.
(b) These operations must always be performed by qualified personnel. For more detailed information, see the installation manual for this unit.

Error Codes

As a protection strategy, the unit will stop operating if an error code is generated. If the unit is turned on before the problem is resolved, the error code will re-appear and the unit will stop operating again.

For interpreting error codes, refer to the list of error codes in the Technician Utilities Tool (TUT) or the Service Manual for VRF Outdoor and Indoor Units (VRF-SVM046*).

Troubleshooting

Refer to Table 10 for solutions to common problems.

Table 10. Solutions to common problems

Problem	Solution
The unit does not operate immediately after restarting it.	The anti-short cycle timer prevents the unit from operating immediately to keep it from overloading. The unit will start in 3 minutes.
The unit does not operate.	Verify the following: There has not been a power failure. The circuit breaker is switched on/fuses are good.
The temperature does not change.	Verify that the unit is not operating in Fan mode. If it is, select a different mode.
The unit is not producing warm/ cool air.	Verify the following: Temperature setting on zone control is higher/lower than the current temperature. Air filter is not clogged with dirt. If the unit has just been turned on, wait 3 minutes for the anti-short cycle timer to expire. Air flow is unobstructed. Line size and length is correct and does not exceed factory recommendations. Operating mode is heat/cool. If unit is not producing warm air, is it set to Cool mode? Remote control is not for a cooling-only unit. That the unit has not been installed in direct sunlight. If so, hang curtains or shades on windows to filter the sun and increase unit efficiency.
Odors permeate the room during operation.	Verify the origin of the odor. Operate the unit in Fan mode or open the windows to air out the room.
The unit makes a bubbling sound	A bubbling sound may be heard when the refrigerant is circulating through the indoor unit during certain system operating conditions, which should normally be of short duration.
The unit does not turn on/off with the wired remote control.	Ensure that the wired remote control is not set for Group Control.
Indicators on the digital display flash.	Press the Power button on the remote control to turn the unit off. Then switch the circuit break off and then on again.

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