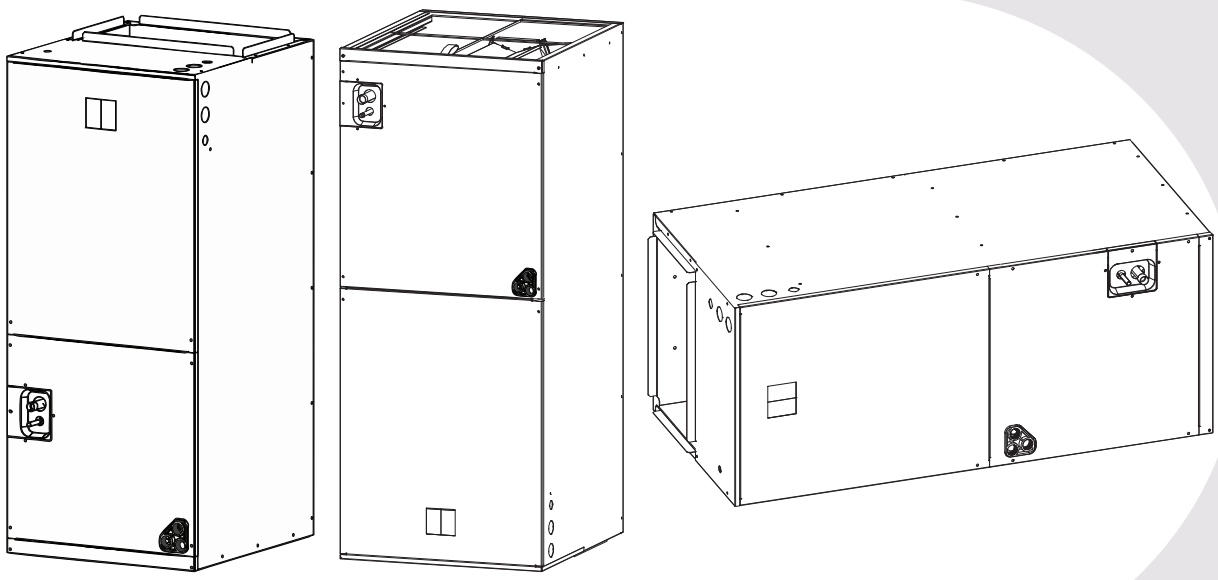
DUCTED CENTRAL SPLIT SYSTEM AIR CONDITIONER / HEAT PUMP

PIONEER®

DYC-18 Inverter Series

For 24,000-56,000 BTU/hr Systems

Multi-Position Air Handling Unit (R-454B) - DC0 Indoor (2~5 Ton)



Models:

- **DC024GCSICDHRT / DC036GCSICDHRT**
- **DC048GCSICDHRT / DC060GCSICDHRT**

Installation & User Manual

IMPORTANT NOTICE:
Read this manual carefully before installing or operating your new air conditioning system. Be sure to save this manual for future reference.

REV250528

CONTENTS

Safety Symbols & Instructions

1

Symbol Keywords

	**Warning**	The warnings in this document are identified by warning triangles printed on a black background. The keyword at the beginning of the warning indicates the type and severity of the risk if no measures are taken to prevent it.

The following keywords are defined and used in this document:

▶	**Dangerous**	Means a hazardous situation, which will lead to death or serious injury if not avoided.
▶	**Warning**	Indicates a hazardous situation, which may lead to death or serious injury if not avoided.
▶	**Caution**	Indicates a hazardous situation, which may cause mild to moderate injury if not avoided.
▶	**Note**	Used to deal with behaviors unrelated to personal injury.

Important Information

	This symbol represents important information that is not harmful to people or property.

Safety Symbols & Instructions

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Safety

Read Before Continuing

Warning:

- Qualified personnel must install the unit with a capability certificated for handling R-454B refrigerant. Refer to regulations and laws utilized at the installation location.
- Children aged 8 and above, as well as individuals with lack of experience or reduced physical, sensory, or mental capabilities can only use the appliance if supervision or instruction is given. Children must not play with or near the appliance. Children or untrained personnel should be restricted from cleaning and performing maintenance on the appliance, unless they're given supervision.
- Install the appliance in accordance with national wiring regulations.
- The minimum clearance to combustible surfaces (curtains, blinds, etc.) from the appliance should be 12 inches (305 mm).

- Install the leak detection system. The unit must be powered except for service.
- Before accessing the connection terminals, all power circuits must be disconnected.
- Read these instructions carefully before attempting to install or operate. Failure to follow these instructions may result in incorrect installation, adjustment, repair or maintenance, which may result in fire, electric shock, property damage, personal injury or death.
- Certified technicians must perform the installation, service, maintenance, and repairs of this unit.
- Perform servicing as recommended by the manufacturer.
- Certified technicians must install and recycle the product.
- Keep any required ventilation openings clear of obstruction.
- Store the appliance in a well-ventilated area where the room size corresponds to the room area as specified for operation.
- Store the appliance in a room without continuously operating open flames (operating gas appliance) and ignition sources (operating electric heater).

Safety Symbols & Instructions 1

Safety (Continued)

Warning: Fire, Electric Shock, Property Damage, Personal Injury, or Death

- The whole installation process must comply with national, state, and local codes. If you need more information, contact your local dealer.
- Dispose of properly in accordance with federal or local regulations. Flammable refrigerant is used.
- Risk of fire due to flammable refrigerant used. Follow handling instructions carefully in compliance with national regulations.

Warning: Electric Shock

- Can cause injury or death. Before servicing, disconnect all remote electric power supplies. More than one disconnect switch may be required to cut off the power of the equipment. Dangerous voltage can cause serious personal injury or death.

Warning: Electric Shock

- If the fan assembly needs to be dismantled, power off and lock all the disconnect switches supplying power to the equipment (if the device cannot be seen), so that the field power cord can be safely dismantled from the fan assembly. Otherwise, it may cause electric shock, personal injury, or death.

Warning: Fire, Electric Shock, Property Damage, Personal Injury, or Death

- Flammable refrigerant used. Consult the repair manual/owner's guide before attempting to service this product. Follow all safety precautions.
- Due to possible equipment damage or personal injury, qualified maintenance personnel must carry out the installation, repair, and maintenance. Consumers are advised to only clean/replace the filter screen. Do not operate the equipment with the access panel removed.

Warning:

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- Store the appliance in a room without continuously operating ignition sources, such as open flames, operating gas appliance, or an operating electric heater.
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odor.

Safety Symbols & Instructions

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Safety (Continued)

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

Warning:

- This product may expose you to chemicals including lead and lead components, which are known to cause cancer, birth defects, or other reproductive harm in California. For more information, visit www.P65Warnings.ca.gov.

Warning: Electric Shock

- The device must be permanently grounded. Otherwise, it will cause electric shock, personal injury, or death.

Safety Symbols & Instructions

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Safety (Continued)

Note: Fire Risk

- The product is only used for one or two residences.
- The materials of pressure ventilation system and piping system must meet the latest NFPA 90B standard.

Note:

- Make sure the fan bracket is fastened (3 motor mounting bolts - Figure 1.1.). Then before operating the device, check whether the wheels are firmly affixed to the motor shaft.

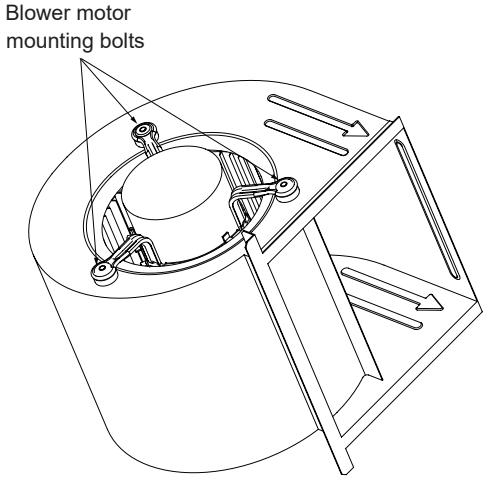

Figure 1.1.

Safety Symbols & Instructions

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Qualification of Workers

Qualified, experienced technicians must perform the installation and servicing of this equipment. Professional installation personnel must have the following experience:

- Installing the electric heater.
- Opening of sealed components.
- Opening of ventilated enclosures.
- Commissioning and troubleshooting.
- Checking the electric control part and wiring.
- Breaking into the refrigerant circuit and charging.

This document is property of customer and should be kept together with this equipment. These instructions do not cover all the different variations of the system, nor do they provide all the unexpected situations that may be encountered during the installation process.

The manufacturer recommends installing only approved matched indoor and outdoor systems. All of the manufacturer's split systems are AHRI-rated only with TXV indoor systems. Some of the benefits of installing approved matched indoor and outdoor split systems are maximum efficiency, optimum performance, and the best overall system reliability.

Safety Symbols & Instructions

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Safety Precautions for R-454B Refrigerant

Warning

- Do not attempt to accelerate the defrosting process or remove frost manually.
- Store the appliance in a room free of continuously operating ignition sources (e.g., open flames, active gas appliances, and operating electric heaters).
- Do not pierce or incinerate the appliance or its components.
- Be aware that refrigerants may be odorless.

Qualification of Workers
Competent individuals must carry out every working procedure like maintenance, service, and repair operations that affects safety. Examples for these working procedures are:

- Breaking into the refrigerating circuit.
- Opening sealed components.
- Opening ventilated enclosures.

Checks to the Area
Prior to beginning work on systems containing flammable refrigerants, complete safety checks to ensure that the risk of ignition is minimized.

Work Procedure
Conduct all work under a controlled process to minimize the risk of flammable gas or vapor from being present during service.

General Work Area
All maintenance staff and other working in the local area must be instructed on the nature of work being carried out. Avoid working in confined spaces.

Checking for Presence of Refrigerant
Check the area with an appropriate refrigerant detector prior and during work, ensuring the technician is aware of potentially toxic or flammable atmospheres. Confirm that the leak detection equipment being used is suitable for use with all applicable refrigerants (i.e. non-sparking, adequately sealed, or intrinsically safe).

Presence of Fire Extinguisher
If conducting hot work on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment must be available. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

No Ignition Sources
Individuals carrying out work related to the refrigerating system that involves exposing any pipework must not use any sources of ignition in such a manner that it may lead to a risk of fire or explosion. Keep all potential ignition sources, including smoking, at a safe distance from the installation, repair, removal, disposal areas, and locations where refrigerant may be released unintentionally into the surrounding space. Before commencing work, inspect the area to ensure that no flammable hazards or ignition risks are present. Clearly display "No Smoking" signs in the work area.

Safety Symbols & Instructions 1

Safety Precautions for R-454B Refrigerant (Continued)

Ventilated Area
Ensure the work is conducted in either an open area or in a space with adequate ventilation before breaking into the system or performing any heat-producing tasks. Maintain ventilation throughout the duration of the work. Ensure the ventilation system effectively disperses any released refrigerant and directs it safely to an external atmosphere, if possible.

Checks to the Refrigerating Equipment
When replacing electrical components, ensure that they meet the correct specifications and are suitable for their intended purpose. Follow the manufacturer's maintenance and service guidelines. If unsure, consult the manufacturer's technical support department for guidance.

Apply the following checks to installations using flammable refrigerants:

- Ensure that the refrigerant charge size complies with the minimum room size requirements when installing refrigerant-containing components.
- Verify that the ventilation equipment and exhaust outlets are functioning properly and are free from obstructions.
- If using an indirect refrigerant circuit, inspect the secondary circuit for any presence of refrigerant.
- Confirm that all equipment markings remain visible and legible. Replace or correct any illegible markings or signs.
- Install the refrigeration piping and components in locations where they are not exposed to substances that could cause corrosion. If exposure is unavoidable, verify that the components are either made from corrosion-resistant materials or are adequately protected against corrosion.

Checks to Electrical Devices
Ensure the repair and maintenance of electrical components include initial safety checks and a thorough inspection of components. If the fault cannot be corrected immediately but continuing work is necessary, implement a temporary solution that is safe and effective. Report any temporary measures to the equipment owner, ensuring all relevant parties are informed.

Initial safety checks must include:

- Fully discharging the capacitors in a controlled manner to prevent sparking.
- Verifying that no live electrical components or exposed wiring are present during system charging, refrigerant recovery, or purging.
- Confirming that the earth bonding continuity is maintained.

Repairs to Sealed Components
Replace sealed electrical components, rather than repair them.

Repairs to Intrinsically Safe Components
Replace intrinsically safe components, rather than repair them.

Safety Symbols & Instructions 1

Safety Precautions for R-454B Refrigerant (Continued)

Cabling
Do not expose the cabling to wear, corrosion, excessive pressure, vibration, sharp edges, or other adverse environmental factors. Consider the long-term effects of aging and continuous vibration from components such as compressors or fans.

Detection of Flammable Refrigerants
Do not use potential sources of ignition for refrigerant leak detection under any circumstances. Do not use a halide torch or any other detector using a naked flame.

The following methods are approved for detecting leaks in systems containing flammable refrigerants:

-- Electronic Leak Detectors**:** Use this method for detecting flammable refrigerants. **Note:** They may require recalibration to maintain adequate sensitivity.

- Calibrate the detection equipment in a refrigerant-free area.
- Ensure that the detector does not pose an ignition risk and is compatible with the refrigerant in use.
- Set the detector to a percentage of the refrigerant's Lower Flammability Limit (LFL). In addition, calibrate the detector to confirm that the appropriate gas concentration does not exceed 25% of the LFL.

-- Leak Detection Fluids**:** This method is suitable for most refrigerants but must not contain chlorine. **Note**: Chlorine can react with the refrigerant and corrode copper piping. If a leak is suspected, remove or extinguish all open flames. If a refrigerant leak requiring brazing is detected, fully recover the refrigerant or isolate the refrigerant using the shut-off valves to prevent accidental release. The removal of refrigerant must be in accordance with "Removal & Evacuation" below.

Removal & Evacuation
Use conventional procedures when breaking into the refrigerant circuit to make repairs, etc. For flammable refrigerants, follow this procedure for best practices:

- Safely remove refrigerant following local and national regulations.
- Evacuate.
- Purge the circuit with inert gas (optional for A2L).
- Evacuate (optional for A2L).
- Continuously flush or purge with inert gas when using a flame to open the circuit.
- Open the circuit.

Recover the refrigerant charge into the correct recovery cylinders if venting is not allowed due to local and national codes. For appliances containing flammable refrigerants, purge the system with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Do not use compressed air oxygen for purging refrigerant systems.

Safety Symbols & Instructions 1

Safety Precautions for R-454B Refrigerant (Continued)

For appliances containing flammable refrigerants, purge the refrigerants by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved. Vent the system to atmosphere and finally pull down to a vacuum (optional for A2L). Repeat this process until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen is used, vent the system down to atmospheric pressure to enable work to take place.

Keep the outlet for the vacuum pump away from any potential ignition sources and ensure ventilation is available.

Charging Procedures
In addition to conventional charging procedures, follow these requirements:

- Ensure that the contamination of different refrigerants does not occur when using charging equipment. Hoses or lines must be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders must be kept in an appropriate position according to the instructions.
- Ensure that the refrigerating system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care must be taken to not overfill the refrigerating system

Prior to recharging the system, it must be pressure-tested with the appropriate purging gas. The system must be leak-checked after completing the charging but prior to commissioning. Complete a follow up leak test prior to leaving the site.

Decommissioning
Before carrying out this procedure, ensure the technician is completely familiar with the equipment and its details. It is recommended good practice to safely recover all refrigerants. Prior to carrying out the task, an oil and refrigerant sample must be taken in case analysis is required. Confirm that electrical power is available before commencing the task.

1) Become familiar with the equipment and its operation.

2) Isolate the system electrically.

3) Before attempting the procedure, ensure that:
   a) Mechanical handling equipment is available for handling refrigerant cylinders (if required).
   b) All personal protective equipment (PPE) is available and being used correctly.
   c) A competent person supervises the recovery process at all times.
   d) Recovery equipment and cylinders conform to the appropriate standards.

4) Pump down the refrigerant system, if possible.

5) If a vacuum is not possible, make a manifold so that the refrigerant can be removed from various parts of the system.

Safety Symbols & Instructions

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Safety Precautions for R-454B Refrigerant (Continued)

6) Ensure that the cylinder is situated on the scales before recovery takes place.

7) Start the recovery machine and operate it in accordance with the instructions.

8) Do not overfill cylinders (no more than 80% volume liquid charge).

9) Do not exceed the maximum working pressure of the cylinder, even temporarily.

10) When the cylinders have been filled correctly and the process is completed, ensure that the cylinders and equipment are removed from the site promptly, as well as all isolation valves on the equipment are closed off.

11) Do not charge recovered refrigerant into another system unless it has been cleaned and checked.

Labeling
Label the equipment stating that it has been decommissioned and emptied of refrigerant. The label must be dated and signed. For appliances containing flammable refrigerants, label the equipment stating the equipment contains flammable refrigerant.

Recovery
When removing refrigerant from a system for servicing or decommissioning, safely remove all the refrigerant.

When transferring refrigerant into cylinders, only employ appropriate refrigerant recovery cylinders. Ensure that the correct number of cylinders for holding the system charge are available. All cylinders that are used must be designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders must be complete with functioning pressure-relief valves and associated shut-off valves. Evacuate empty recovery cylinders and allow them to cool before recovery occurs, if possible.

The recovery equipment must be in good working order with a set of instructions concerning the equipment that is at hand. The equipment must be suitable for the recovery of the flammable refrigerant. If in doubt, consult the manufacturer. In addition, a set of calibrated weighing scales must be available and in good working condition.

Process the recovered refrigerant according to the local legislation in the correct recovery cylinder. Arrange a relevant waste transfer note. Do not mix refrigerants in recovery units and especially not in cylinders.

If removing compressors or compressor oils, evacuate them to an acceptable level, ensuring that the flammable refrigerant does not remain within the lubricant. Do not heat the compressor body with an open flame or other ignition sources to accelerate this process. When oil is drained from the system, it must be carried out safely.

General

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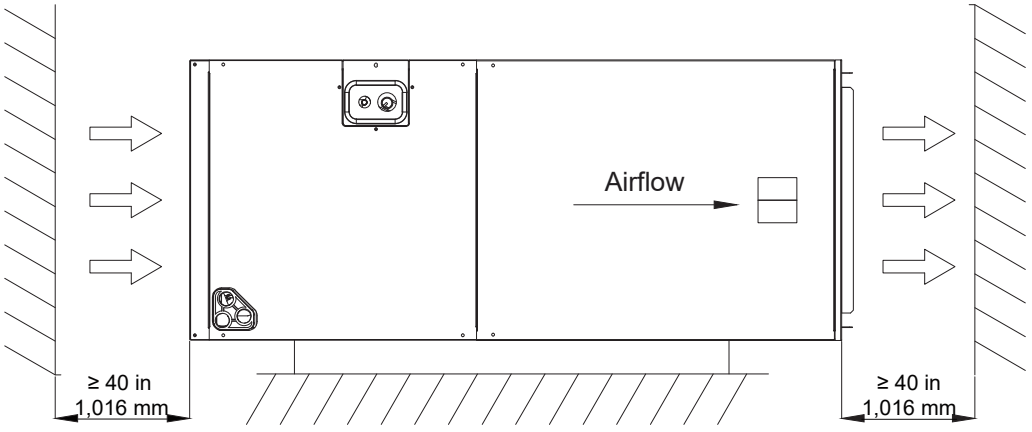
The device can return air at the following positions:

- From the bottom at the upward airflow position.
- From left to right at the horizontal position.
- From the top at the downward airflow position.

This air handler provides installation flexibility, allowing it to be set up in any upward, downward, or horizontal airflow application. According to the airflow performance table on page 31, adjust the fan speed through the DIP switch to select the correct air volume. The DIP switch is located on the control panel of the air handler. Refer to the wiring diagram of the DIP switch settings. Refer to page 27 for high and low voltage wiring.

To ensure proper installation, choose a firm and flat site. Ensure enough clearance is reserved for installation and maintenance.



Clearances in the horizontal position

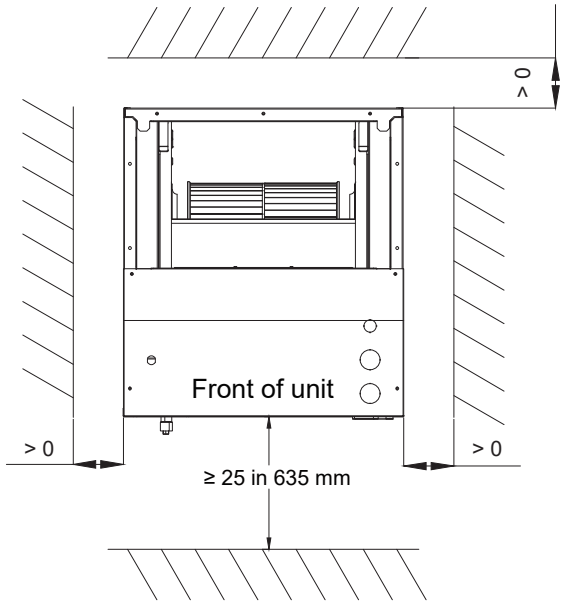


Figure 2.1. Required Clearance

General

2

Note:

As shown in Figure 2.1., the installed device must have the required clearance. Failure to follow these instructions may result in equipment damage and/or premature equipment failure.

Warning: Fire Risk

Keep flammable materials and vapors (such as gasoline) away from air handlers. Failure to follow these instructions may result in death, explosion, or fire.

Installation in High Humidity Environment

When installing the unit in a hot and humid place, if the temperature space exceeds 86°F (30°C) and the RH (relative humidity) exceeds 80%, insulate the outside of the cabinet. Use glass wool or polyethylene foam as insulation material. The thickness must be greater than 2 inches (51 mm) and suitable for the installation space opening.

Condensate may be produced on the insulation surface. Use insulation materials designed for HVAC systems. In the process of refrigeration, condensate may be produced on the surface. Use an auxiliary drain pan and secure the equipment firmly to prevent it from falling. See Figures 2.2., 2.3., 2.4., and 2.5. for various installation scenarios.

When using the auxiliary drainage tray, refer to local regulations.

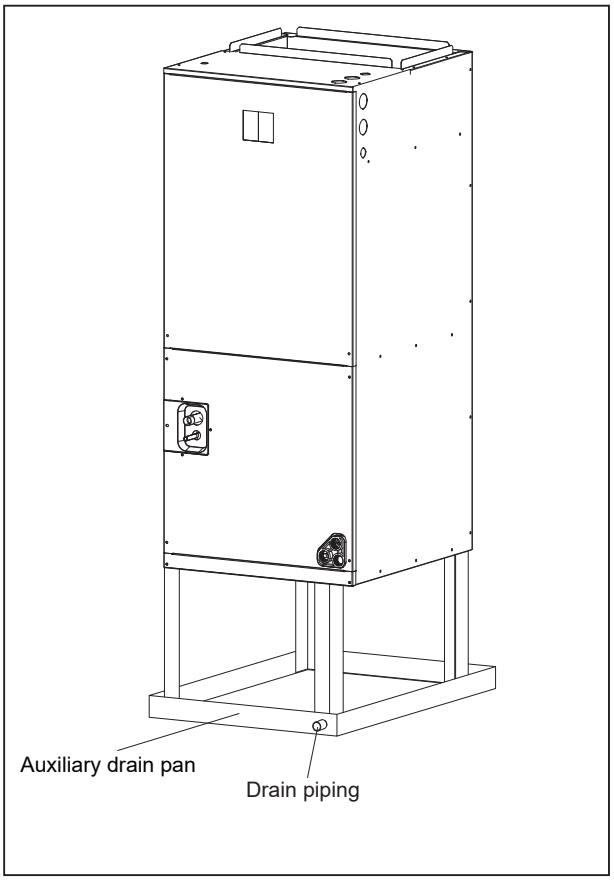


Figure 2.2. Vertical Airflow Installed

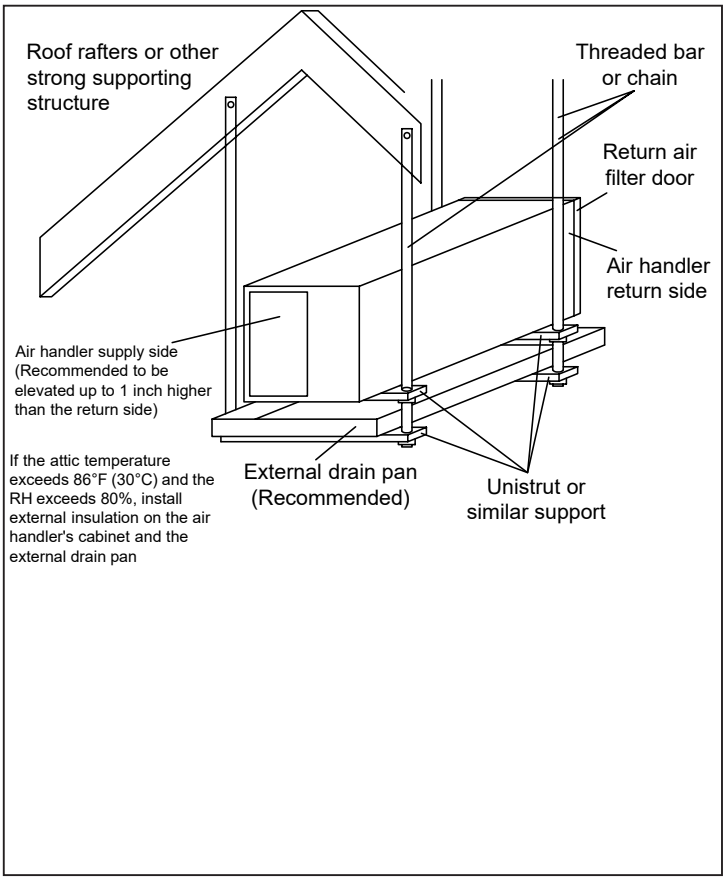


Figure 2.3. Horizontal Installation (If Suspended From Above)

General

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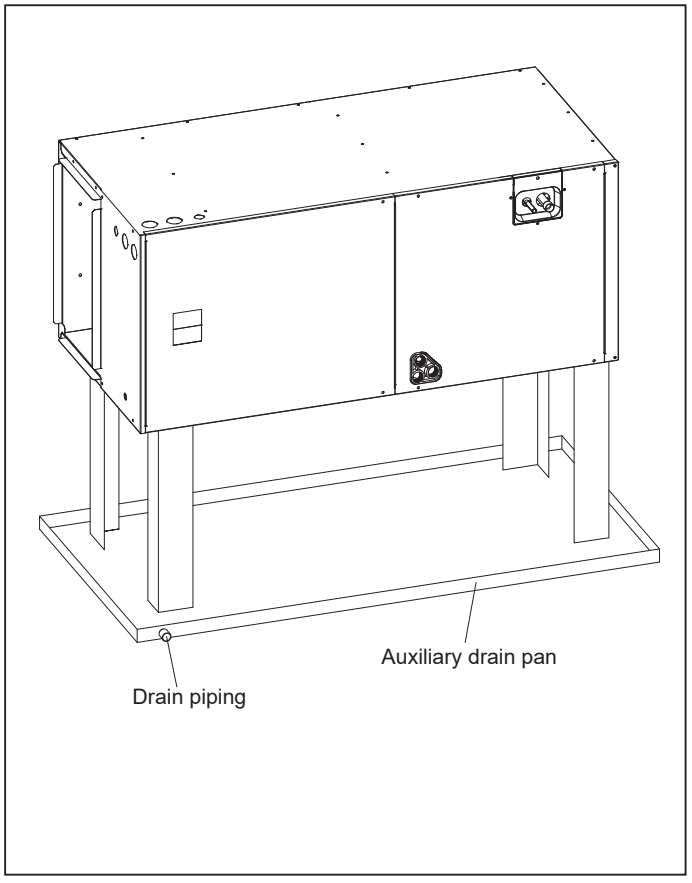


Figure 2.4. Horizontal Installation (If Supported By the Floor)

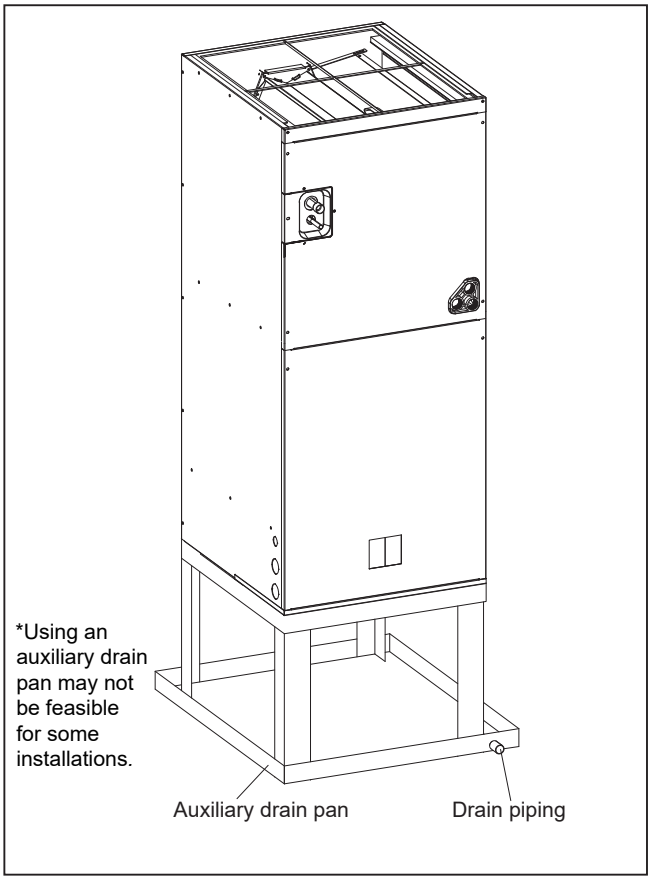


Figure 2.5. Vertical Downward Airflow Installation

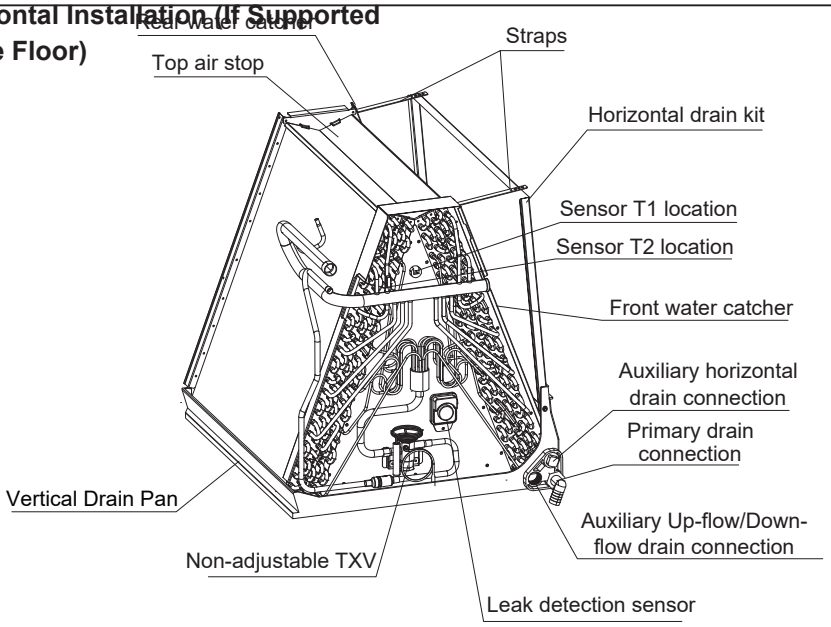


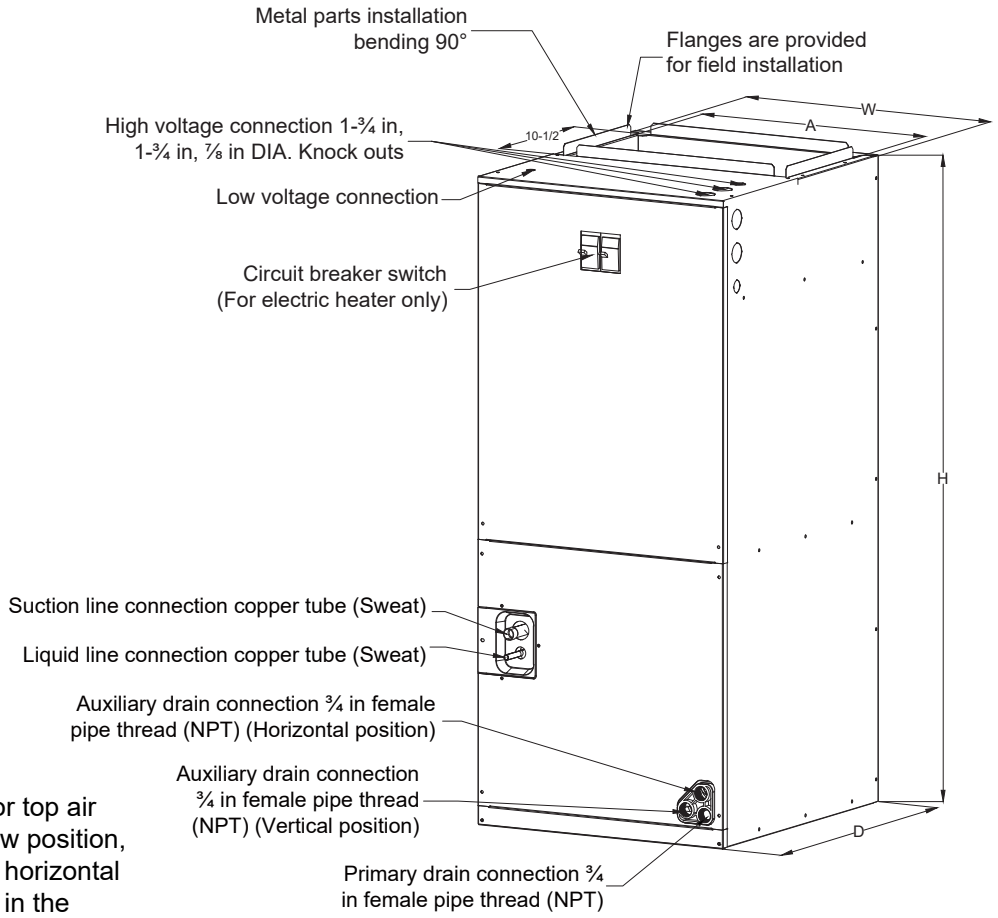
Figure 2.6. Indoor Coil of Inverter Unit

General

2

Unit Dimensions

The front of the unit requires a 25 inch (635 mm) clearance for the maintenance of filters and coils.



Upward airflow unit shown:
The unit can be positioned for top air return in the downward airflow position, left and right air return in the horizontal position, or bottom air return in the upward airflow position.

Figure 2.7.

Table 2.1. Unit Dimensions

Model	Dimension Inches [mm]				
	Height "H"	Width "W"	Dimension "D"	Air outlet "A"	Liquid Line / Suction Line
24K	45-¾ [1162]	19-⅝ [500]	22 [560]	17-⅞ [454]	⅜ / ¾ [9.5]/[19]
36K	45-¾ [1162]	19-⅝ [500]	22 [560]	17-⅞ [454]	⅜ / ¾ [9.5]/[19]
48K	53-⅛ [1350]	22 [560]	24-½ [623]	19-½ [496]	⅜ / ⅞ [9.5]/[22]
56K	53-⅛ [1350]	22 [560]	24-½ [623]	19-½ [496]	⅜ / ⅞ [9.5]/[22]

Application

3

Vertical Upward Airflow

- The vertical upward airflow configuration is the factory default configuration of all models (see Figure 2.7.)
- If the return air will be ducted, the duct must installed flush with the ground. Use ⅛ and ¼ inch thick fireproof elastic gasket between ducts, units, and floor.

Torque applied to the drainage connection should not exceed 15 foot-pounds. For vertical upward air flow and horizontal right installation, pipe dimensions and drain pipe can be found in Figure 3.1.

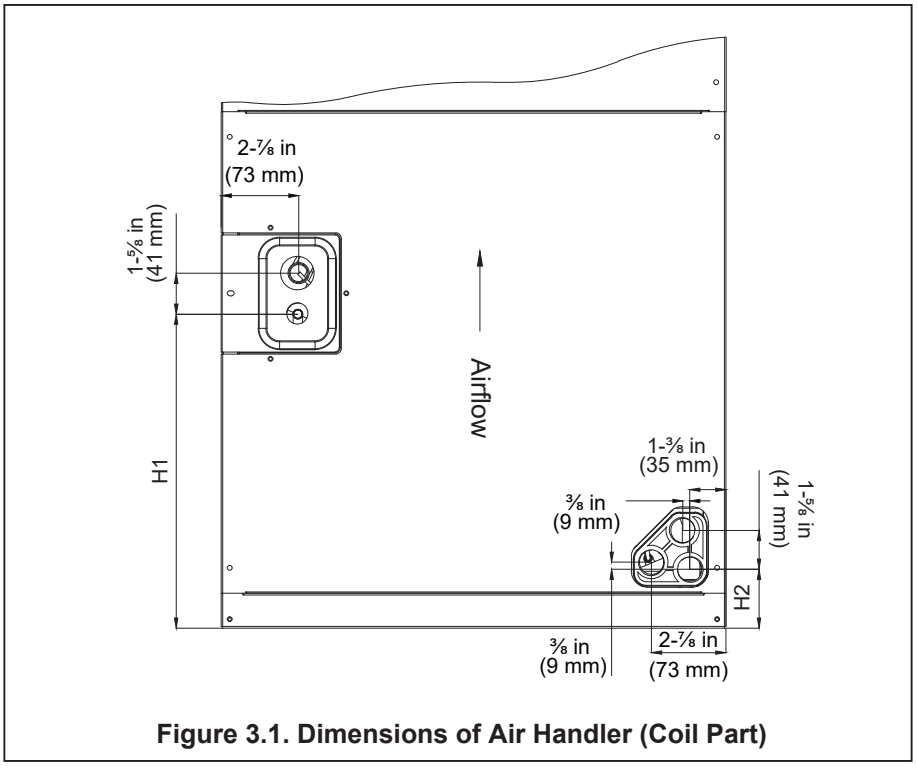


Figure 3.1. Dimensions of Air Handler (Coil Part)

Table 3.1.

Model	"H1" inch [mm]	"H2" inch [mm]
24K/36K	12-¼ [311]	2-¼ [57]
48K/56K	19 [483]	1-¾ [45]

Application

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Vertical Downward Airflow

Convert to Vertical Downward Airflow Position

The vertical upward airflow position can be converted into the vertical downward airflow position. Remove the coil (evaporator) access panel and coil, then reinstall it by rotating it 180° from the original position. See Figures 3.2. and 3.4.

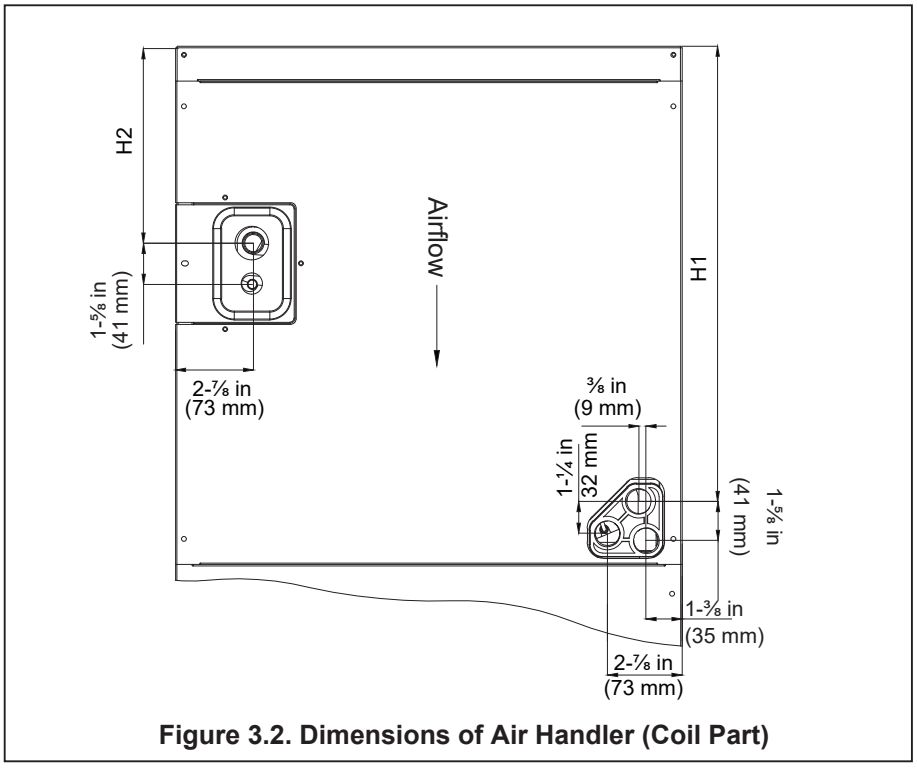

Figure 3.2. Dimensions of Air Handler (Coil Part)

Table 3.2.

Model	"H1" inch [mm]	"H2" inch [mm]
24K/36K	17-¾ [449]	7-⅝ [192]
48K/56K	21-¾ [551]	4-⅜ [112]

Application

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Horizontal

Horizontal right installation is the default factory configuration for all models.

Switch to Horizontal Left Installation

- By removing the indoor coil assembly and reinstalling the coil, the vertical upflow position can be converted into a horizontal left position. See Figures 3.3. and 3.4.
- Rotate the device by 90° to the horizontal left position, with the coil segment on the right and blower segment on the left.
- Reinstall the indoor coil by rotating it 180° from the original position. Ensure that the fastening groove is fully engaged with the coil guide rail. See Figure 3.4.
- When configured to be placed horizontally above the ceiling and/or living space, use an additional field-supplied drain pan.

Steps to Change Cabinet Direction to Vertical Downward or Horizontal Left Direction

1. Remove the screws and front panel.

2. Disconnect the T1 and T2 sensor plugs, as well as the leak detection sensors from the coil. (Figure 3.3., Step 1)

3. Pull out the coil with sensor wire. Do not disconnect the T1 sensor, T2 sensor, and leak detection sensors from the coil. (Figure 3.3., Step 2)

4. Install the coil in the desired orientation and secure it in place.

5. Reinsert the sensor wires into the PCB plug through the gap on the cabinet cover. (Figure 3.3., Step 3)

Application

3

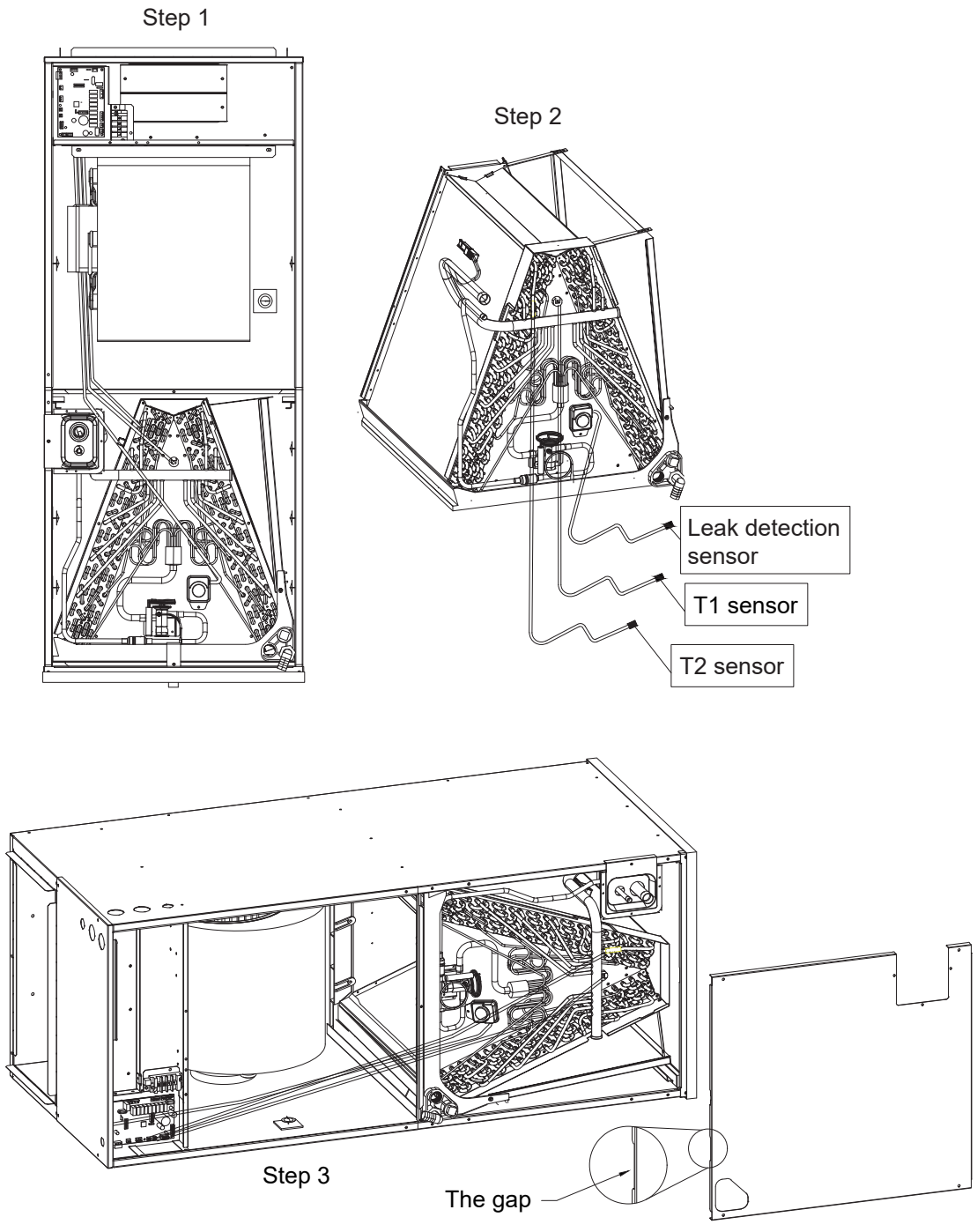

Figure 3.3. Vertical Downward & Horizontal Left Application Conversion

Application

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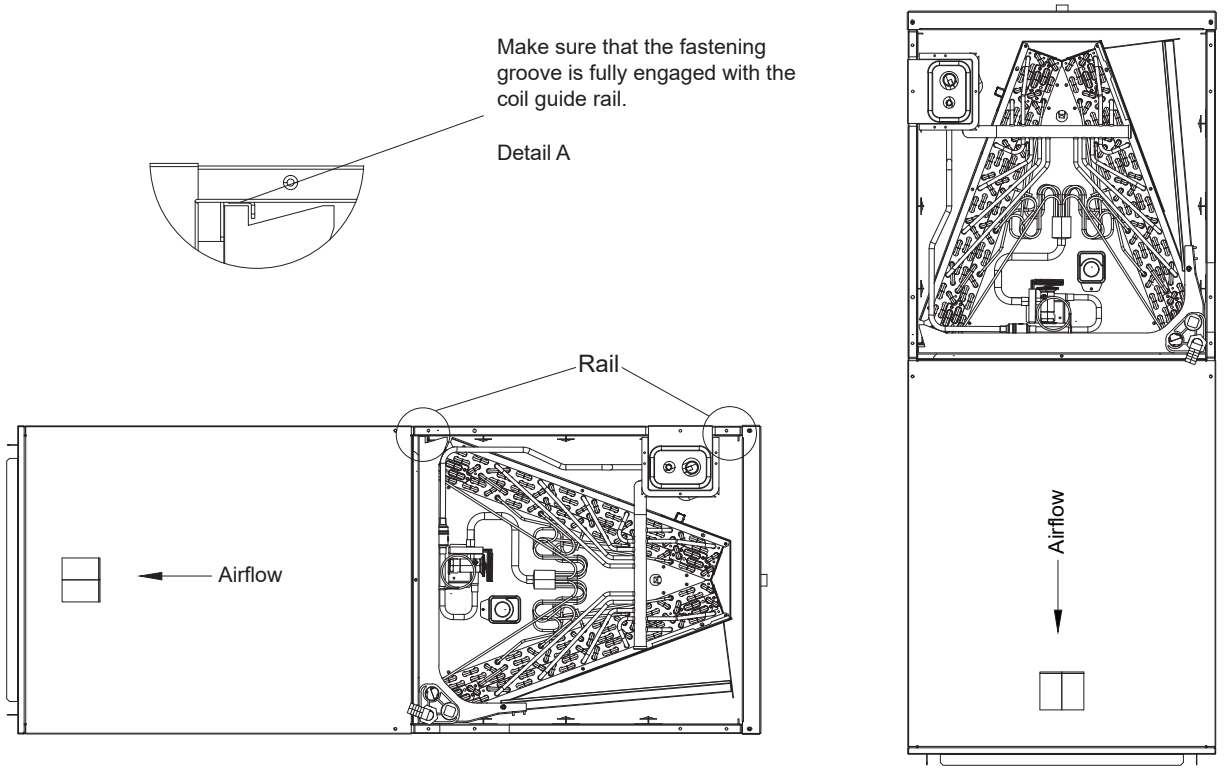


Figure 3.4. Vertical Downward & Horizontal Left Application

Notes:

- Horizontal units must be configured for right hand air supply or left hand air supply. Horizontal drain pan must located under the indoor coil.
- Failure to use the drain pan will result in property damage.

Horizontal Conversion:
Remove the indoor coil and reinstall it at 180° from the original position. The horizontal right air outlet can be changed to the horizontal left air outlet.

Install in Unconditioned Space

Note:

There are two pairs of coil guide rails in the air handler, which are used for upward and downward air supply applications. If the air handler is installed in an unconditioned space, remove two unused coil guide rails to minimize condensate on the surface of the air handler. Unscrew six mounting screws from both sides of the cabinet to easily remove the coil guide rail.

Application

3

Steps to Replacing the Leak Detection Sensor

General Specifications of Leak Detection Sensor
Model: RGD-02TL11
Minimum Lifetime: 15 years

It needs to be replaced with the same model. If in doubt, consult the manufacturer for assistance.

1. Remove the screws and front panel.
2. Disconnect the plug of the leak detection sensor wire from the circuit board. (Figure 3.5, Step 1)
3. Remove the screws and pull out the leak detection sensor with the wire. (Figure 3.5, Step 2)
4. Replace the new leak detection sensor and screw it to the triangular plate.
5. Plug and tie the wires to the electronic control board in the same way as before.
6. Install the access panels. Ensure there is no outstanding gap, allowing refrigerant to escape due to leakage.

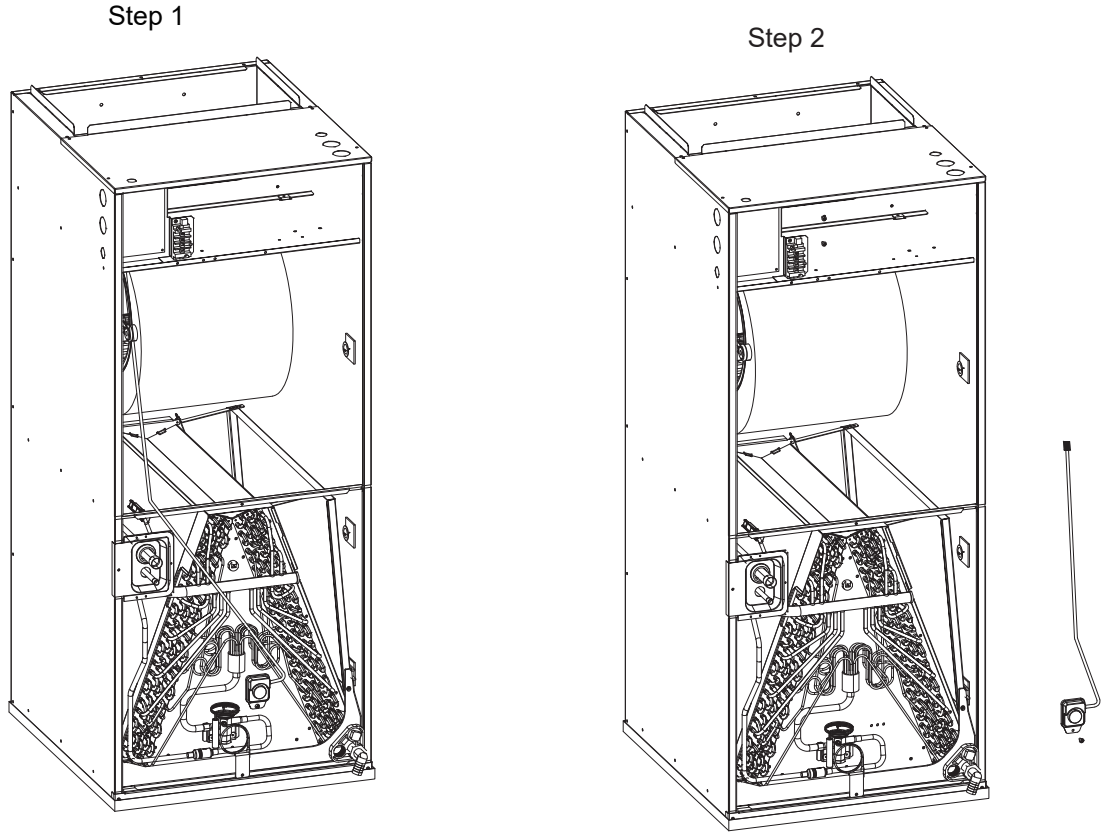


Figure 3.5. Steps to Replacing the Leak Detection Sensor

Application

3

Precautions for Four-Way Installation

Upflow installation

Figure 3.6-1

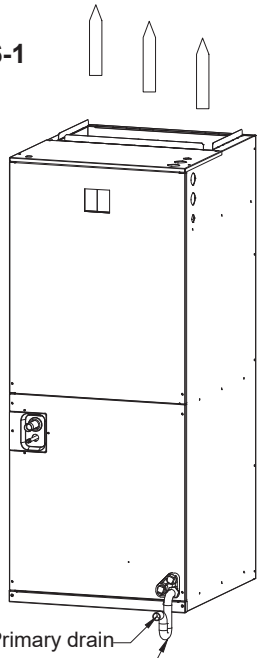
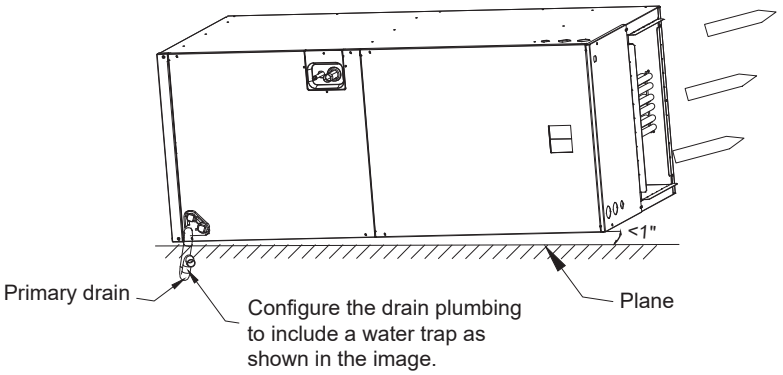


Figure 3.6-2



Installation Notes:

1. Plug the unused drain holes with the plugs provided in the accessory bag that comes with the unit.

2. Elevate the supply air side up to 1 inch (25 mm) higher than the return air side to assist with drainage.

Application

3

Precautions for Four-Way Installation (Continued)

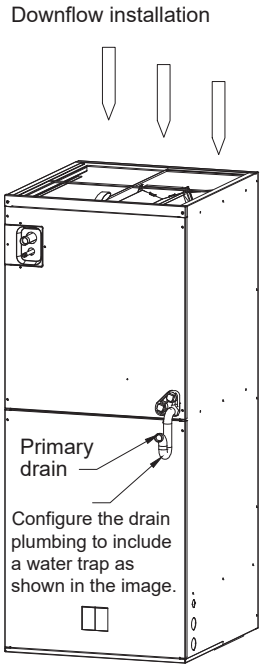


Figure 3.6-3

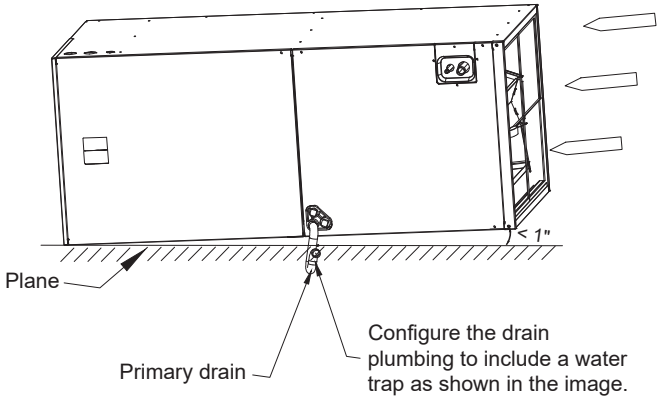


Figure 3.6-4

Installation Notes:

1. Plug the unused drain holes with the plugs provided in the accessory bag that comes with the unit.

2. Elevate the supply air side up to 1 inch (25 mm) higher than the return air side to assist with drainage.

Application

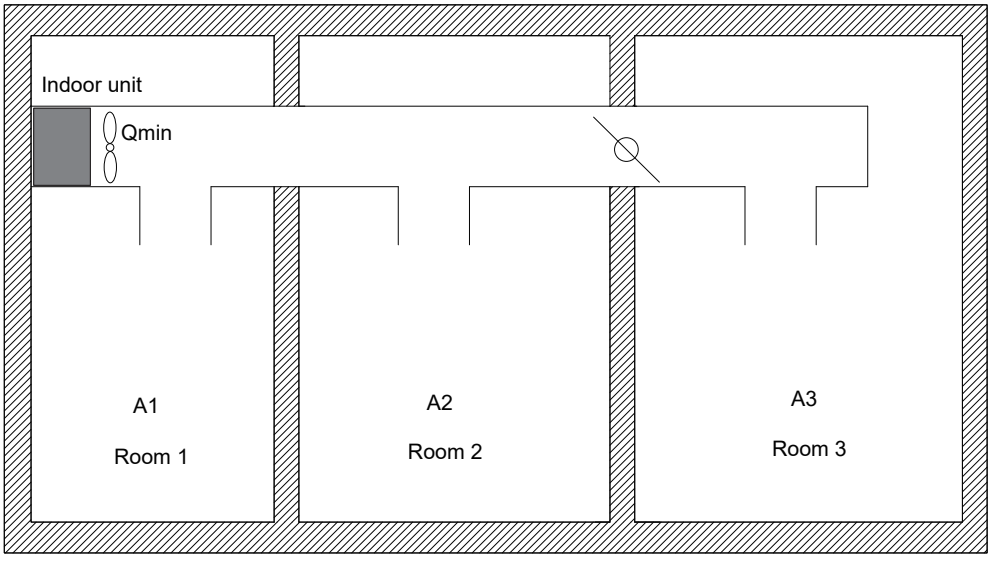
3

Installation Room Size Rules

Minimum room height: 7.22 feet or 2.2 meters (if applicable)

Minimum room area (operating or storage): 215.91 ft² or 20.06 m²

Note: For minimum room areas at higher installation heights, see the instructions (Optional). Installation method:



Application

3

Installation Room Size Rules (Continued)

Ensure that the applied room space area TA is larger than the TA min.

Table 3.3.

24K/36K			
Piping length (m/ft)	Refrigerant charge (kg/oz)	TA min (m²)	TA min (ft²)
7.6/25	3.30/116.40	9.90	106.57
15.2/50	3.68/129.84	11.04	118.87
22.9/75	4.06/143.28	12.19	131.18
30.5/100	4.44/156.71	13.33	143.48
48K/56K			
Piping length (m/ft)	Refrigerant charge (kg/oz)	TA min (m²)	TA min (ft²)
7.6/25	4.40/155.20	13.20	142.10
15.2/50	4.78/168.64	14.34	154.40
22.9/75	5.54/195.51	16.63	179
30.5/100	6.69/235.83	20.06	215.91
Note: TA=A1+A2+A3+…+An If using a damper in the duct, when the damper is open, the room area TA is the sum of all room area connected by ductwork. If it is closed, TA is the sum of the room areas before the damper.			

Table: Minimum room area
(e.g.: 36K Installation connection piping length of 25 feet and refrigerant charge of 116.4oz results in an installation room area of not less than 106.57 sq. ft.)

Table 3.4.

Model	Qmin [m³/h(SCFM)]	$Qmin_A$ [m³/h(SCFM)]
24K	450(265)	439.6(258.7)
36K	666(392)	439.6(258.7)
48K/56K	1361(801)	662.4(389.9)
Note: Qmin refers to the minimum airflow of the indoor unit, which is not less than $Qmin_A$. (See Table 5.1. for details).		

Electrical Wiring

4

The wiring on site must comply with the National Electric Code (C.E.C. in Canada) and any applicable local regulations.

Warning: Electric Shock

Before installation or maintenance, disconnect the power supply of the device. More than one disconnect switch may be required to cut off the power of the equipment. Dangerous voltage can cause serious personal injury or death.

Power Supply Wiring

Ensure a suitable power supply is connected to the device. For more detailed requirements, refer to the device rating label, wiring diagram, and electrical data in the installation instructions.

- Install a branch circuit breaker of sufficient size in a location within sight and easy to install, if necessary.

When installing an electric heater, equip the device with one or two 30-60 amp circuit breakers. These circuit breakers protect internal lines and act as disconnecting devices when short circuits occur. The circuit breaker installed in the device does not provide overcurrent protection for the power connection, so its size may be larger than that of the branch circuit protection.

- The power supply line of the circuit must be a minimum 221°F (105°C) copper conductor. For current carrying capacity, wire size, and circuit protector requirements, refer to the electrical data in this section. The power supply protection device can be a fuse or "HACR" type circuit breaker.
- High-voltage wires can pass through the tapping holes on the right, left, or top of the device.
- Use the three ⅞ inch, 1-⅜ inch, and 1-¾ inch diameter tapped holes to connect high-voltage wires to the device.
- Connect the high-voltage to the red and black wires in the control part of the air handler.

Control Wiring

Do not run the low-voltage control line in the conduit together with the high-voltage line. Keep the distance between the two catheters according to local codes.

- Wiring runs less than 100 feet (30.5 m) in length must use 18 AWG colored low-voltage wires. Use 16 AWG wire for runs with a length of more than 100 feet (30.5 m).
- See Figure 2.7. for the connection position of low-voltage wires.
- For the correct wiring instructions, refer to the wiring diagram located on the back side of the air handler blower access panel.
- After installation, ensure that the low-voltage and high-voltage wiring are in separate conduits.

Electrical Wiring 4

Grounding

Danger: Electric Shock

Permanently ground the device. Otherwise, it will cause electric shock, personal injury, or death.

- When installing the system according to electrical codes, ground through wires or metal conductors.
- Grounding can also be achieved by connecting the grounding wire to the ground lug on the machine.
- When multiple power supply circuits are used, each circuit needs to be grounded plate separately.
- The grounding plate is located at the upper right of the cabinet.

Electrical Data

Table 4.1. Electrical Data

Model	Voltage	Hertz	HP	Fan speed	Circuit AMPS	MCA(A)	MOP(A)
24K	208/230	60	1/3	5	1.1	5	15
36K	208/230	60	1/2	5	2.0	5	15
48K	208/230	60	3/4	5	3.5	10	15
56K	208/230	60	3/4	5	4.3	10	15

When used without heat kit, match feeder wire to actual circuit breaker rating.

Electrical Wiring

4

MCA/MOP Data of the Electric Heat Kit

Table 4.2. Applicable Heat Kits for AHU Multi-Position Installation

Heat Kit Model	AHU Model	Electric Heat (kW) 208/230VAC	Current (A) 208/230VAC	MCA (A) 208/230VAC	Max. Fuse or Breaker (HACR) Ampacity		Fan Speed				
					208 VAC	230 VAC	1	2	3	4	5
EH0502BX-W	24K	3.8/5	19.66/21.74	25/29	30	35	●	●	●	●	●
EH0802BX-W		5.6/7.5	29.50/32.61	37/43	40	45	×	×	●	●	●
EH1002BX-W		7.5/10	39.32/43.48	50/57	55	60	×	×	×	●	●
EH0502BX-W	36K	3.8/5	19.66/21.74	25/29	30	35	●	●	●	●	●
EH0802BX-W		5.6/7.5	29.50/32.61	37/43	40	45	×	●	●	●	●
EH1002BX-W		7.5/10	39.32/43.48	50/57	55	60	×	×	●	●	●
2x EH0802BX-W		5.6+5.6/7.5+7.5	29.50+29.50/32.61+32.61	37+37/43+43	40/40	45/45	×	×	×	●	●
EH0502BX-W	48K	3.8/5	19.66/21.74	25/29	30	35	●	●	●	●	●
EH0802BX-W		5.6/7.5	29.50/32.61	37/43	40	45	●	●	●	●	●
EH1002BX-W		7.5/10	39.32/43.48	50/57	55	60	×	●	●	●	●
2x EH0802BX-W		5.6+5.6/7.5+7.5	29.50+29.50/32.61+32.61	37+37/43+43	40/40	45/45	×	×	●	●	●
2x EH1002BX-W		7.5+7.5/10+10	39.32+39.32/43.48+43.48	50+50/57+57	55/55	60/60	×	×	×	●	●
EH0502BX-W	56K	3.8/5	19.66/21.74	25/29	30	35	●	●	●	●	●
EH0802BX-W		5.6/7.5	29.50/32.61	37/43	40	45	●	●	●	●	●
EH1002BX-W		7.5/10	39.32/43.48	50/57	55	60	×	●	●	●	●
2x EH0802BX-W		5.6+5.6/7.5+7.5	29.50+29.50/32.61+32.61	37+37/43+43	40/40	45/45	×	×	●	●	●
2x EH1002BX-W		7.5+7.5/10+10	39.32+39.32/43.48+43.48	50+50/57+57	55/55	60/60	×	×	×	●	●

- indicates availability and × indicates unavailability

Electrical Wiring

4

MCA/MOP Data of the Electric Heat Kit

Table 4.3. Heater Kit Accessories

Model	Description	24	36	48	60
EH0502BX-W	5 kW heating kit, single-pole circuit breaker	●	●	●	●
EH0802BX-W	7.5 kW heating kit, single-pole circuit breaker	●	●	●	●
EH1002BX-W	10 kW heating kit, single/double pole circuit breaker	●	●	●	●
2x EH0802BX-W	15kW heating kit, double pole circuit breaker	×	●	●	●
2x EH1002BX-W	20 kW heating kit, double pole circuit breaker	×	×	●	●

- indicates availability and × indicates unavailability

Warning:

- This product uses A2L type refrigerant. The electric heater must meet the requirements of the UL 60335-2-40 standard for A2L type refrigerant.
- Qualified personnel must install the electric heating. Refer to current regulations and laws for the installation location.
- Children aged 8 and above, as well as individuals with lack of experience or reduced physical, sensory, or mental capabilities can only use the appliance if supervision or instruction is given. Children must not play with or near the appliance. Children or untrained personnel should be restricted from cleaning and performing maintenance on the appliance, unless they're given supervision.
- Install the appliance in accordance with national wiring regulations.

Airflow Performance

5

The airflow data is based on the cooling performance of the coil and without a filter. Select the appropriate product in the Performance table. Keep the external static pressure ESP within the minimum and maximum limits shown in the following table to ensure the normal operation of cooling, heating, and electric heating.

Table 5.1. Airflow Performance

Model Size of air compressor	Motor Speed		SCFM								
			External Static Pressure-Inch Water Column [kPa]								
			0[0]	0.1[.025]	0.2[.050]	0.3[.075]	0.4[.100]	0.5[.125]	0.6[.150]	0.7[.175]	0.8[.200]
24K	Tap (1)	SCFM	670	572	491	394	270	-	-	-	-
		Watts	41	47	52	57	61	-	-	-	-
	Tap (2)	SCFM	792	709	616	549	474	371	265	-	-
		Watts	59	67	73	77	83	88	93	-	-
	Tap (3)	SCFM	949	887	810	724	672	597	504	410	-
		Watts	96	102	109	115	129	126	132	141	-
	Tap (4)	SCFM	1021	966	887	798	739	698	672	573	490
		Watts	118	127	136	144	150	156	160	167	177
	Tap (5)	SCFM	1115	1059	995	907	842	791	727	707	653
		Watts	148	157	167	178	186	191	198	205	211
36K	Tap (1)	SCFM	955	898	840	739	652	576	512	432	392
		Watts	91	96	102	110	115	121	127	138	140
	Tap (2)	SCFM	1081	1032	977	926	819	744	675	609	547
		Watts	125	131	137	143	153	160	166	173	179
	Tap (3)	SCFM	1182	1138	1089	1043	987	879	811	750	689
		Watts	158	165	172	177	185	197	203	212	221
	Tap (4)	SCFM	1306	1262	1221	1180	1132	1086	984	914	857
		Watts	207	214	221	228	236	244	257	266	273
	Tap (5)	SCFM	1387	1350	1309	1275	1233	1187	1138	1032	970
		Watts	245	253	262	270	277	285	295	309	318
48K	Tap (1)	SCFM	1275	1220	1166	1116	1052	975	914	859	801
		Watts	153	163	173	183	194	203	212	220	231
	Tap (2)	SCFM	1435	1382	1335	1289	1244	1186	1114	1076	1016
		Watts	210	220	232	243	254	266	276	287	297
	Tap (3)	SCFM	1611	1567	1528	1482	1441	1396	1351	1262	1220
		Watts	287	301	313	325	336	355	361	381	391
	Tap (4)	SCFM	1757	1719	1675	1634	1601	1557	1520	1475	1426
		Watts	366	376	392	405	415	431	444	459	472
	Tap (5)	SCFM	1776	1748	1719	1685	1651	1622	1588	1554	1516
		Watts	511	520	530	541	551	563	576	586	599
56K	Tap (1)	SCFM	1275	1220	1166	1116	1052	975	914	859	801
		Watts	153	163	173	183	194	203	212	220	231
	Tap (2)	SCFM	1435	1382	1335	1289	1244	1186	1114	1076	1016
		Watts	210	220	232	243	254	266	276	287	297
	Tap (3)	SCFM	1611	1567	1528	1482	1441	1396	1351	1262	1220
		Watts	287	301	313	325	336	355	361	381	391
	Tap (4)	SCFM	1757	1719	1675	1634	1601	1557	1520	1475	1426
		Watts	366	376	392	405	415	431	444	459	472
	Tap (5)	SCFM	1917	1883	1843	1799	1773	1734	1701	1663	1622
		Watts	467	482	496	512	525	542	553	569	584

Airflow Performance

5

The highlighted area indicates the airflow within the required range of 300-450cfm/ton.

Note:

1. Use the advanced airflow as the rated airflow for the full-load operation of the machine.

2. The rated airflow of a system without an electric heater kit requires 300-450 cubic feet of air per minute (CFM).

3. The rated airflow of a system with an electric heater kit requires 350-450 cubic feet of air per minute (CFM).

4. The air distribution system has the greatest influence on airflow. Therefore, the contractor must only use the procedures recognized by the industry.

5. The design and construction of the air duct must done carefully. Poor design or process will lead to significant decline in system performance.

6. Set the air supply duct along the periphery of the air-conditioned space with the appropriate size. Improper location or insufficient airflow may lead to insufficient ventilation or noise in the ductwork.

7. The installer must balance the air distribution system to ensure that all rooms have proper quiet airflow. Use the speedometer or airflow hood to balance and verify the branch duct and system airflow (CFM).

Indoor Fan Function

Passive Dehumidification (Optional)
This unit has a Passive Dehumidification function, which lowers the fan speed with a DH call from the thermostat. This function requires proper DH wiring from the indoor unit to the thermostat (with a humidistat).

If the DH line is not connected, the equipment will still operate normally.

Airflow Performance

5

Anti-Cold Air and Heating Fan Delay Function

1) Anti-Cold Air: This function utilizes the T1 (indoor room temperature) and T2 (indoor coil temperature) sensors of the indoor unit to inform the indoor blower whether to turn on or not. The function prevents cold air to blow during Heating mode.

When all of the following conditions are met, the Anti-Cold Air function will activate:

A. Heating mode.
B. Dip switch SW1-2 is set to "Off".
C. T2 < 82°F (28°C).
D. Electric heat kit is off.
E. Y1/Y2 is energized when it is connected with a 24V thermostat. When a manufacturer-supplied RS485 communicative thermostat is connected, the indoor fan blower is activated by the thermostat.

When all of the following conditions are met, the Anti-Cold Air function will be deactivated:

A. T2 > 90°F (32°C).
B. Electric heat kit is on.

2) Heating Fan Delay: When the dip switch SW1-2 is set to "On" and the indoor unit is in Heating mode, the fan will operate with a 90-second delay each time it starts. Fan speed is determined by the Y1/Y2 signal from the thermostat.

Indoor Coil Anti-Freezing Function

The function utilizes the indoor coil sensor (T2) to determine whether the indoor coil is freezing or not. The feature prevents the unit from running at low evaporating temperatures as well as low suction superheat.

When all the following conditions are met, the Anti-Freezing function will activate:

A. T2 < 32°F (0°C)
B. 32 (0°C)-T2 ≥ 5.4°F (-15°C)

When the following conditions are met, the Anti-Freezing function will deactivate:

A. T2 ≥ 43°F (6°C)

The Anti-Freezing function is valid in both 24V and RS485 communication mode. When the feature is activated, the compressor will turn off.

R-454B Leakage Detection Function

The function utilizes a R-454B refrigerant sensor to detect the R-454B concentration. Terminal F is reserved for connecting an alarm if needed.

When R-454B leakage occurs in the indoor coil and the concentration is above 10%, the unit will perform as the following:

A. Cut off power to the thermostat to stop the compressor from continuing operation.
B. The electric heat kit will turn off.
C. High voltage will be output between Terminal F and Terminal L2 and the alarm will trigger.

Airflow Performance

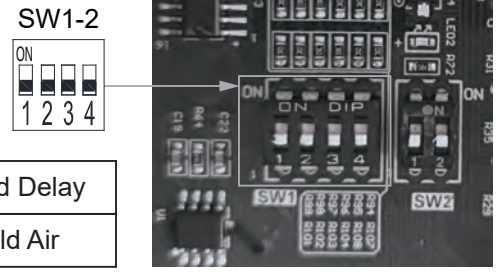
5

USB Port Software Update Function

A USB port is provided on the control board, allowing a contractor to update the software when needed. Consult and follow operation instructions from the manufacturer.

1) Disconnect the power supply and set the thermostat to the "Off" position.
2) Set the dip switch SW1-4 to "On".
3) Connect the power supply.
4) Set the dip switch SW1-4 to "Off". The green light will always be on.
5) Insert a USB flash drive containing the update software file into the USB port.
6) Wait until the green light flashes slowly.
7) Pull out the USB flash drive.

Figure 5.1.



SW1-2	On	90-Second Delay
	Off	Anti-Cold Air

Ductwork

6

On-site ductwork must comply with National Fire Protection Association NFPA 90A, NFPA 90B, and any applicable local ordinance(s).

Warning: Fire & Carbon Monoxide

Under no circumstances should the return ductwork be connected to any other heat-producing equipment, such as a mantelpiece, stove, etc. Unauthorized use of such equipment may cause fire, carbon monoxide poisoning, explosion, personal injury, or property damage.

Insulate the metal ductwork operating in the air-conditioned space and cover it with a moisture-proof layer. If the construction and installation are carried out according to SMACNA glass fiber duct construction standards, the fiber duct system can be used. The ductwork must meet the U/L standard 181 test of Class I air duct by the National Fire Protection Association of America. Check the local ductwork regulations and insulation requirements.

- The duct system must be designed within the external static pressure range of the device's designed operation. Adequate airflow in the system is important. Ensure that the supply and return ductwork, grid, special filter screen, accessories, etc. are included in the total resistance. Refer to the Airflow Performance table on page 31.
- Design the ductwork according to the American Air Conditioning Contractors Association "ACCA" manual "D" residential air conditioning design and equipment selection in winter and summer. The latest version can be obtained from "ACCA", 1513 16th Street NW, Washington, D.C., 20036. If the ductwork contains flexible air pipes, ensure that the system takes into account the pressure drop information (straight line length plus all turns) shown in "ACCA" manual "D".
- Connect the air duct connector to the ¾ inch flange on the equipment. Install a flange around the air outlet.

If the duct connector has an elbow, its size must not be smaller than that of the flange on the outlet of the device.

The front flange of the return duct (if connected to the fan casing) must not be screwed into the area where the power cord is located. Drill bits or sharp screw tips can damage the insulation of the equipment's internal wires.

- Use appropriate fasteners suitable for the type of duct being utilized, fix the outlet and return ducts to the flanges of the device, and connect the ducts to the device with adhesive tape as needed to prevent air leakage.

Refrigerant Pipe Connection 7

Before the refrigerant pipe connection is completed, keep the coil sealed. Refer to the Installation, Operation, and Maintenance manuals of the external machine for detailed information on the refrigerant line size, duct installation, and filling amount. Pull out the rubber plugs and check whether there is nitrogen flowing out.

Warning: Personal Injury Hazard

- Failure to follow this warning could result in personal injury.
- Wear eye protection.

Note:

- Factory nitrogen charge may escape past rubber plugs during storage. This does not indicate a leaking coil nor warrant a return of the coil.

- Ensure that care is taken when connecting the refrigerant pipe, so the maintenance channel in front of the equipment is not obstructed.
- Before brazing, remove the metal sections 1 and 2. See Figure 7.1.
- Pull out the evaporator 6 inches so that the longer refrigerant line could be exposed for wet rag and brazing.
- During brazing, nitrogen should flow through the refrigerant pipe.
- Use a brazing shield to protect the paint of the cabinet and a wet rag to protect the rubber gasket of the pipeline from being damaged by the torch flame. During the brazing process, protect the temperature sensing bulb of TXV using a wet cloth or approved heating paste. See Figure 7.1.
- Field-made indoor refrigerant joints must be tightness tested. The test method must have a sensitivity of 5 grams per year of refrigerant or better, under a pressure of at least 0.25 times the maximum allowable pressure. No leak must be detected.
- After the completion of field piping for split systems, the field pipework must be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging. The minimum test pressure for the system must be the low side design pressure (see nameplate for details).
- After brazing, pull in the evaporator and put the metal 1 and 2 back to the cabinet.
- After the refrigerant pipeline connection is completed, seal and fill the surrounding gaps with pressure-sensitive gaskets.

Refrigerant Pipe Connection

7

When brazing, use a wet rag to protect the sealing ring in the input pipe from being damaged by the torch flame.

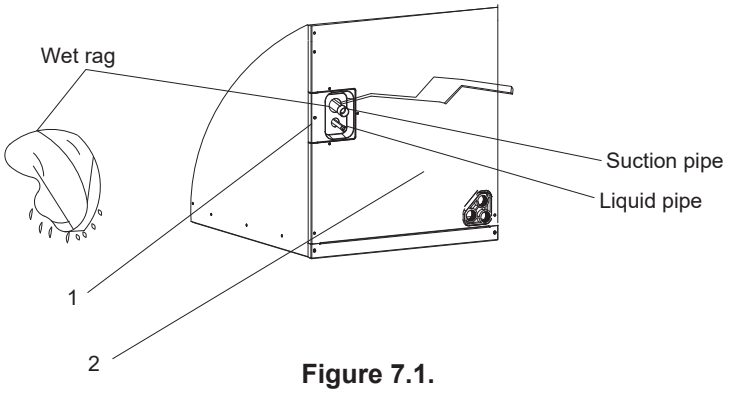


Figure 7.1.

After brazing, ensure that there is no refrigerant leakage. After checking the vapor leakage, ensure that the pipeline is insulated, as shown in Figure 7.2.

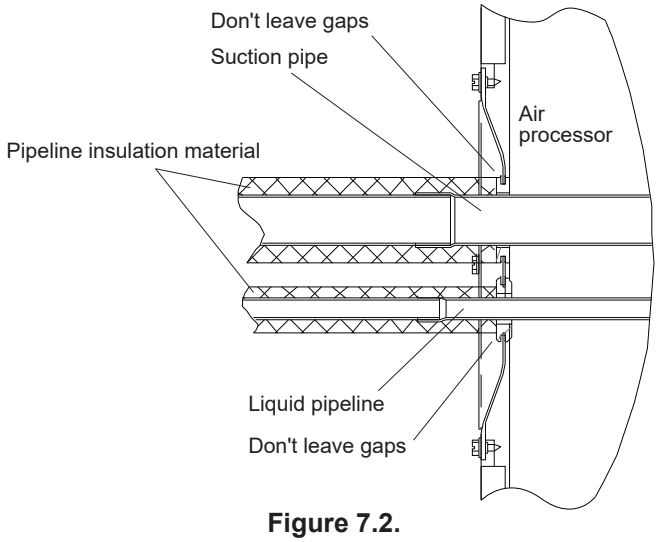


Figure 7.2.

Refrigerant Pipe Connection

7

Condensate Drain Connection

For specific requirements, consult local codes.
For the required condensate trap installation, refer to Figure 7.3. and the following information.

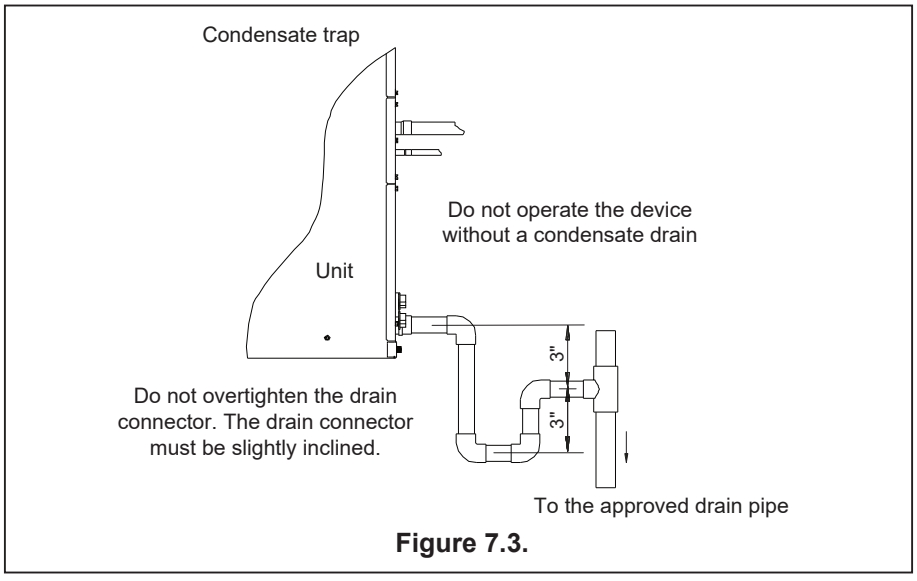


Figure 7.3.

1. When connecting the drain connector to the drain pan, use a thin layer of PTFE paste, silicone, or PTEF. Then tighten it by hand.

2. When connecting the drain connector to the drain pan, do not over-tighten it. Tight fittings will crack the pipe connection on the drain pan.

Refrigerant Pipe Connection

7

- Ensure that the drainage pipe will not block the inlet in front of the device. The minimum clearance required for removal and maintenance of filter screen, coil, or fan is 24 inches (610 mm).
- Ensure that the machine is placed horizontally or slightly inclined to the main drain outlet, allowing water to completely drain from the machine.
- Do not reduce the drain pipe size to less than the connection size provided on the condensate drain pan.
- All horizontal drain pipes must be inclined downward at a slope of at least ⅛ inch per foot to ensure proper drainage.
- Do not connect the condensate drain line to the closed or open sewage pipe. Drain the condensate to an open drainage pipe or a safe outdoor area.
- Insulate the drainage pipeline to prevent damage caused by condensation water formed on the outer surface of the pipeline.
- Ensure the necessary preparations to disconnect and clean the main drainage pipe. Install a 3-inch elbow on the main drainage pipe as close as possible to the unit. Make sure that the top of the elbow is lower than the joint of the drain pan, allowing the drain pan to drain completely. (See Figure 7.3.)
- Extend the auxiliary drainage pipes to positions where condensate can be easily seen. If the condensed water begins flowing out from the auxiliary drain pipe, the homeowner should pay attention to possible problems.
- Plug the unused drain connector with the plug in the parts package provided with the equipment. Use a thin layer of silicone, Teflon paste, or Teflon tape to form a waterproof seal.
- After installation, test the condensate drain pan and drain pipe. Pour water into the drain pan, enough to fill the drain traps and pipes. Confirm that the drain pan completely drains water, no leakage is found in the drain pipe fittings, and water discharges from the main drain pipe terminal.

Air Filter (Not Factory Installed) 8

The replaceable filter is not included in the system and must be field-supplied.

The size of the external filters or other filtering devices must meet the maximum flow rate of 300ft/min or the recommended value of the filter type.

The application and placement of the filter is important for airflow, which may affect the performance of the heating and cooling system. Reduced airflow will shorten the life of the main components of the system, such as motors, components, thermal relays, evaporator coils, or compressors. Therefore, we recommend that the return air duct system has only one filter position. For systems without return air filter grids, install multiple filter grids at each return air opening.

If a high-efficiency filter screen or electronic air filtration system is used, do not reduce the air flow rate. If the air flow decreases, the overall performance and efficiency of the device will decrease. We recommend contacting professional installation technicians to ensure the correct installation of such filtration systems.

Do not double filter the return air system. Do not filter the air supply duct system. This will change the performance of the device and reduce the airflow.

Warning: Fire Risk

Do not operate the system without a filter. Part of the dust suspended in the air may temporarily stay on the duct and air outlet of the room. Any circulating dust particles may be heated and burnt due to contact with AHU elements. This residue will stain the ceiling, walls, curtains, carpets, and other items in the house. When some types of candles, oil lamps, or igniters are used, soot may generate in the filter.

Filter Installation Size

9

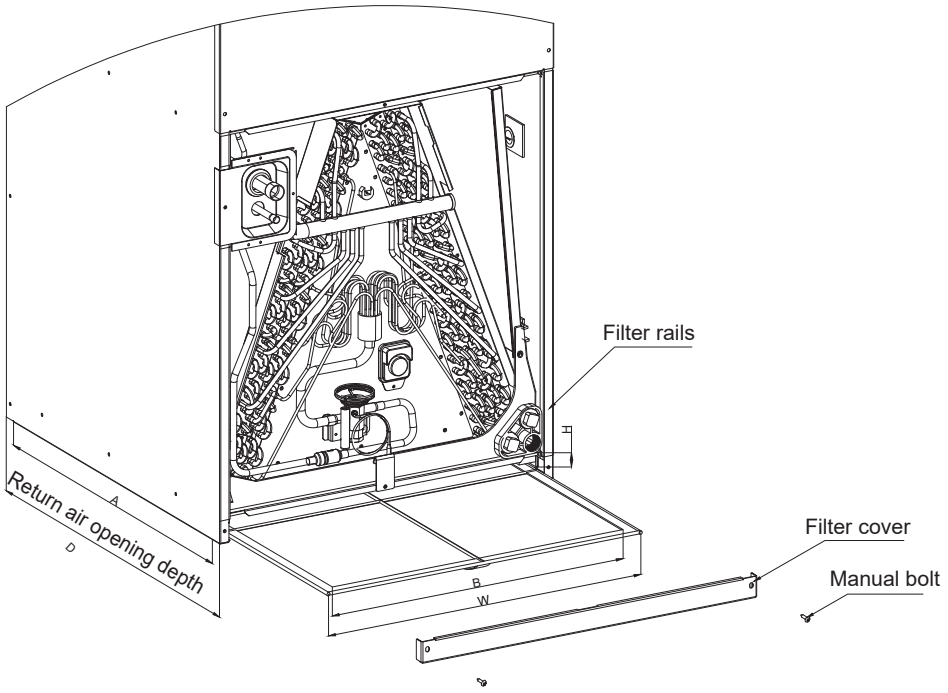


Figure 9.1. Installation of Filter

The replaceable filter is not included in the system and must be field-supplied.

When installing the indoor unit, regardless of the installation method, ensure that the filter is installed as shown in Figure 9.1.

Table 9.1. Size Number

Model	Filter size Inches [mm]	"W" Inch [mm]	"D" Inch [mm]	"H" Inch [mm]	Return Width "A" inch [mm]	Return Length "B" inch [mm]
24K/36K	18 x 22 [457 x 559]	18.3 [466]	21.6 [548]	1 [25.4]	20.8 [528]	16.3 [414]
48K/56K	20 x 24 [508 x 610]	20.7 [526]	24 [609]	1 [25.4]	23 [584]	18.8 [478]

Removal/Installation of the Air Filter

- Manually remove the bolts and filter cover, as shown in Figure 9.1.
- Hold the edge of the strainer and pull it out.
- Install a new filter so that the arrow on the filter screen is consistent with the airflow direction.
- If a reusable filter used, clean it according to the manufacturer's specifications before reinstalling it. The filter must conform to UL 900 standard.

Maintenance 10

Regularly maintain the equipment in order to keep high performance and minimize possible equipment failures.

Cleaning Precautions

Warning:

Qualified maintenance personnel must carry out all equipment maintenance.

Warning: Before Cleaning and Maintenance

Before cleaning or maintenance, turn off the equipment and disconnect its power supply.

Be Careful:

When removing the filter, do not touch the metal parts in the device. Sharp metal edges can cut you.

Notes:

- Do not use chemicals or chemically treated cloths to clean the equipment.
- Do not use benzene, paint thinner, polishing powder, or other solvents to clean this machine.
- Do not operate the system without a filter.

Routine Maintenance

Ensure that qualified service technicians regularly inspect the equipment. The annual system check must include:

1. Checking the filter every 90 days or when needed. If the filter is blocked or impaired, clean or replace it immediately.

2. Inspecting and cleaning the impeller housing and motor.

3. Checking and cleaning the indoor and outdoor coils as needed.

4. Checking and cleaning the indoor coil drain pan and pipe, as well as the auxiliary drain pan and pipe.

5. Checking all wires and connections. Refer to the wiring diagram and make corrections as needed.

Wiring Diagram

11

Warning: Electric Shock

Before repairing or installing this device, disconnect all power supplies. There may be multiple power sources. Otherwise, property damage, personal injury, or death may result.

Danger: Electric Shock

The device must be properly grounded and protected by a circuit breaker or fuse.

Warning: Electric Shock

Wire and install the devices according to all national and local safety codes.

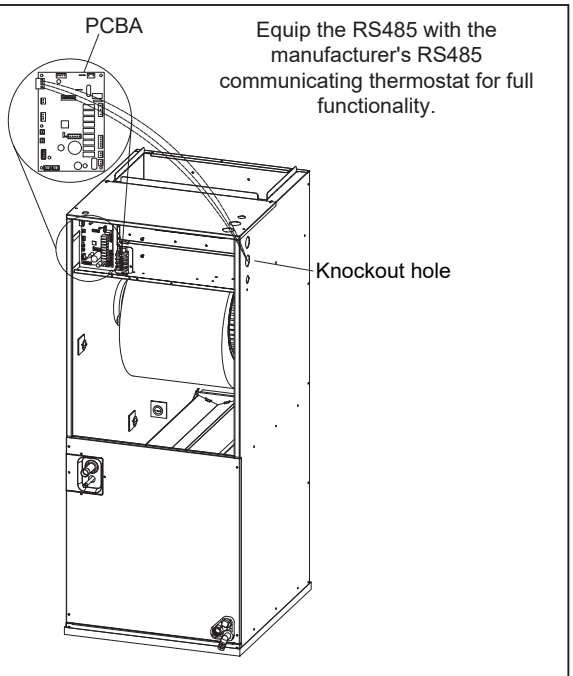


Figure 11.1. The 485 Communication Wiring Diagram

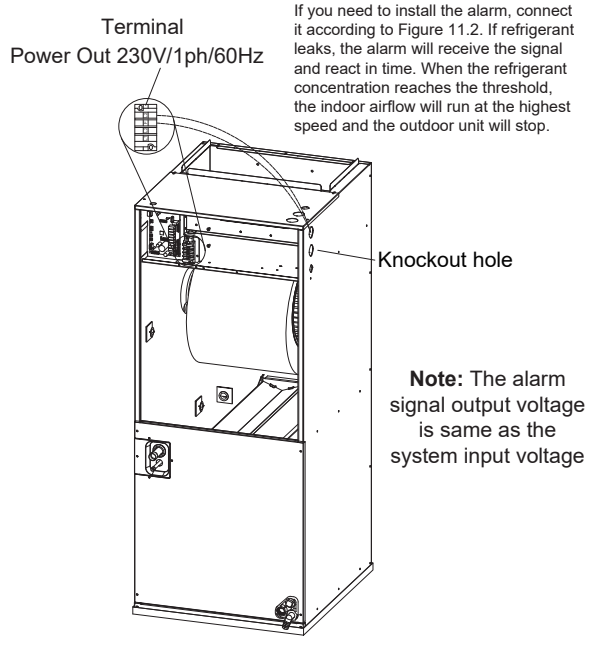


Figure 11.2. Alarm Wiring Diagram

- To avoid electric shock, ensure that:

1) Equipment is properly grounded.
2) The main power plug of the device has been connected to the ground wire (do not modify it).

- Do not overtighten the power wire.

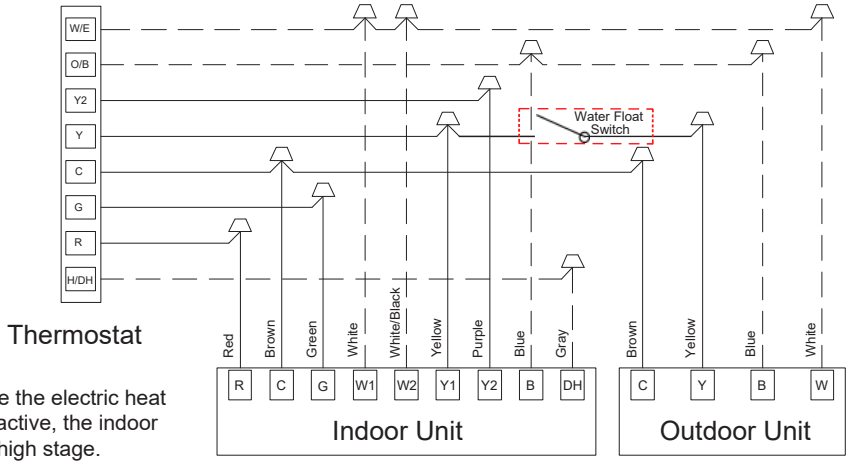
The dotted line in the following thermostat wiring diagram indicates optional wiring (wiring for passive dehumidification function and/or electric heating). For the wiring of the thermostat, refer to the user manual of the thermostat.

Dh wiring is optional and requires a thermostat with a humidifier. Dh plays the role of passive dehumidification and puts the indoor blower in the low fan speed. If Dh wiring is missing, the system will run in the normal operation sequence.

Wiring Diagram

11

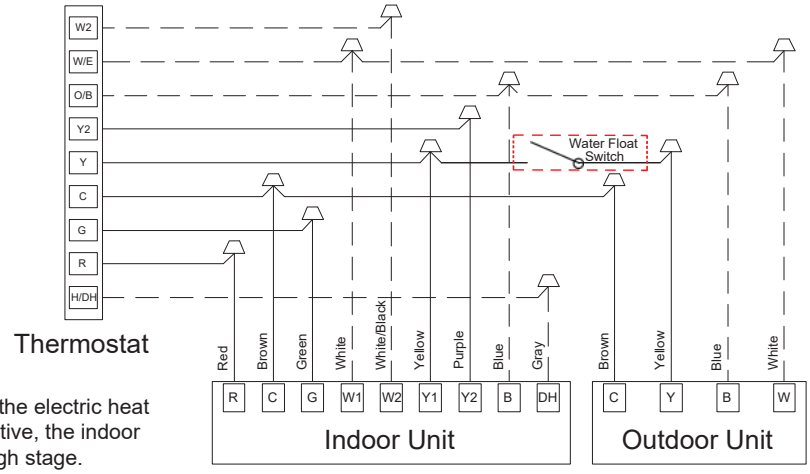
Wiring for 3H and 2C thermostat



Note: Any time the electric heat elements are active, the indoor fan will run in high stage.

Figure 11.3. Control Wiring for Heat Pump Systems

Wiring for 4H and 2C thermostat

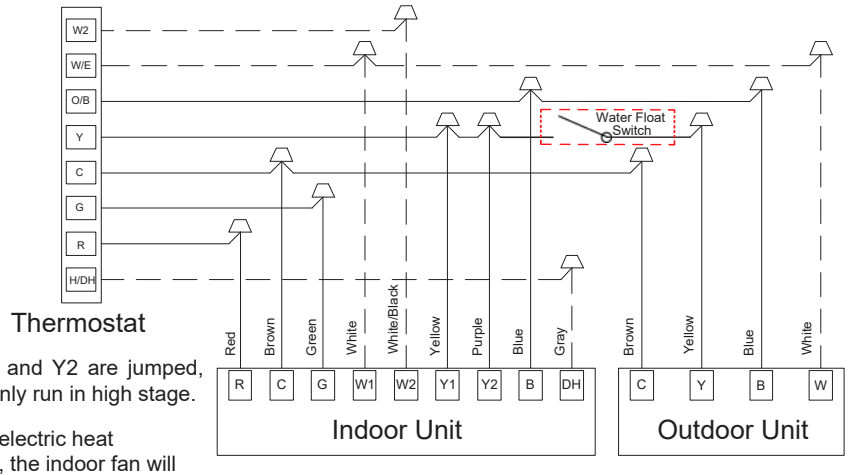


Note: Any time the electric heat elements are active, the indoor fan will run in high stage.

Figure 11.4. Control Wiring for Heat Pump Systems

11 Wiring Diagram

Wiring for 3H and 1C thermostat

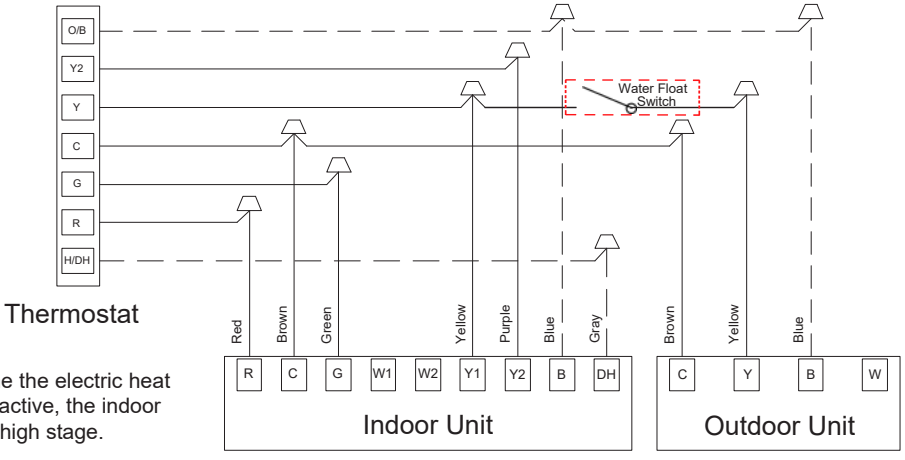


Note: Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.

Note: Any time the electric heat elements are active, the indoor fan will run in high stage.

Figure 11.5. Control Wiring for Heat Pump Systems

Wiring for 2H and 2C thermostat



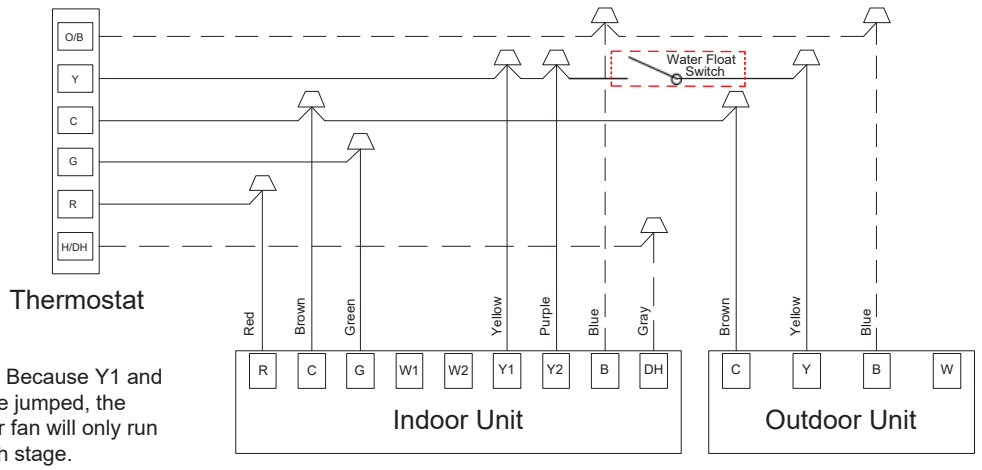
Note: Any time the electric heat elements are active, the indoor fan will run in high stage.

Figure 11.6. Control Wiring for Heat Pump Systems

Wiring Diagram

11

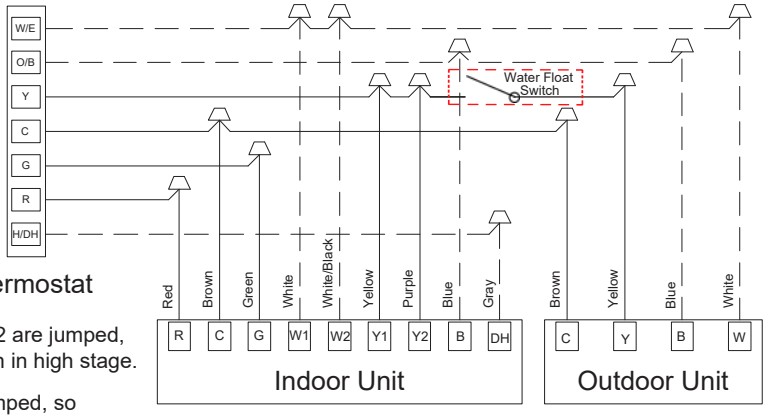
Wiring for 1H and 1C thermostat



Note: Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.

Figure 11.7. Control Wiring for Heat Pump Systems

Wiring for 2H and 1C thermostat



Note: Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.

Note: W1 and W2 are jumped, so electric heat will only function in high stage.

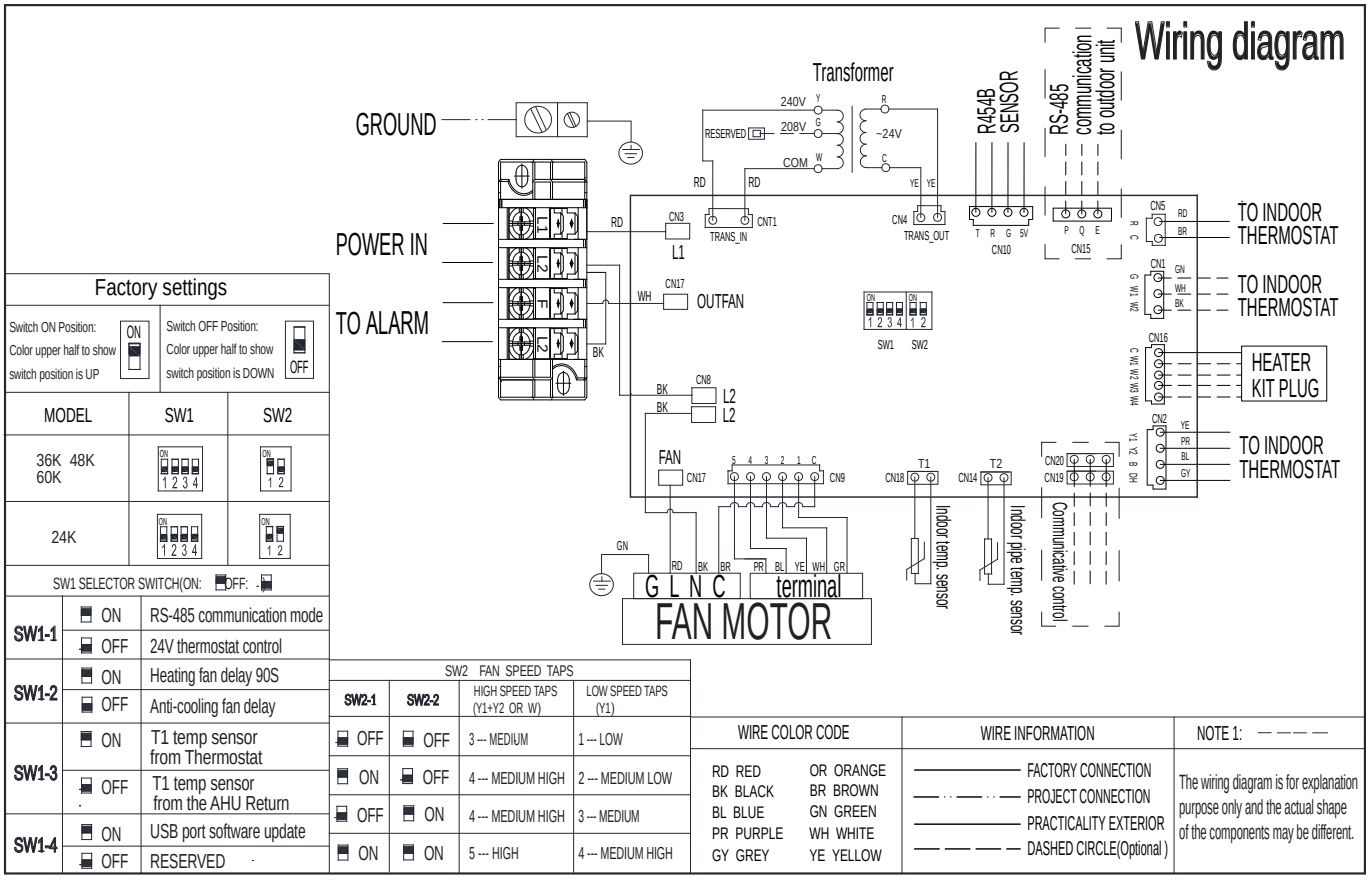
Figure 11.8. Control Wiring for Heat Pump Systems

Wiring Diagram

11

Table 11.1. Wire Gauge of High Voltage System (excl. heater)

Type (Btu/ hour)			24K	36K	48K	56K
Power		Stage	Single			
		Voltage/Frequency	208/230VAC, 60 Hz			
Wire Gauge	Indoor Unit Power Cord	Line Quantity	3	3	3	3
		Wire Diameter (AWG)	16	16	16	16
	Outdoor Unit Power Cord	Line Quantity	3	3	3	3
		Wire Diameter (AWG)	14	12	10	10



Applicable to 24K / 36K / 48K / 56K

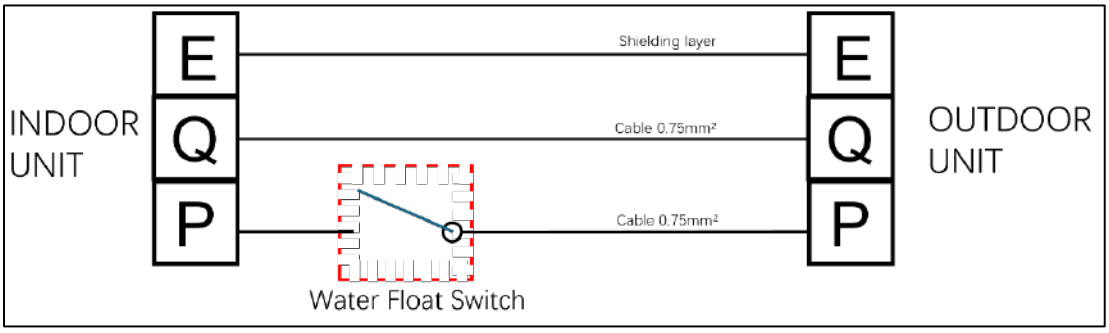
Note: For reference only, the actual wiring diagram shall prevail

Water Float Switch Wiring 12

RS-485 Communication Mode

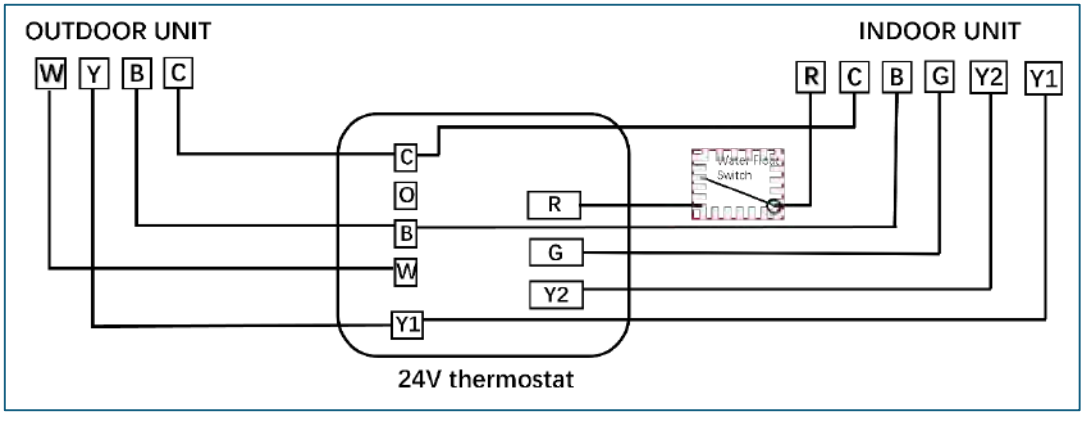
The indoor and outdoor units connect to three communication lines P.Q.E. The water float switch needs to be connected between the Terminal P communication line. The Terminal P communication line of the indoor unit first passes through the water float switch, then to the Terminal P of the outdoor unit.

Refer to the following figure for wiring:



24V Communication Mode

The indoor and outdoor units connect with R/C/Y/B/G via the 24V thermostat. The R terminal is a 24V power supply. Connect the water float switch to the R signal between the thermostat and indoor unit. When the water float switch experiences an overcurrent, it will disconnect the 24V power supply (R) and the compressor signal (Y). This causes the compressor to stop operating. Refer to the following figure for wiring:



RS-485 Wiring & Thermostat

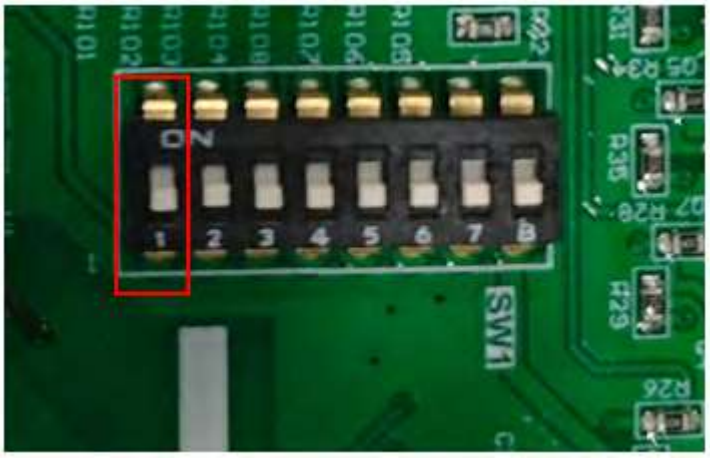
13

RS-485 Communication Wiring

1) Set the dial switch of the indoor and outdoor units to RS-485 communication mode.

The SW1-1 dial switch on the indoor main board and the SW1-1 dial switch on the ODU display board should both be turned to the "On" position.

Indoor Unit

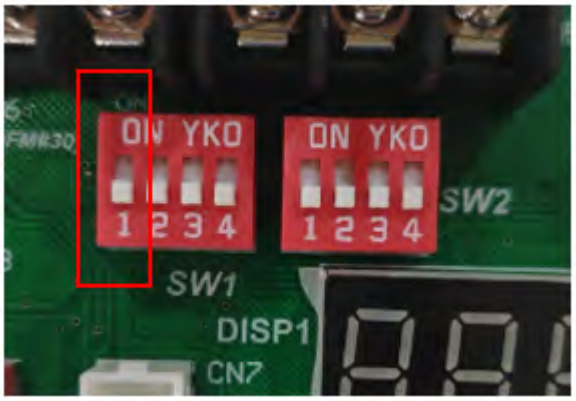


SW1-1	ON	RS-485 communication mode
	OFF	24V control (factory default)

RS-485 Wiring & Thermostat

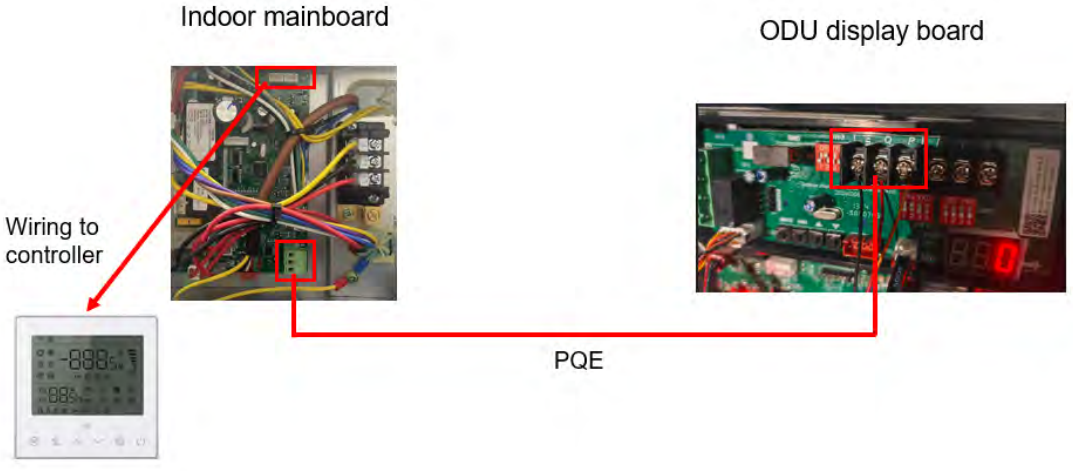
13

Outdoor Unit



SW1-1	ON	RS-485 communication mode
	OFF	24V control (factory default)

2) Connect the RS-485 Communication Wire
Connect the indoor and outdoor units, P-P, Q-Q, E-E one by one. Use 2-core shielded wires, with the shielding layer of the cable connected to E.



Note: The wired controller communication cable is provided by the factory. The PQE communication cables for the IDU and ODU need to be purchased by the customer in the local market.

RS-485 Wiring & Thermostat 13

3) 12V Wire Controller

	Mode: Set the mode of the air conditioner.
	TEMP+ and TEMP- Set the setpoint of the air conditioner.
	Fan speed: Set different fan speeds of air conditioner.
	On/Off: Start-up and shut-down of air conditioner.
	Function: Set the timing start-up and shutdown, check mode, filter cleaning, and child lock, etc.

Note: For detailed operating instructions, refer to the wire controller manual

Product Disposal Guidelines 14

Product Disposal Guidelines

This appliance contains refrigerant and other potentially hazardous materials. When disposing the appliance, the law requires special collection and treatment. Do not dispose this product as household waste or unsorted municipal waste.

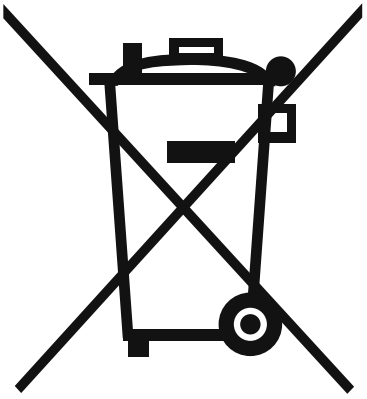
Remove all refrigerant and oil prior to disposal as outlined within this manual.

When disposing of this appliance, the following options are available:

- Dispose of the appliance at a designated municipal electronic waste collection facility.
- When buying a new appliance, the retailer will take back the old appliance free of charge.
- The manufacturer will take back the old appliance free of charge.
- Sell the appliance to certified scrap metal dealers.

Special Notice

Disposing of this appliance improperly, or in other natural surroundings, endangers your health and is bad for the environment. Hazardous substances may leak into the ground water and enter the food chain. Follow proper disposal protocols.



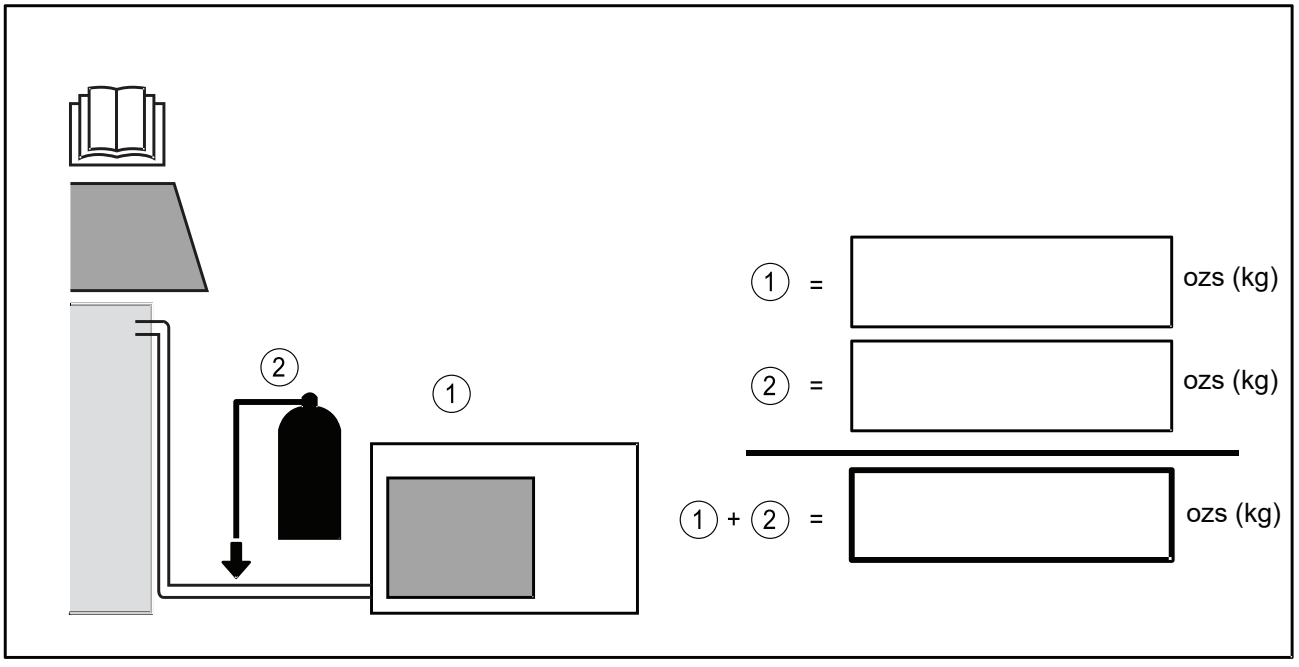
Appendix

A

If Refrigerant Has Been Added to the System During Installation

(For the Installer) fill in the following:

1) The factory refrigerant charge of the product (located on the outdoor unit nameplate).
2) The additional refrigerant charged into the product.
1+2) The total refrigerant charge.



We recommend keeping this information handy for future service and maintenance needs.

System Notes

The design and specifications of this product are subject to change without prior notice as development continues. Consult with the sales agency or manufacturer for details. Refer to the equipment nameplate for all other applicable specifications.

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