

# INSTALLATION INSTRUCTIONS

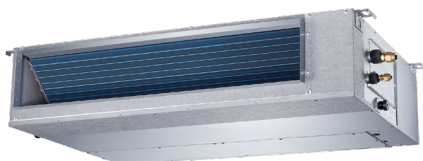
## 4DHP Mini-Split Systems

### DWM, D22C, D33C, and DMD

**This manual must be left with the homeowner for future reference.**



This is a safety alert symbol and should never be ignored. When you see this symbol on labels or in manuals, be alert to the potential for personal injury or death.



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Manufactured By  
**Allied Air Enterprises LLC**  
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## General

The DWM, D22C, D33C, and DMD indoor units are matched with a single-zone-capable or multi-zone-capable outdoor heat pump unit to create a mini-split system that uses HFC-410A refrigerant.

Refer to the Product Specification bulletin for more product information.

These instructions are intended as a general guide and do not supersede local or national codes in any way. Authorities having jurisdiction should be consulted before installation.

### **WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.

Installation and service must be performed by a licensed professional HVAC installer (or equivalent) or a service agency.

Failure to follow safety warnings and these instructions exactly could result in property damage, dangerous operation, serious injury, or death.

The clean Air Act of 1990 bans the intentional venting of refrigerant (CFCs, HCFCs, and HFCs) as of July, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incarceration may be levied for noncompliance.

These units must be installed as a matched system as specified in the Product Specifications.

Any additions, changes, or conversions required in order for the appliance to satisfactorily meet the application needs must be made by a licensed professional HVAC installer (or equivalent) using factory-specified parts.

### **CAUTION**

As with any mechanical equipment, personal injury can result from contact with sharp sheet metal edges. Be careful when you handle this equipment.

## Torque Requirements for Caps and Fasteners

When servicing or repairing HVAC components, ensure the fasteners are appropriately tightened. Table 1 provides torque values for fasteners.

### **IMPORTANT**

Only use Allen wrenches of sufficient hardness (50Rc - Rockwell scale minimum). Fully insert the wrench into the valve stem recess.

Service valve stems are factory-torqued from 9 ft.-lbs. (12 N\*m) for small valves, to 25 ft.-lbs. (34 N\*m) for large valves) to prevent refrigerant loss during shipping and handling. Using an Allen wrench rated at less than 50Rc risks rounding or breaking off the wrench, or stripping the valve stem recess.

Parts	Recommended Torque	
	U.S.	Newton-Meter-N
Service valve cap	8 ft.-lb.	11
Sheet metal screws	16 in.-lb.	2
Machine screws #10	27 in.-lb.	3
Compressor bolts	7 ft.-lb.	10
Gauge port seal cap	8 ft.-lb.	11

**Table 1. Torque Requirements**

## Outdoor Units



### Shipping and Packing List

Check the components for shipping damage. If you find any damage, immediately contact the last carrier.

Package contains the following:

1 - Assembled Indoor Unit (The assembled indoor unit will include accessories specific to the unit; see each indoor unit's section within this manual for accessories included with that unit.)

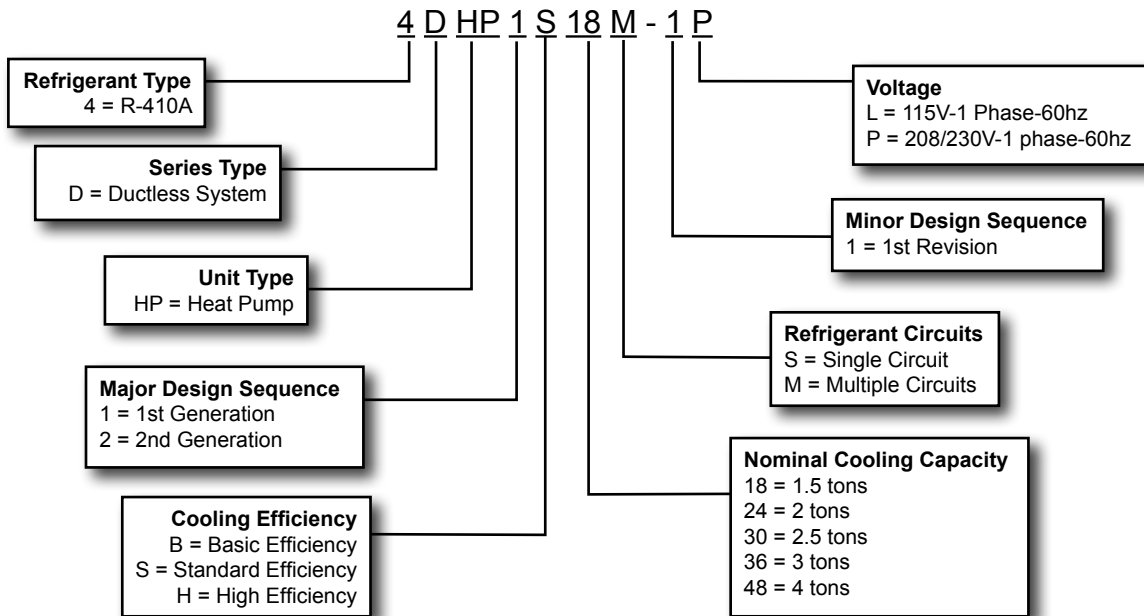
1 - Assembled Outdoor Unit and the following items:

Parts	Figure	Quantity	Parts	Quantity	Parts	Figure	Quantity
Drain connector		1	Installation and owner's manual	1 ea.	Seal ring		1

#### Line Set Adapters

4DHP1S18M-1P	4DHP1S30M-1P	4DHP1S36M-1P	4DHP1S48M-1P
2 adapt. – 3/8" to 1/2"	3 adapt. – 3/8" to 1/2"	3 adapt. – 3/8" to 1/2" 1 adapt. – 1/2" to 3/8"	3 adapt. – 3/8" to 1/2" 2 adapt. – 1/2" to 3/8"

### Model Number Identification



## Outdoor / Indoor Unit Compatibility

Indoor Unit	Voltage	Indoor Unit	Voltage
DWM109S4-1P	208/230V	D22C118S4-1P	208/230V
DWM112S4-1P	208/230V	D33C124S4-1P*	208/230V
DWM118S4-1P	208/230V	DMD209S4-1P	208/230V
DWM124S4-1P	208/230V	DMD212S4-1P	208/230V
D22C109S4-1P	208/230V	DMD218S4-1P	208/230V
D22C112S4-1P	208/230V	DMD224S4-1P*	208/230V

\*The 24,000 Btu indoor unit is only allowed to be connected to a 4DHP1S36M or 4DHP1S48M outdoor unit.

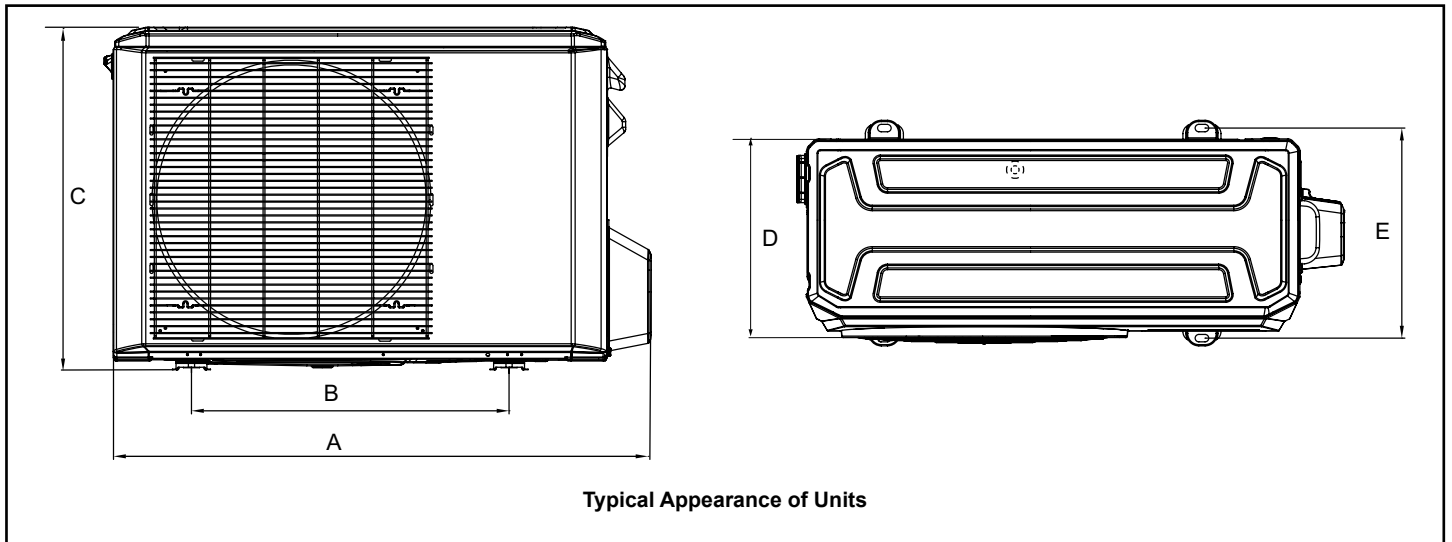
**Table 2. Indoor Units Compatible with Multi-Zone Outdoor Units**

Outdoor Unit	Indoor Unit	Voltage
4DHP1S09S-1L	DWM109S4-1L	115V
4DHP1S12S-1L	DWM112S4-1L	115V
4DHP1S09S-1P	DWM109S4-1P	208/230V
	D22C109S4-1P	
	DMD209S4-1P	
4DHP1S12S-1P	DWM112S4-1P	208/230V
	D22C112S4-1P	
	DMD212S4-1P	
4DHP1S18S-1P	DWM118S4-1P	208/230V
	D22C118S4-1P	
	DMD218S4-1P	
4DHP1S24S-1P	DWM124S4-1P	208/230V
	D33C124S4-1P	
	DMD224S4-1P	
4DHP1S30S-1P	DWM130S4-1P	208/230V
4DHP1S36S-1P	D33C136S4-1P	208/230V
	DMD236S4-1P	
4DHP1S48S-1P	D33C148S4-1P	208/230V
	DMD248S4-1P	

**Table 3. Indoor Units Compatible with Single-Zone Outdoor Units**



## Outdoor Unit Dimensions



Model	Unit of Measurement	A	B	C	D	E
<b>MULTI-ZONE OUTDOOR UNITS</b>						
4DHP1S18M-1P	inches	36	21-1/4	27-5/8	13-1/4	13-3/4
	mm	914	540	702	335	350
4DHP1S30M-1P 4DHP1S36M-1P"	inches	40-3/4	26-1/2	31-7/8	15-1/8	15-7/8
	mm	1035	673	810	386	403
4DHP1S48M-1P	inches	41-3/4	25	52-1/2	16-3/8	15-7/8
	mm	1060	634	1333	415	404
<b>SINGLE-ZONE OUTDOOR UNITS</b>						
4DHP1S09S-1L 4DHP1S12S-1L 4DHP1S12S-1P"	inches	34-1/4	20-1/4	21-7/8	13-1/8	13-3/8
	mm	870	514	556	333	340
4DHP1S09S-1P	inches	33-1/8	19-1/8	21-7/8	11/7/2008	11/3/2004
	mm	842	486	556	302	298
4DHP1S18S-1P	inches	36	21-1/4	27-5/8	14-1/4	13-3/4
	mm	914	540	702	362	349
4DHP1S24S-1P 4DHP1S30S-1P 4DHP1S36S-1P	inches	37-1/4	26-1/2	31-7/8	16-3/8	15-7/8
	mm	1032	673	810	416	403
4DHP1S48S-1P	inches	41-1/8	25	52-1/2	16-3/8	15-7/8
	mm	1045	635	1334	416	403

**Figure 1. Outdoor Unit Dimensions**

# Outdoor Unit Installation

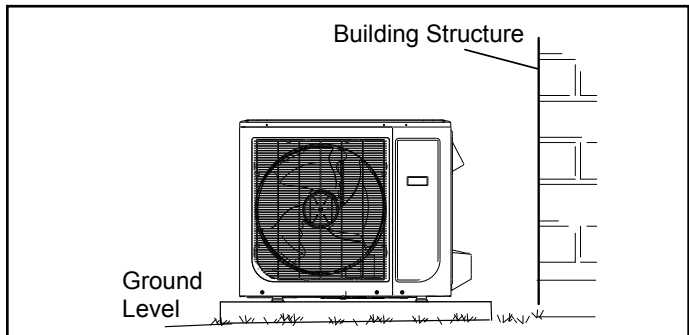
## Outdoor Unit Placement

**⚠ CAUTION**

In order to avoid injury, take proper precaution when lifting heavy objects.

Consider the following when positioning the unit:

- In coastal areas or other places with salty atmosphere of sulfate gas, corrosion may shorten the life of the unit. In coastal areas, the coil should be cleaned with potable water several times per year to avoid corrosive buildup (salt)
- Some localities are adopting sound ordinances based on the unit's sound level registered from the adjacent property, not from the property where the unit is installed. Install the unit as far as possible from the property line
- When possible, do not install the unit directly outside a window. Glass has a very high level of sound transmission

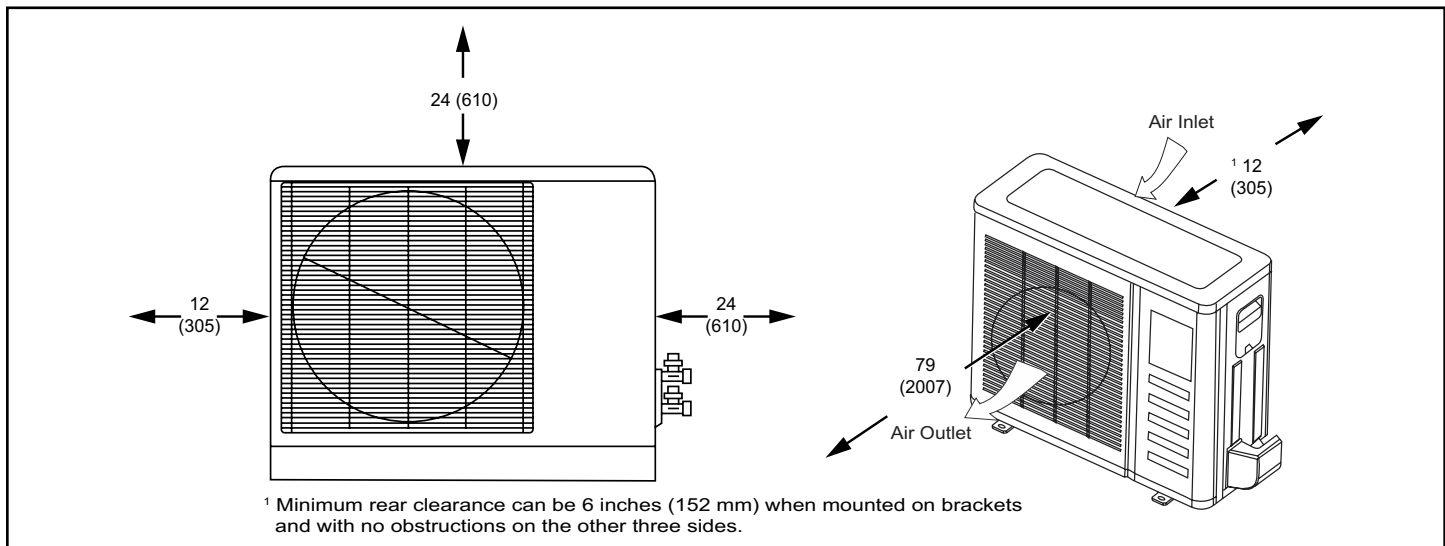


**Figure 2. Install Unit Level**

- Install unit level
- Choose a place solid enough to bear the weight and vibration of the unit, where the operation noise will not be amplified
- Choose a location where the hot air discharged from the unit or the operation noise will not be a nuisance to neighbors
- Avoid installing the outdoor unit near a bedroom or other places where noise may cause a problem
- There must be sufficient space to carry the unit into and out of the site
- There must be unobstructed air flow around the air inlet and the air outlet
- The unit must not be installed in areas where a flammable gas leak may occur
- Install the outdoor unit a minimum of 3 feet (1m) away from any antenna, power cord (line), radio, telephone, security system, or intercom. Electrical interference and radio frequencies from any of these sources may affect operation
- Since water drains from the outdoor unit during various stages of operation, do not place anything which may be damaged by moisture under the unit

### **Direct Sunlight, Rain, Snow and Ice Protection**

If the outdoor unit is subjected to prolonged exposure to direct sunlight with temperatures over 100°F (38°C) a canopy is recommended as illustrated in Figure 4 or Figure 9.

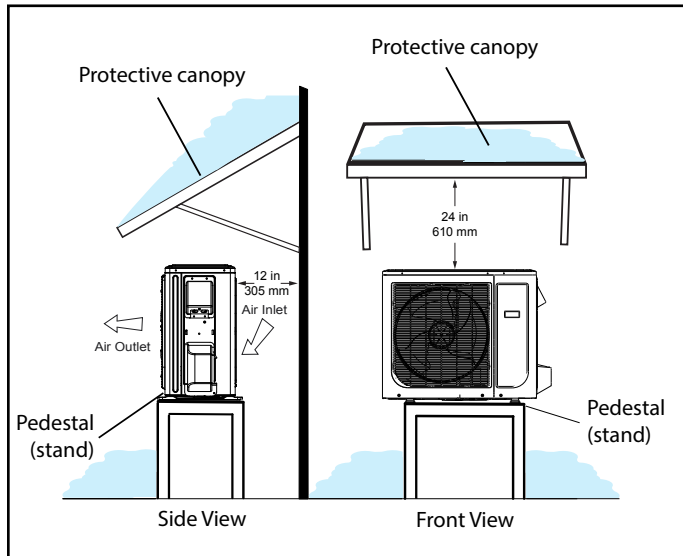


**Figure 3. Outdoor Unit Clearances**

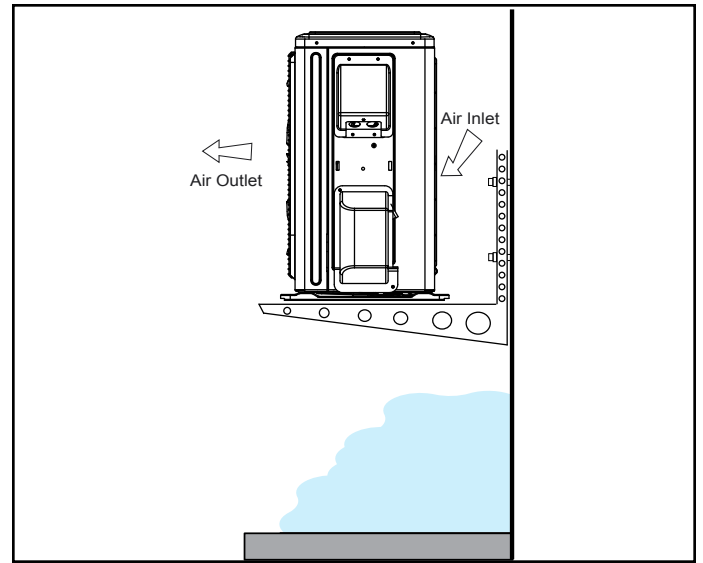
## **⚠ IMPORTANT**

The construction of a canopy or shade is necessary because of an ambient limit control set to 122°F (50°C) to protect the electronics. If the outdoor unit is placed in direct sunlight it is possible that the limit may activate and shut down the unit.

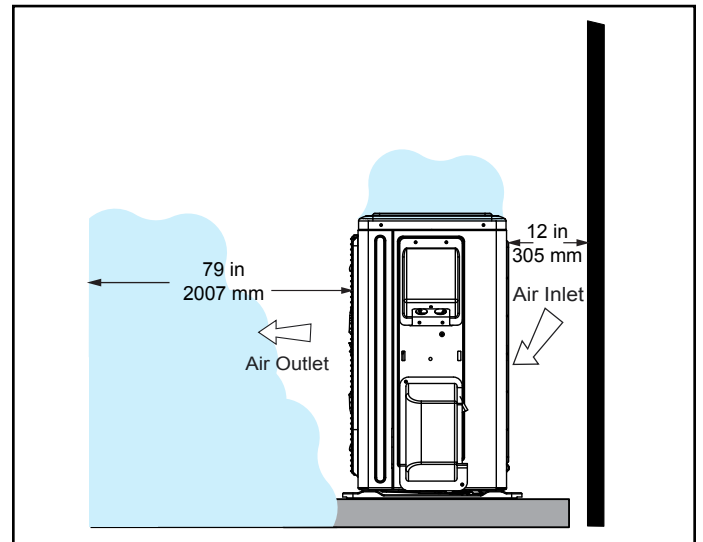
- Place unit away from overhanging roof lines, which would allow water or ice to drop on, or in front of, coil or into unit. Construct a canopy as illustrated in Figure 4.
- The unit base should be elevated above the depth of average snows as illustrated in Figure 5
- In heavy snow areas, do not place the unit where drifting will occur as illustrated in Figure 6
- Carefully consider how to manage defrost water disposal to prevent ice from blocking walkways or creating a safety hazard near the outdoor unit as illustrated in Figure 7



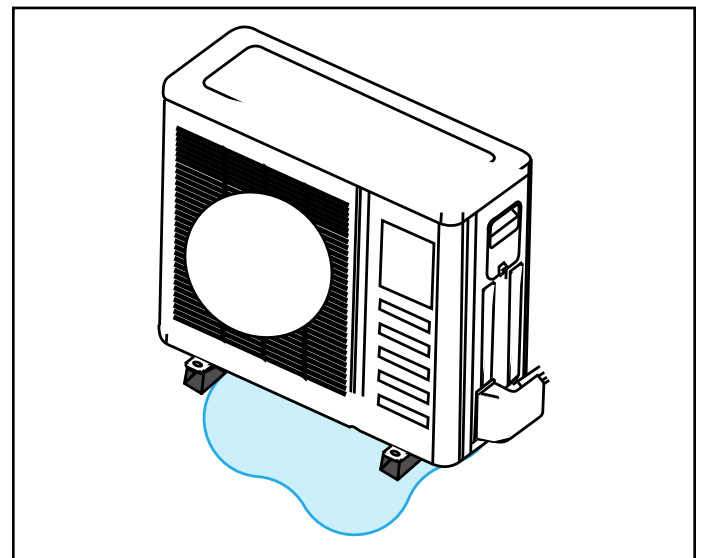
**Figure 4. Outdoor Unit with Pedestal and Protective Canopy**



**Figure 5. Outdoor Unit on Brackets Above Snow Line**



**Figure 6. Outdoor Unit Air Flow Obstructed by Snow**



**Figure 7. Avoid Defrost Water Ice Hazard**

## Prevailing Winds

Normally wind baffles are not required for an outdoor unit. However, in order to maximize reliability and performance, the following best practices should be followed.

If unit coil cannot be installed away from prevailing winter winds, some method of protecting the coil is recommended. However, minimum clearances, as referenced in Figure 3, must be observed at all times.

Common application examples are:

- When prevailing winds are from the air inlet side, then position the wind barrier a minimum of 12 inches (305 mm) from the unit as illustrated in Figure 8
- When prevailing wind is into the discharge side, then position the wind barrier a minimum 79 inches (2007 mm) from the front of the unit as illustrated in Figure 8
- Outdoor unit can be installed in a dog house style shelter as illustrated in Figure 9
- Outdoor unit can be installed in an alcove or under a roof overhang as illustrated in Figure 10

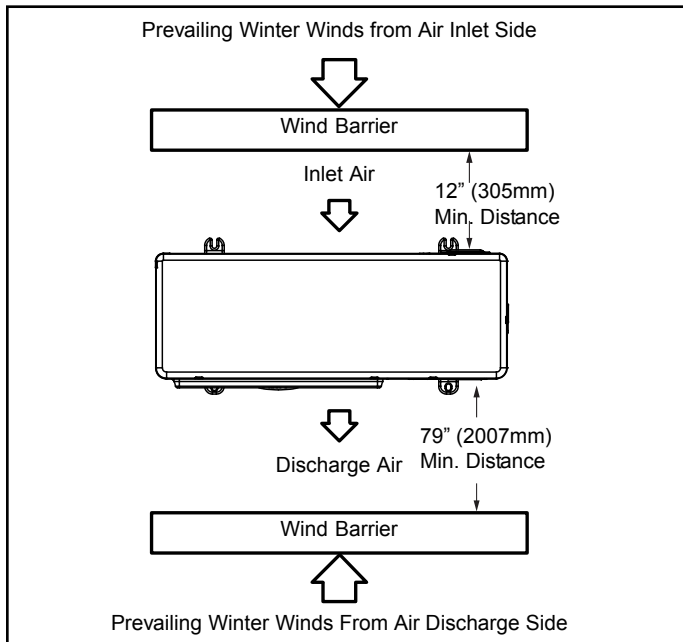
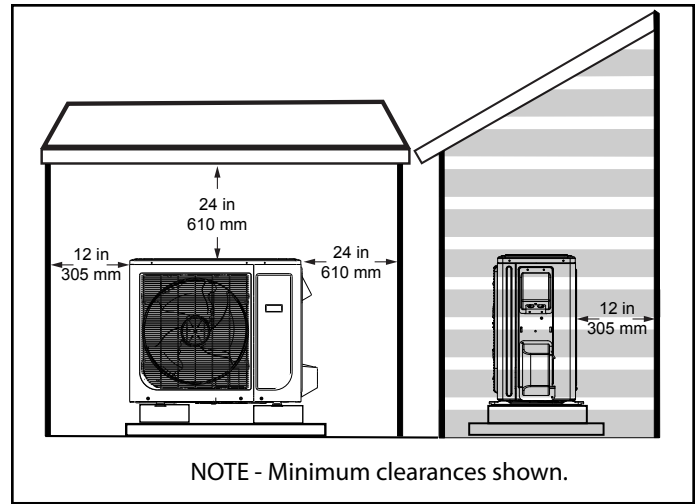
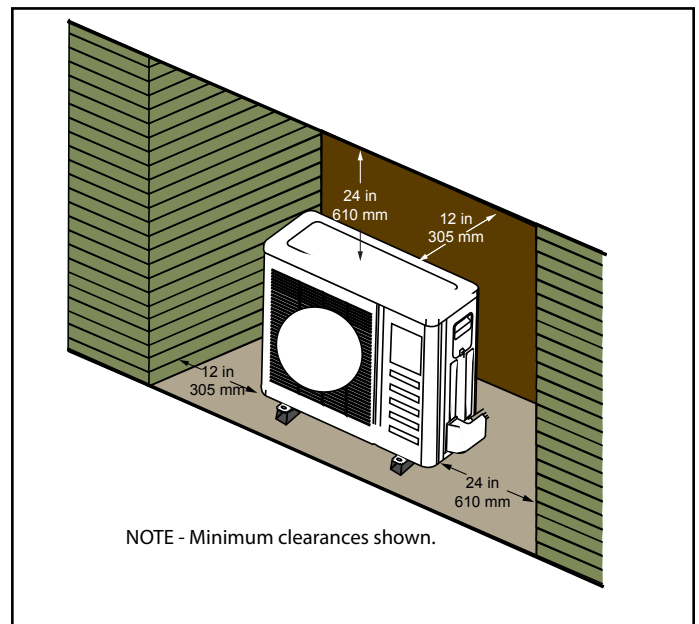


Figure 8. Wind Barrier



NOTE - Minimum clearances shown.

Figure 9. Dog House-Style Shelter



NOTE - Minimum clearances shown.

Figure 10. Unit Installed in Alcove

## Buried Refrigerant Pipe Protection

- All refrigerant lines must be insulated regardless of if they are buried
- In addition to insulating each line of piping, buried lines must rest inside a sealed, watertight conduit
- The conduit must be designed so it cannot collect and retain water

### Outdoor Unit Condensate Piping

Condensate formed during the heating and defrost processes must be drained from heat pump units. Drain holes are provided in the base of the units to ensure proper drainage. Heat pumps must be raised when installed on a concrete pad or the ground to allow drainage to occur. If the heat pump unit is installed on wall mounting bracket, insert the provided drain connector into one of the 1 inch (25 mm) drain holes and attached a field-provided insulated drain hose to the connector. Use field-provided rubber plugs to cover any unused drain holes.

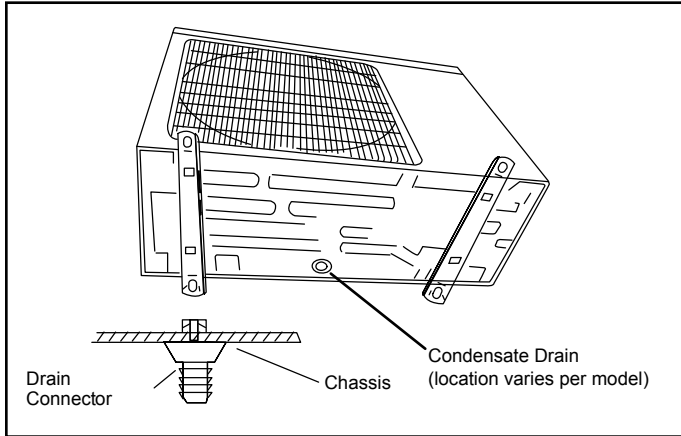


Figure 11. Condensate Drain

### Securing the Outdoor Unit

#### Slab or Roof Mounting

Install the unit a minimum of 4 inches (102 mm) above the roof or ground surface to avoid ice build-up around the unit. Place the unit above a load bearing wall or area of the roof that can adequately support the unit. Consult local codes for rooftop applications.

### CAUTION

#### Roof Damage!

This system contains both refrigerant and oil. Some rubber roofing material may absorb oil. This will cause the rubber to swell when it comes into contact with oil. The rubber will then bubble and could cause leaks. Protect the roof surface to avoid exposure to refrigerant and oil during service and installation. Failure to follow this notice could result in damage to roof surface.

#### Securing Outdoor Unit to Slab, Frame, or Rails

If the outdoor unit is installed on a field-provided slab or frame, use lag bolts or equivalent to secure the outdoor unit to the slab or frame.

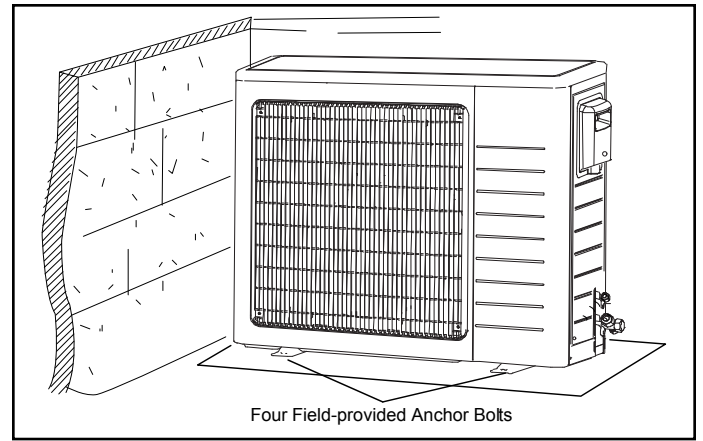


Figure 12. Securing Outdoor Unit to Slab

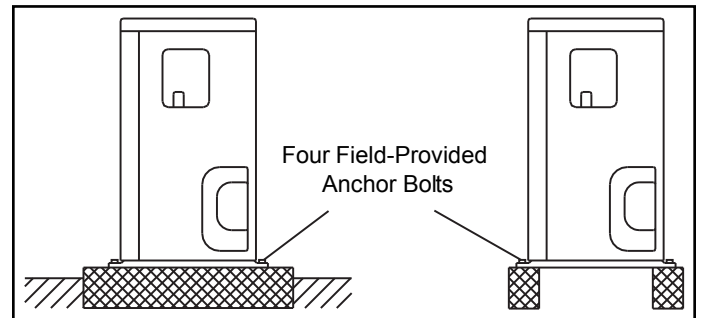


Figure 13. Securing Outdoor Unit to Rails

#### Securing Outdoor Unit to Hanging Brackets

If the outdoor unit is installed on field-provided wall mounting brackets, use lag bolts or equivalent to secure the outdoor unit to the bracket. Minimum rear clearance can be reduced to 6 inches (152 mm) when mounted on brackets and with no obstructions on the other three sides. Allow for condensate disposal when placing units above one another.

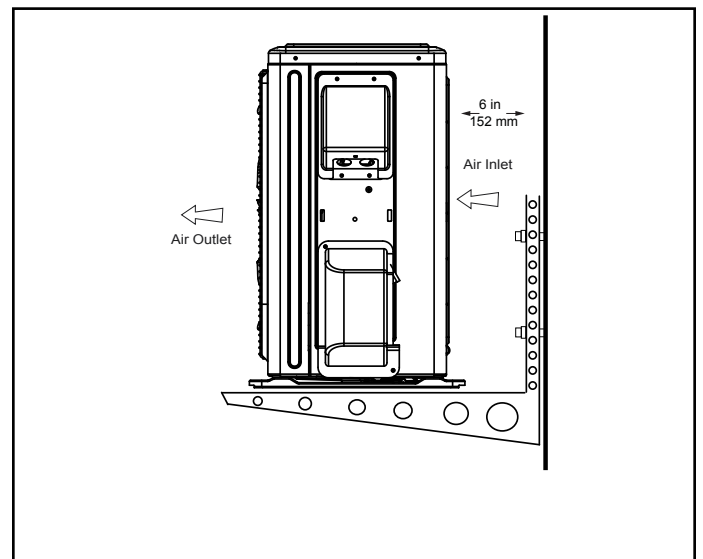


Figure 14. Securing Outdoor Unit to Brackets

## Connecting Single-Zone Systems

### Refrigerant Piping Connections

Field piping consists of two copper lines connecting the outdoor unit to the indoor unit. Table 4 lists the connection sizes. The connections are made using the provided brass flare nuts at the end of the refrigerant piping connections.

Both lines must be individually insulated.

1. The seal on the unit refrigerant piping connections should remain in place until the last possible moment. This will prevent dust or water from getting into the refrigerant piping before it is connected.
2. CAREFULLY adjust refrigerant piping connections to suit the application.
3. Slowly loosen one of the flare nuts to release the factory nitrogen charge from the indoor units only.
4. Remove the flare nuts from the connections on the unit and discard the seal from each of the piping connections.
5. Slide the flare nuts onto the ends of the field-provided refrigerant piping before using a suitable flaring tool to flare the end of the copper pipe.
6. Apply recommended HFC-410A refrigerant lubricant to the outside of the flared refrigerant lines.

### **⚠ IMPORTANT**

The compressor in this unit contains PVE oil (Polyvinylether). PVE oil is formulated for hydrofluorocarbon (HFC) refrigerants, such as HFC-410A, which this system contains. While it may have some miscibility properties with mineral-based oil and POE oil (Polyolester), it is not recommended to mix PVE oil with any other type of refrigerant oil.

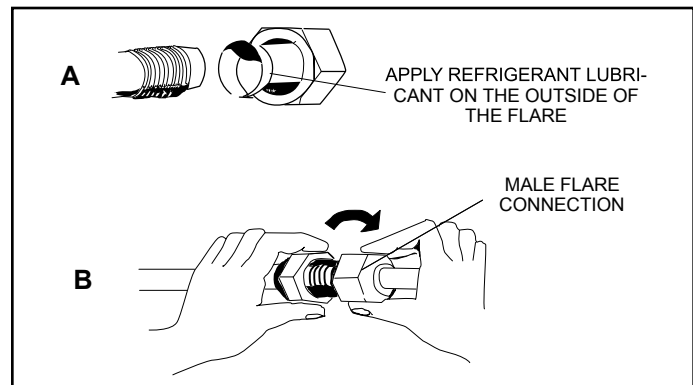
7. Align the threaded connections with the flared refrigerant lines. Tighten the flare nuts lightly at first to obtain a smooth match as illustrated in Figure 15.
8. Once snug, continue another half-turn on each nut which should create a leak-free joint. A torque wrench may be used to tighten flare nuts using Table 5. **Do not over-tighten a flared joint. Flared connections should always be accessible and must be insulated to prevent condensation.**
9. After refrigerant piping has been installed and checked for leaks, apply insulation over all flared connections.

### **⚠ IMPORTANT**

Always use two wrenches when tightening flare nuts to avoid twisting refrigerant piping. **DO NOT** over-tighten flare nuts.

Size (Btuh)	Liquid Line in.	Gas Line in.
9000	1/4	3/8
12000	1/4	1/2
18000	1/4	1/2
24000	3/8	5/8
36000	3/8	5/8
48000	3/8	5/8

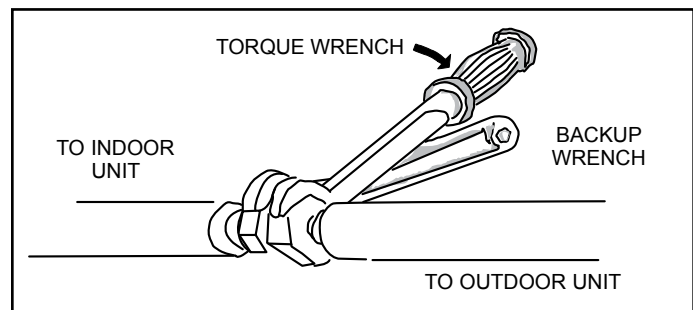
**Table 4. Refrigerant Piping and Indoor Unit Connection Sizes**



**Figure 15. Making Connections (Male to Female Connection)**

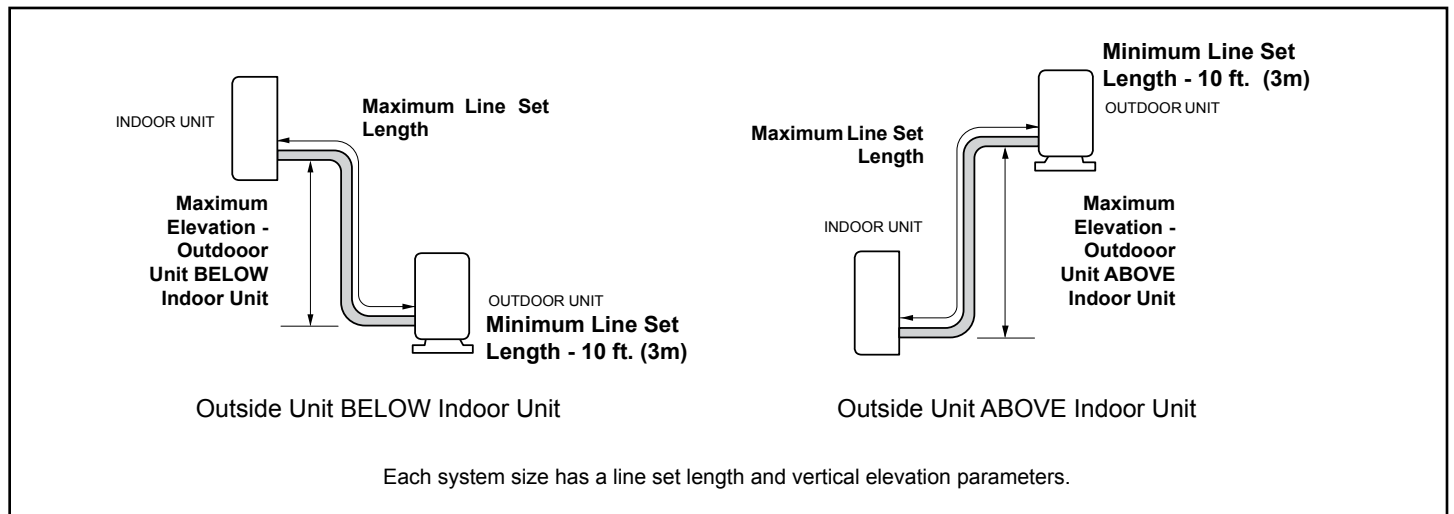
Outside Diameter Inches	Recommended Torque	No torque wrench available
		Finger tighten and use an appropriately sized wrench to turn an additional:
1/4	15 ft.-lb. (20 N)	1/4 turn
3/8	26 ft.-lb. (35 N)	1/2 turn
1/2	41 ft.-lb. (56 N)	7/8 turn
5/8	48 ft.-lb. (65 N)	1 full turn

**Table 5. Flare Nut Torque Recommendations**



**Figure 16. Tighten Flare Nut**

## Refrigerant Line Set Requirements for Single-Zone Systems



System Size (KBtu)	Line Set Diameters (in.)		Maximum Elevation Outdoor Unit BELOW Indoor Unit - Feet (Meter)	Maximum Elevation Outdoor Unit ABOVE Indoor Unit - Feet (Meter)	Maximum Line Set Length - Feet (Meters)
	Liquid	Gas			
009	1/4	3/8	40 (12)	40 (12)	82 (25)
012	1/4	1/2	40 (12)	40 (12)	82 (25)
018	1/4	1/2	66 (20)	66 (20)	98 (30)
024/030	3/8	5/8	82 (25)	82 (25)	164 (50)

Figure 17. DWM Refrigerant Line Set Requirements - Single-Zone Systems

## Single-Zone System Wiring Connections

### **IMPORTANT**

Install unit so that unit disconnect is accessible.

Use specified wiring and cable to make electrical connections. Clamp cables securely and make sure that connections are tight to avoid strain on wiring. Insecure wiring connections may result in equipment failure and risk of fire.

Wiring must be installed so that all cover plates can be securely closed.

### **WARNING**

Electric Shock Hazard. Can cause injury or death. Unit must be grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power sources.

### **CAUTION**

All terminal connections must be made as illustrated in the following diagrams. Improperly connected wiring could damage unit or cause communication errors between indoor and outdoor units.

In the U.S.A., wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

#### ***Outdoor Unit***

- Refer to unit nameplate for minimum circuit ampacity and maximum over-current protection size
- Make all electrical power wiring connections at the outdoor unit
- Be sure to reattach all electrical box covers after connections are complete

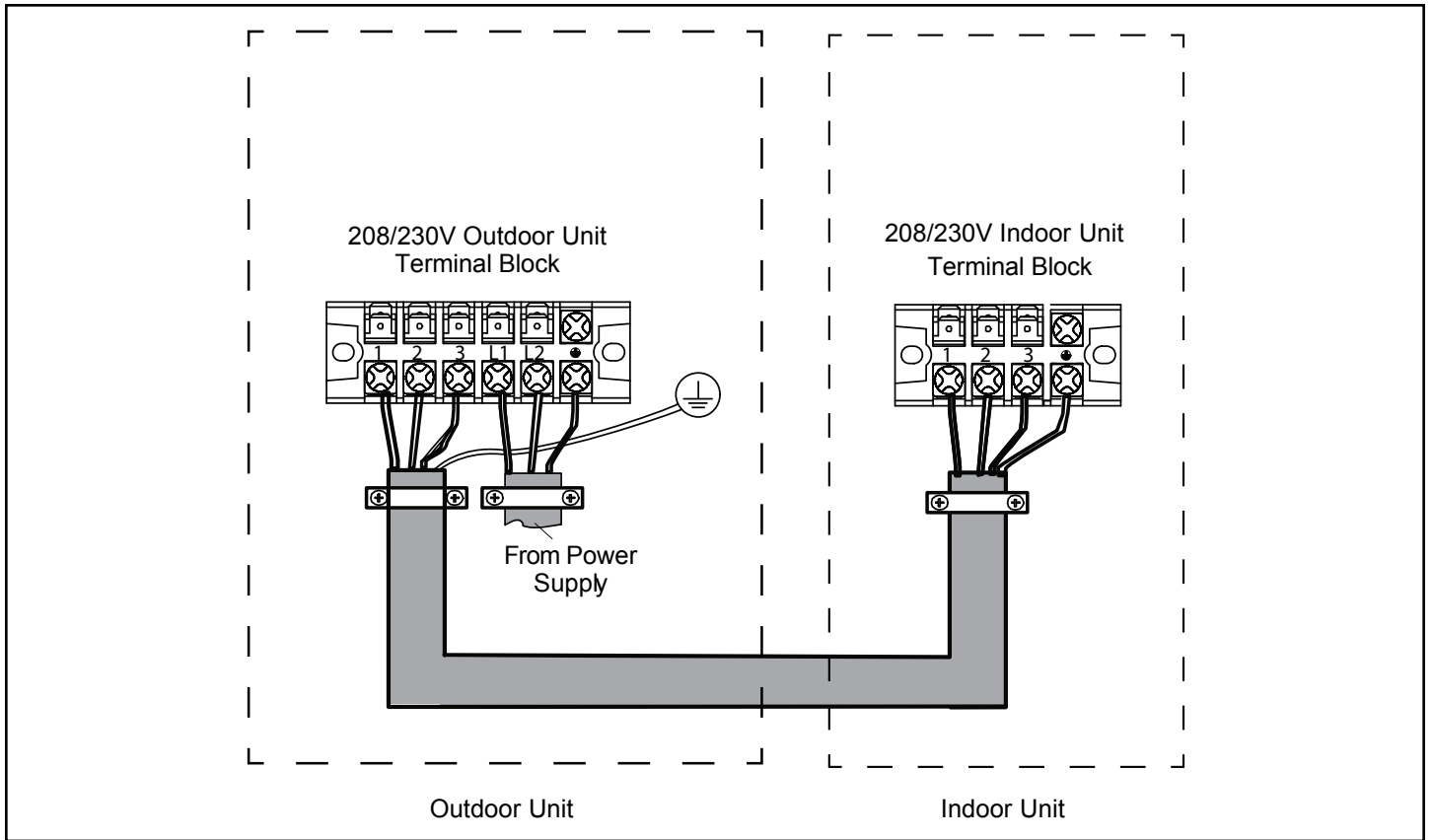
#### ***Indoor Units***

Refer to the applicable indoor unit section for further details.

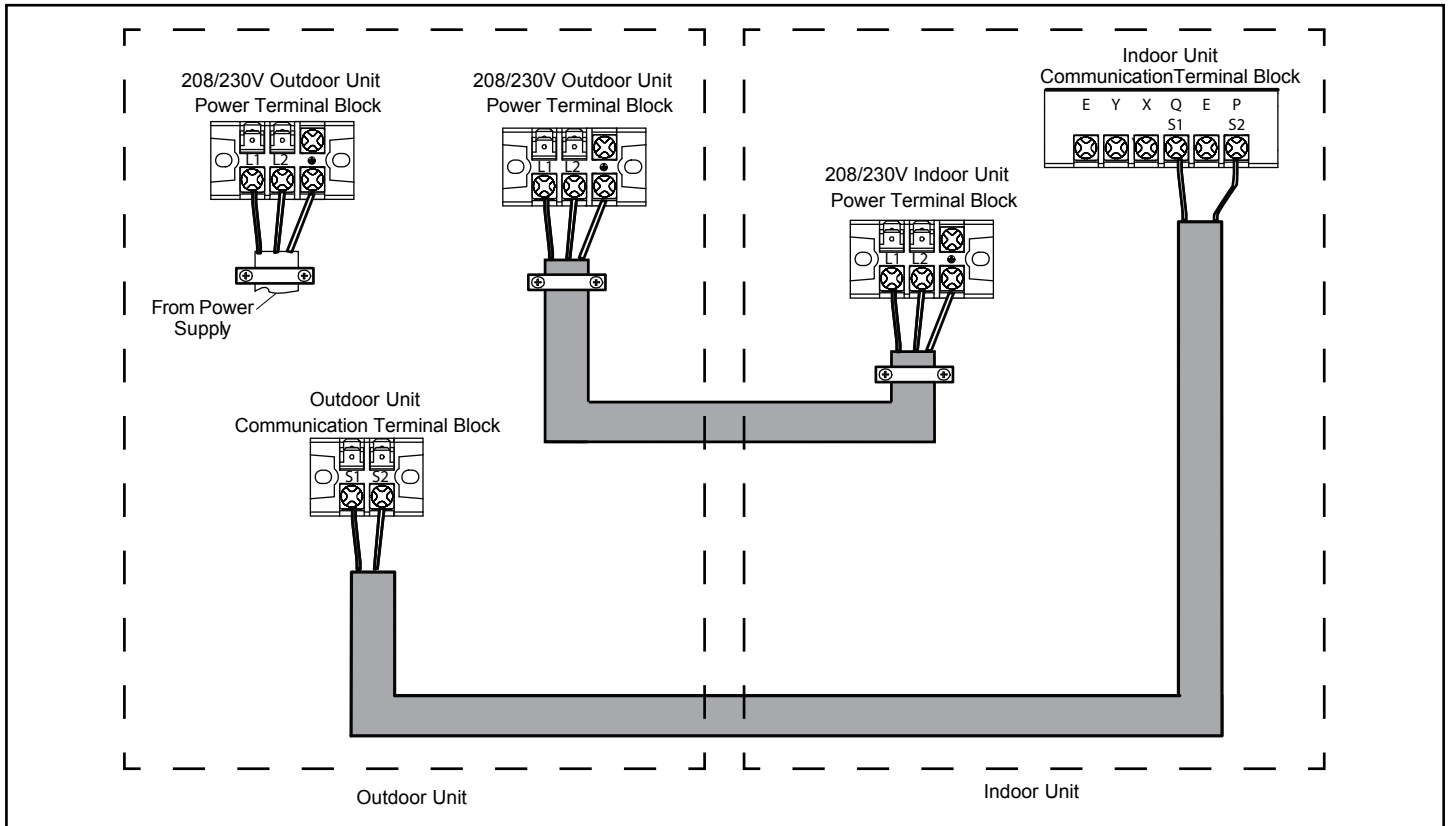
### **IMPORTANT**

All wiring diagrams are typical wiring diagrams. Refer to the wiring diagram on the unit for actual wiring.





**Figure 18. Single Zone Wiring - Systems 30K and Below**



**Figure 19. Single Zone Wiring - Systems 36K and 48K Only**

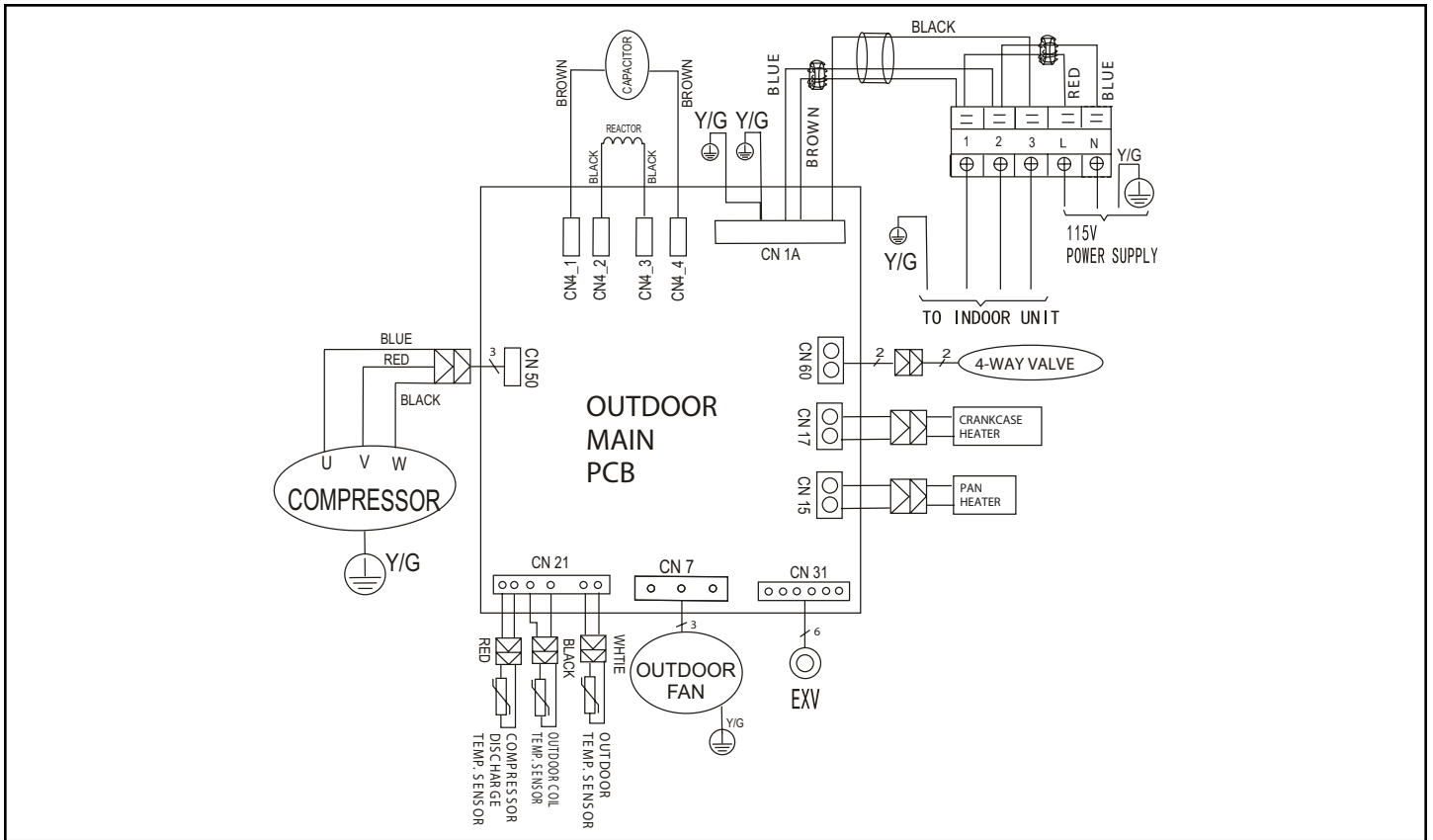


Figure 20. 115V 4DHP1S09S-1L and 4DHP1S12S-1L Outdoor Unit Wiring Diagram - Single Zone Systems

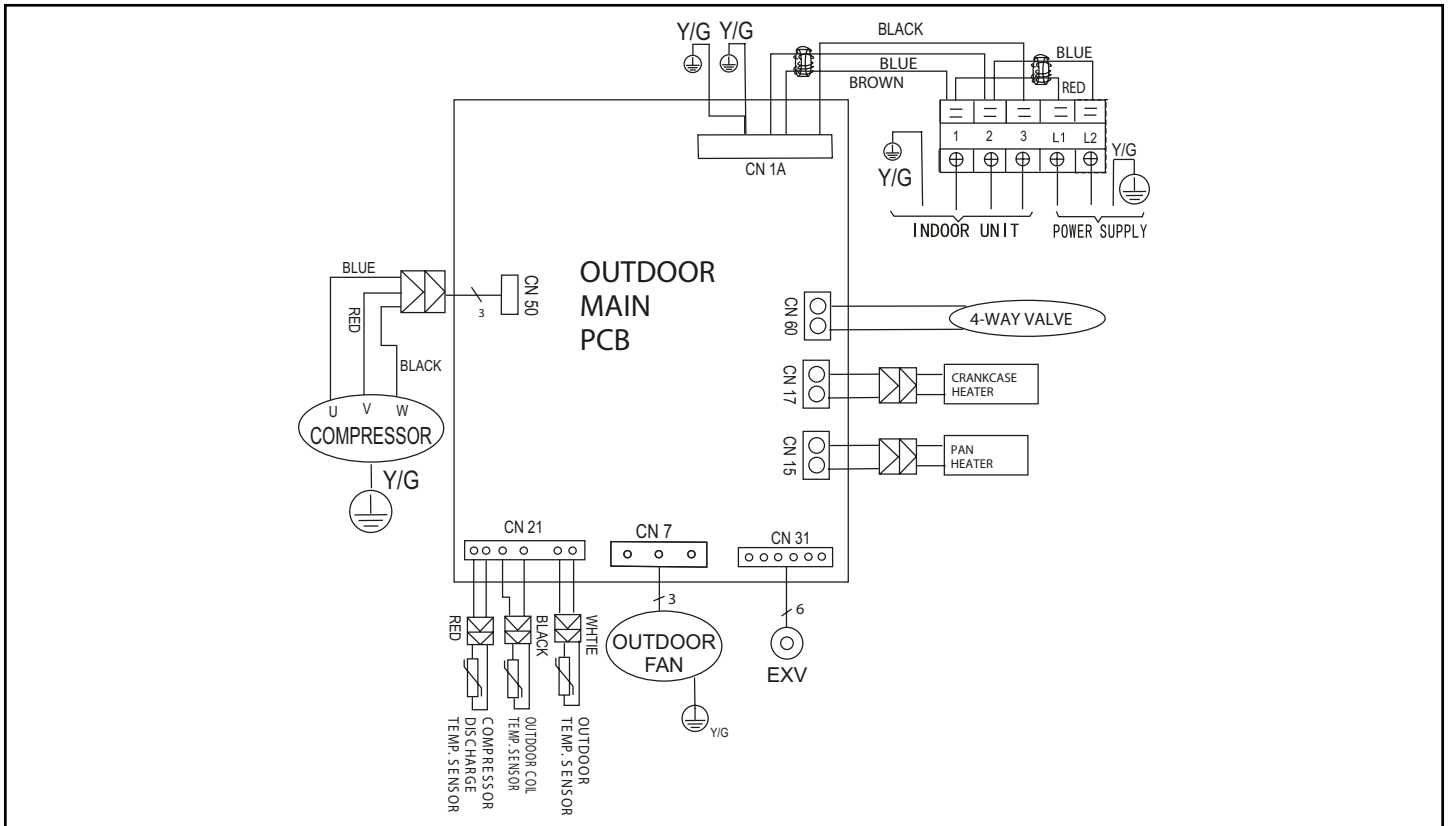


Figure 21. 208/230V 4DHP1S09S-1P and 4DHP1S12S-1P Outdoor Unit Wiring Diagram - Single Zone Systems

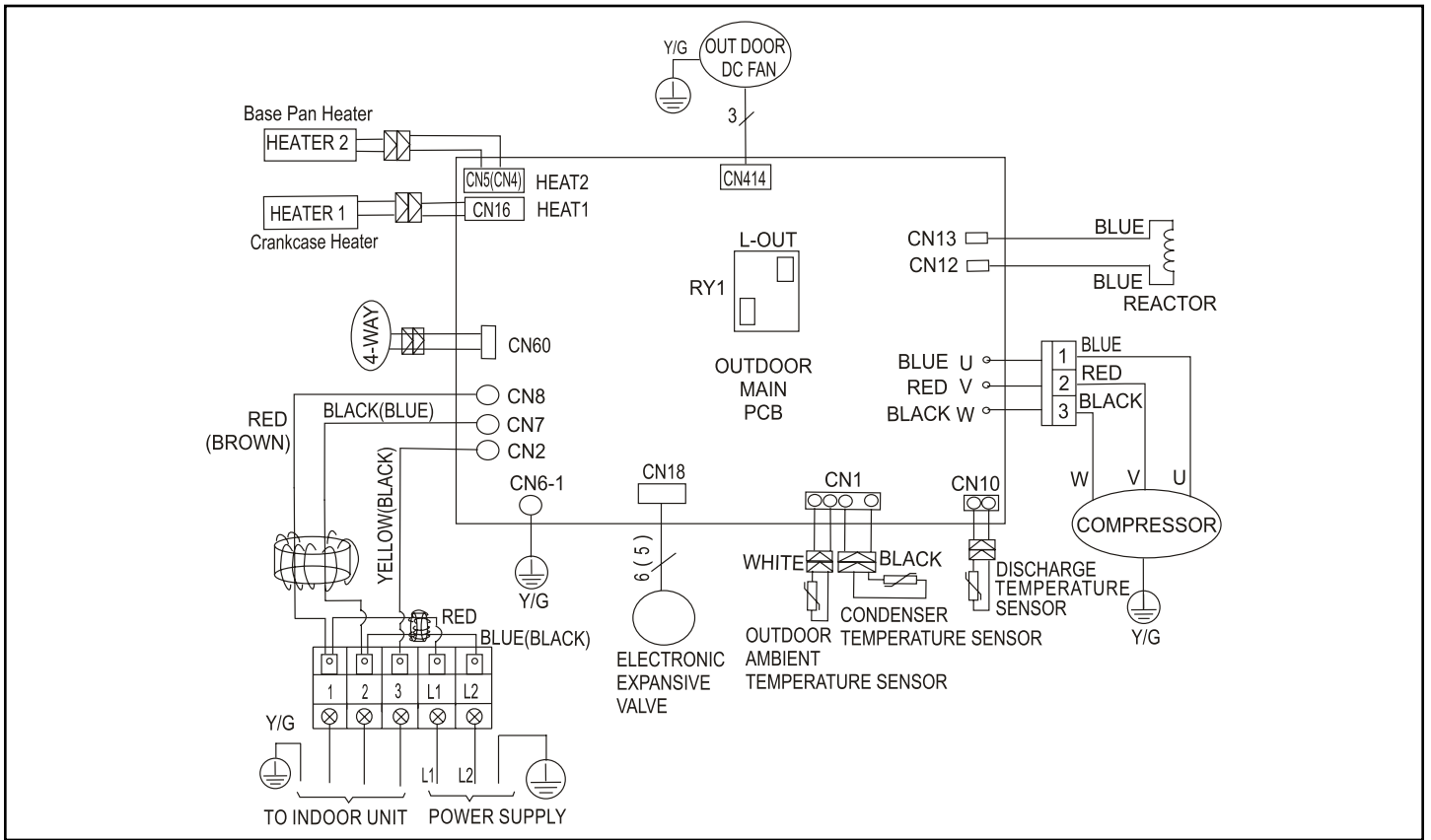


Figure 22. 208/230V 4DHP1S18S-1P and 4DHP1S24S-1P Outdoor Unit Wiring Diagram - Single Zone Systems

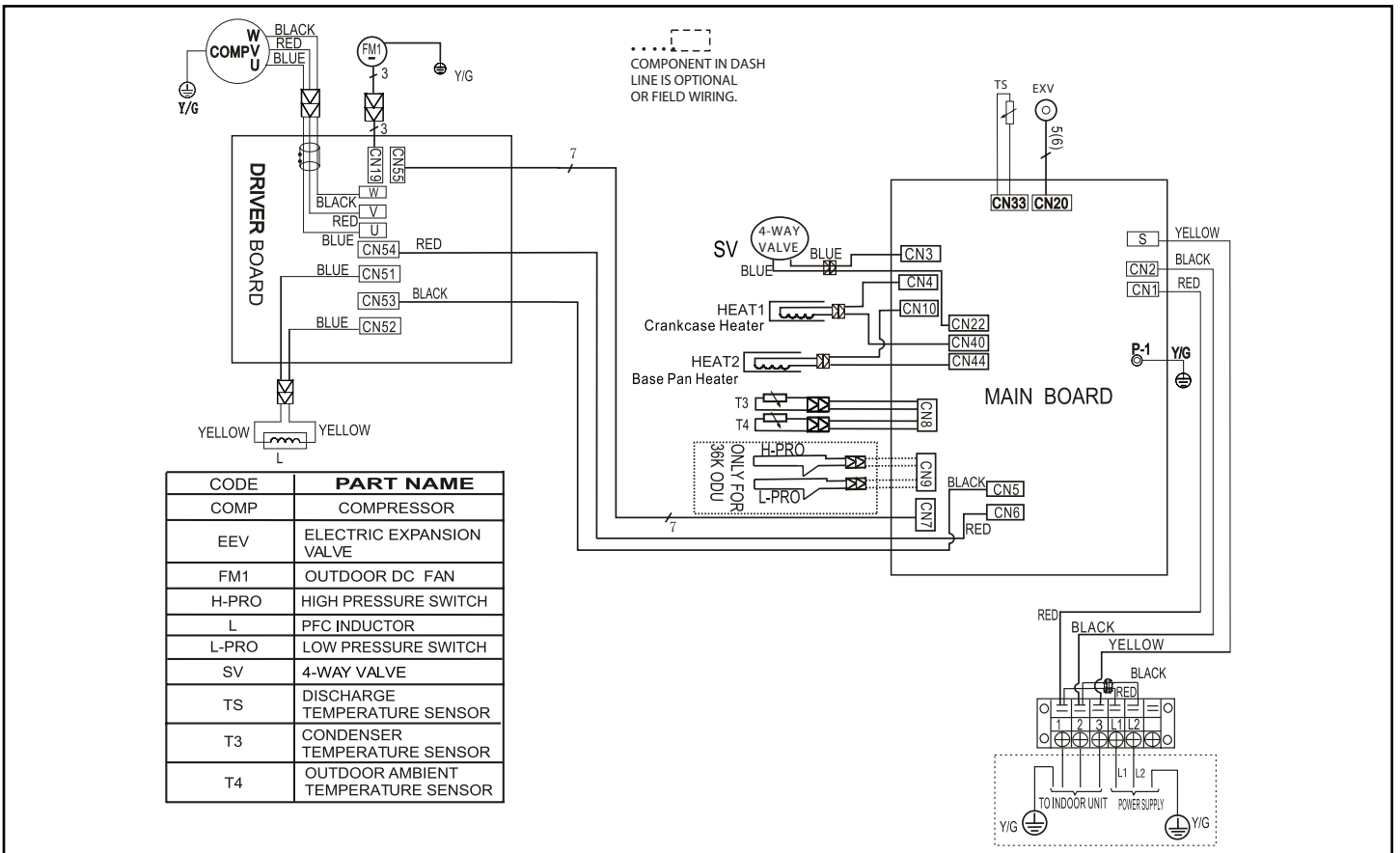
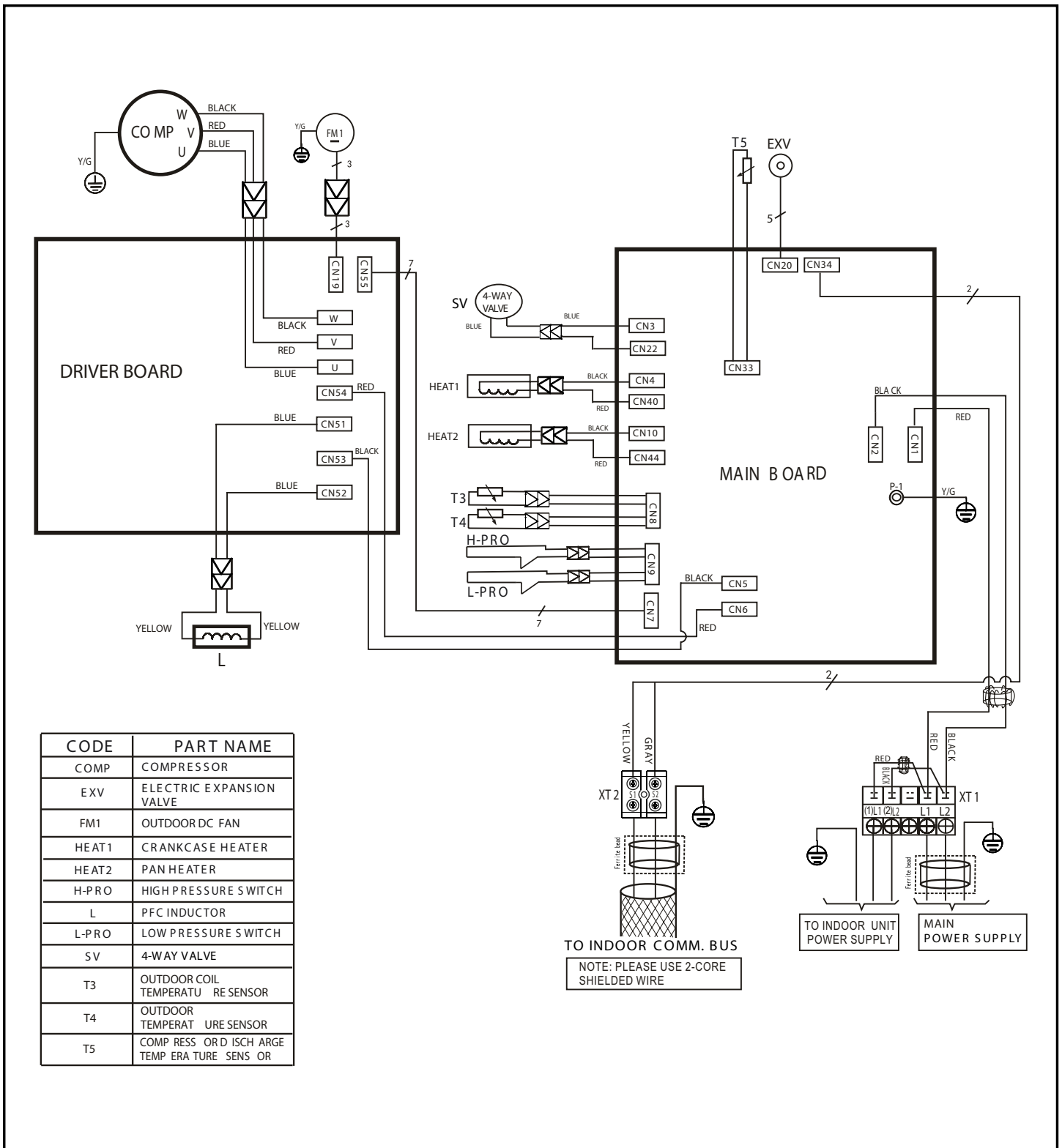


Figure 23. 208/230V 4DHP1S30S-1P Outdoor Unit Wiring Diagram - Single Zone Systems



CODE	PART NAME
COMP	COMPRESSOR
EXV	ELECTRIC EXPANSION VALVE
FM1	OUTDOOR DC FAN
HEAT1	CRANKCASE HEATER
HEAT2	PAN HEATER
H-PRO	HIGH PRESSURE SWITCH
L	PFC INDUCTOR
L-PRO	LOW PRESSURE SWITCH
SV	4-WAY VALVE
T3	OUTDOOR COIL TEMPERATURE SENSOR
T4	OUTDOOR TEMPERATURE SENSOR
T5	COMPRESSOR DISCHARGE TEMPERATURE SENSOR

Figure 24. 208/230V 4DHP1S36S-1P Unit Wiring Diagram

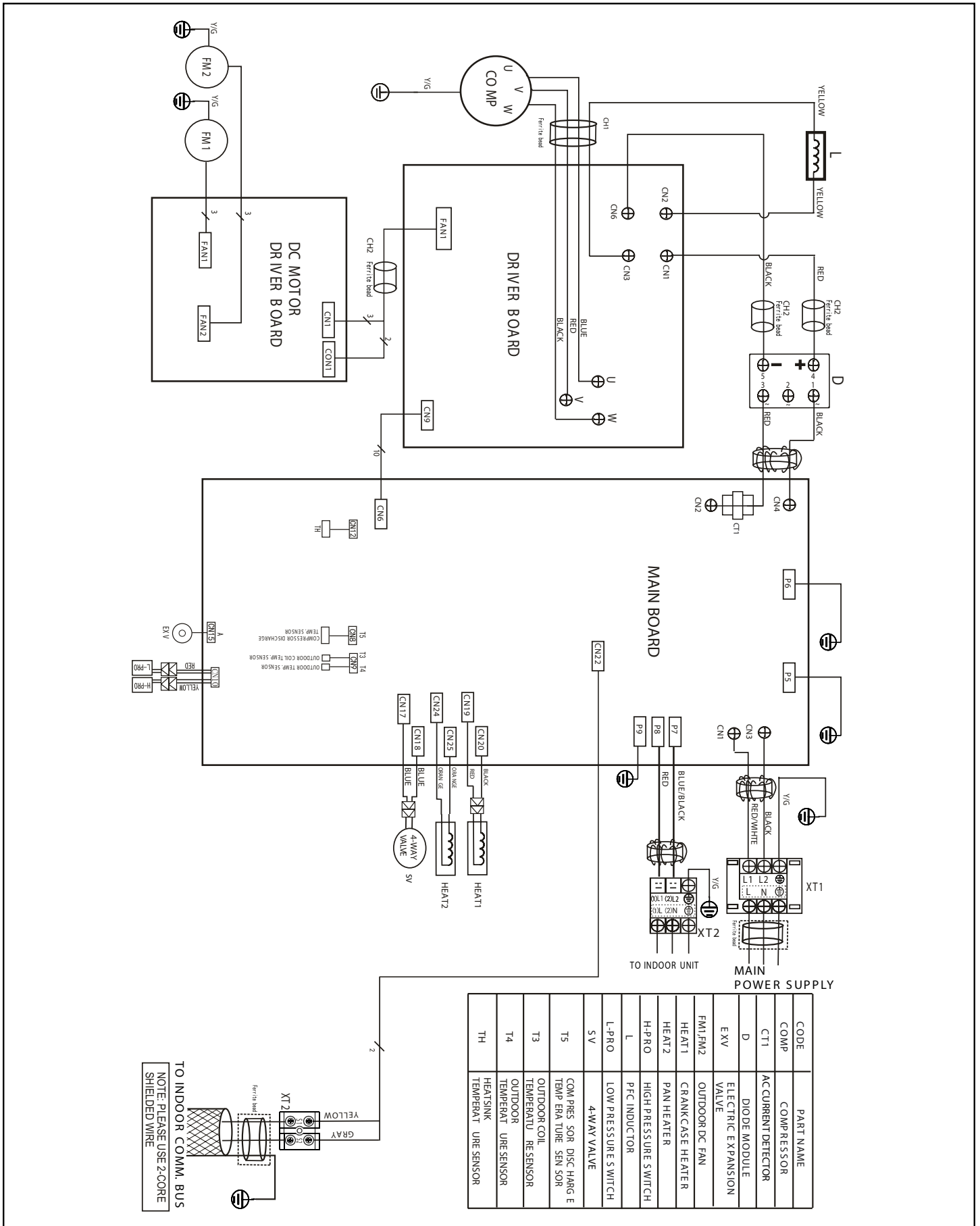


Figure 25. 208/230V 4DHP1S48S-1P Unit Wiring Diagram

## Connecting Multi-Zone Systems

The following section contains information about connecting a multi-zone-capable outdoor unit to indoor units in a multi-zone system.

### ⚠ CAUTION

In order to avoid injury, take proper precaution when lifting heavy objects.

### ⚠ IMPORTANT

Pipe and wire to each zone separately.

Test each indoor unit separately to ensure proper operation.

- The largest capacity indoor unit must be connected to the lowest refrigerant connection ports on the outdoor unit.
- The 24,000 Btu indoor unit is only allowed to be connected to 4DHP1S48M-1P outdoor units.

**NOTE:** Each indoor unit must be piped AND wired to the correct zone piping connections and wiring terminals. Make sure that indoor unit A is wired to the zone A terminal block and connected to the appropriate refrigerant pipe connections.

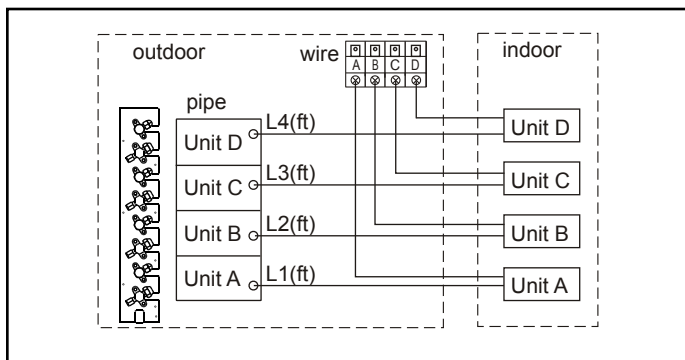


Figure 26. Pipe and Wire Each Zone Separately

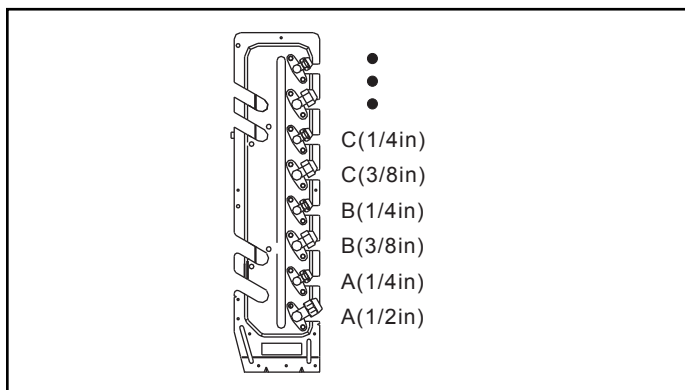


Figure 27. Connecting Multiple Capacity Indoor Units

## Automatic Wiring and Line Set Correction Function

All models now feature automatic correction of wiring and line set installation errors.

### How to Activate This Function

- Check that outside temperature is above 41°F (5°C). This function does not work when the outside temperature is below 41°F (5°C).
- Check that the service valves of the liquid and gas lines are open.
- Turn on the breaker and wait at least 2 minutes.
- Press and hold the check switch on the outdoor control board for five seconds or until the LED displays “CE” then release the switch. The CE code indicates the function is operating correctly.
- Approximately 5-10 minutes after the switch is pressed, the “CE” code will disappear. This indicates the wiring/line set error(s) have been corrected and the system is now fully functional.

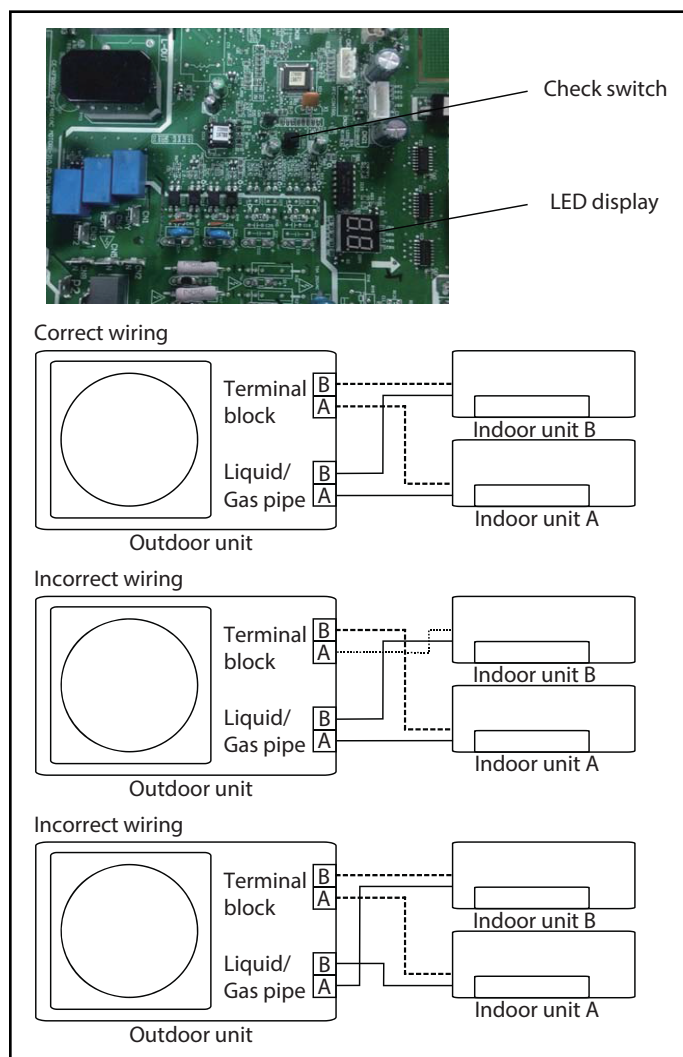


Figure 28. Correct and Incorrect Wiring

# Typical Multi-Zone System Components

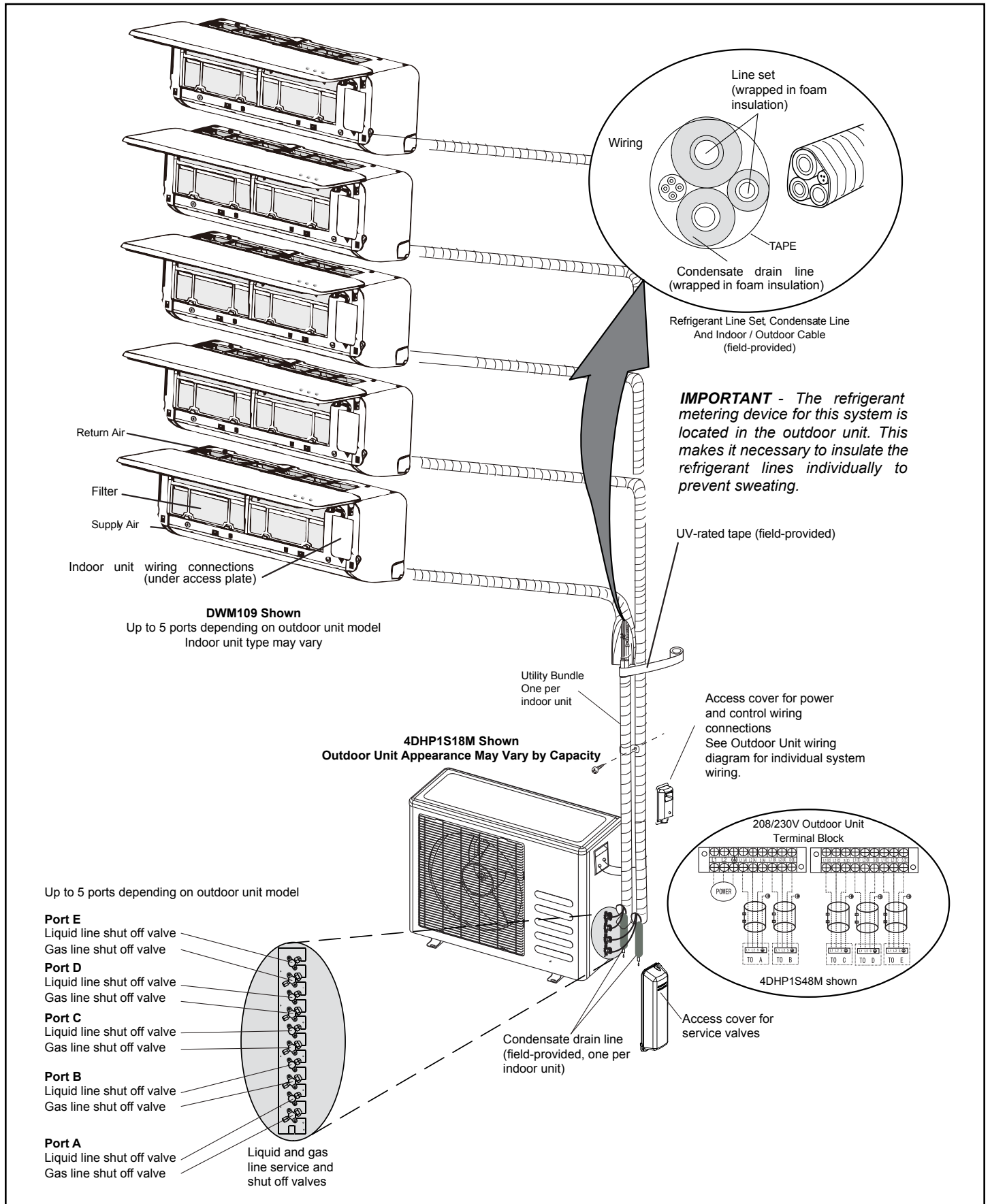
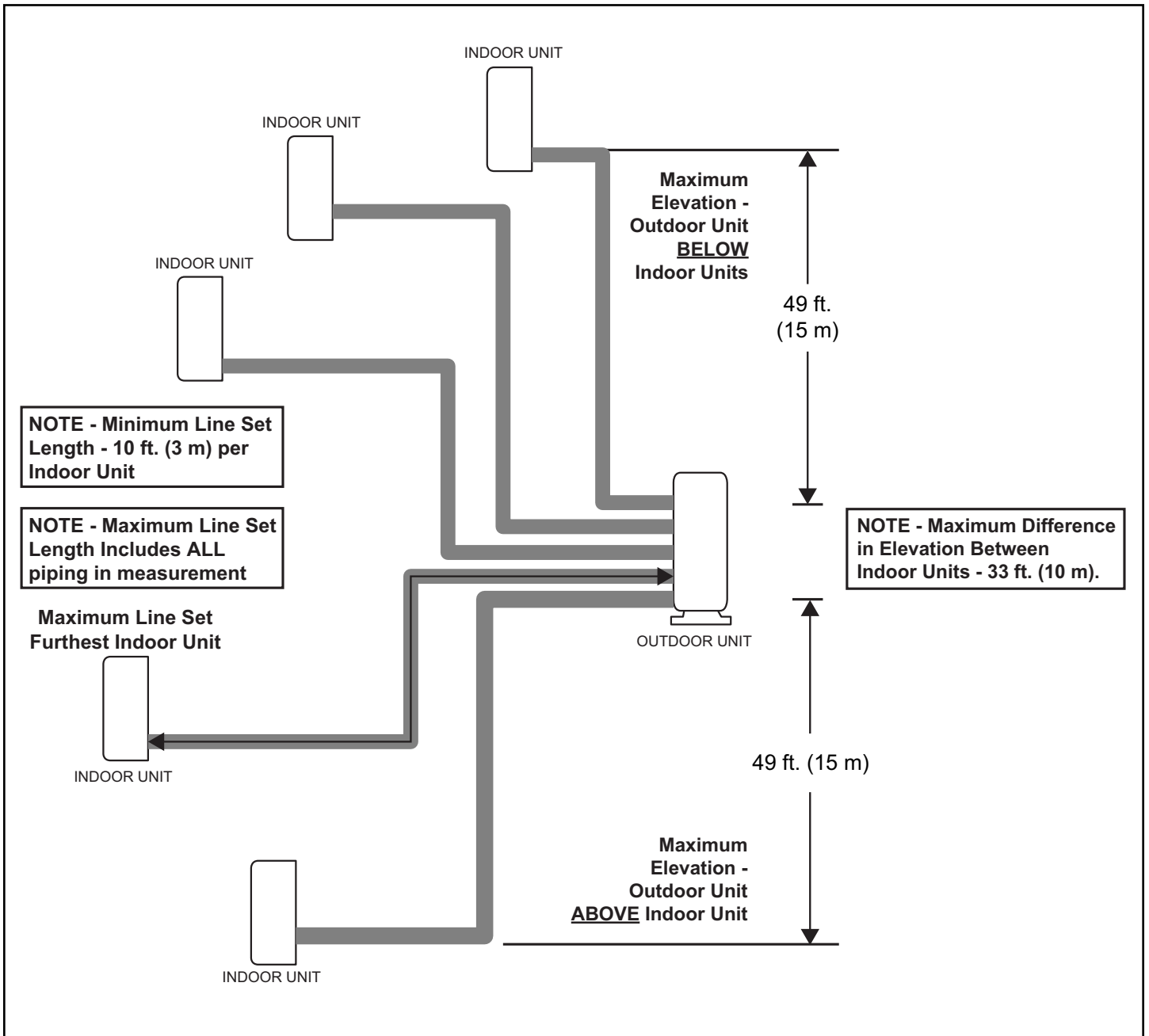


Figure 29.



Outdoor Unit Model No.	4DHP1S18M-1P	4DHP1S30M-1P	4DHP1S36M-1P	4DHP1S48M-1P
Maximum Number of Indoor Units	Two	Three	Four	Five
Indoor Unit Connections - Liquid / Gas	(2) 1/4 / 3/8	(3) 1/4 / 3/8	(3) 1/4 / 3/8 (1) 1/4 / 1/2	(3) 1/4 / 3/8 (2) 1/4 / 1/2
Total Length of All Piping	98 ft. (30 m)	148 ft. (45 m)	197 ft. (60 m)	246 (75 m)
Maximum Line Set Length - Furthest Indoor Unit	66 ft. (20 m)	82 ft. (25 m)	98 ft. (30 m)	98 ft. (30 m)

**Figure 30. Multi-Zone Systems with All Indoor Unit Models**



## Refrigerant Piping Connections

Field piping consists of two copper lines connecting the outdoor unit to the indoor unit. Table 6 lists the connection sizes. The connections are made using the provided brass flare nuts at the end of the refrigerant piping connections.

Both lines must be individually insulated.

1. The seal on the unit refrigerant piping connections should remain in place until the last possible moment. This will prevent dust or water from getting into the refrigerant piping before it is connected.
2. CAREFULLY adjust refrigerant piping connections to suit the application.
3. Slowly loosen one of the flare nuts to release the factory nitrogen charge from the indoor units only.
4. Remove the flare nuts from the connections on the unit and discard the seal from each of the piping connections.
5. Slide the flare nuts onto the ends of the field-provided refrigerant piping before using a suitable flaring tool to flare the end of the copper pipe.
6. Apply recommended HFC-410A refrigerant lubricant to the outside of the flared refrigerant lines.

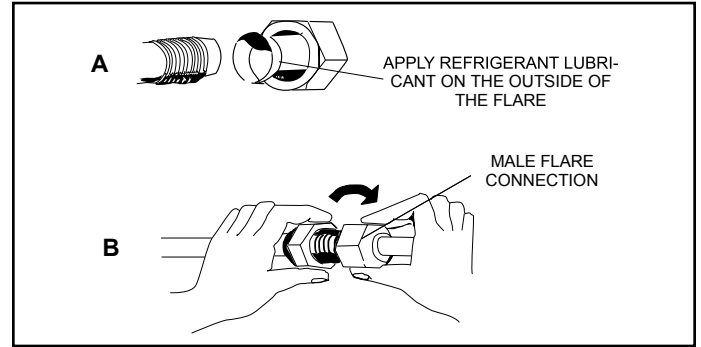
### IMPORTANT

The compressor in this unit contains PVE oil (Polyvinylether). PVE oil is formulated for hydrofluorocarbon (HFC) refrigerants, such as HFC-410A, which this system contains. While it may have some miscibility properties with mineral-based oil and POE oil (Polyolester), it is not recommended to mix PVE oil with any other type of refrigerant oil.

7. Align the threaded connections with the flared refrigerant lines. Tighten the flare nuts lightly at first to obtain a smooth match as illustrated in Figure 31.
8. Once snug, continue another half-turn on each nut, which should create a leak-free joint. A torque wrench may be used to tighten flare nuts using Table 7. **Do not over-tighten a flared joint. Flared connections should always be accessible and must be insulated to prevent condensation.**
9. After refrigerant piping has been installed and checked for leaks, apply insulation over all flared connections.

Size (Btuh)	Liquid Line in.	Gas Line in.
9000	1/4	3/8
12000	1/4	1/2
18000	1/4	1/2
24000	3/8	5/8

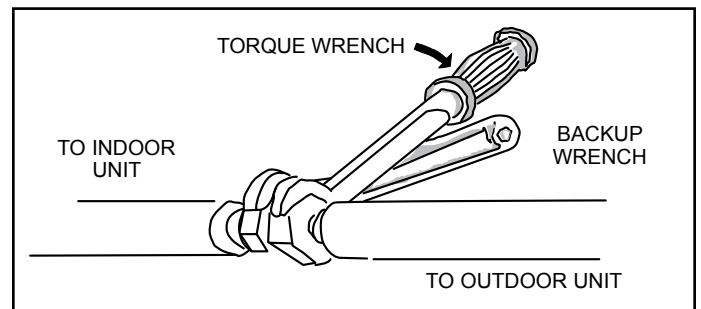
**Table 6. Refrigerant Piping and Indoor Unit Connection Sizes**



**Figure 31. Making Connections (Male to Female Connections)**

Outside Diameter Inches	Recommended Torque	No torque wrench available Finger tighten and use an appropriately sized wrench to turn an additional:
1/4	15 ft.-lb. (20 N)	1/4 turn
3/8	26 ft.-lb. (35 N)	1/2 turn
1/2	41 ft.-lb. (56 N)	7/8 turn
5/8	48 ft.-lb. (65 N)	1 full turn

**Table 7. Flare Nut Torque Recommendations**



**Figure 32. Tighten Flare Nut**

## Multi-Zone Outdoor Unit System Piping Connections and Line Set Usage

The following section contains information on piping connections and line set usage for multi-zone systems.

### Indoor / Outdoor Unit Match-Ups

Each multi-zone system is formed of one outdoor unit and a selection of indoor units as referenced in the Product Specifications. Only these combinations are allowed.

**NOTE:** Each indoor unit must be piped AND wired to the correct zone piping connections and wiring terminals. Make sure that indoor unit A is wired to the zone A terminal block and connected to the appropriate refrigerant pipe connections.

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
Indoor Unit A 1/4" liq + 3/8" Gas	1	012 (A)	<sup>1</sup> 1/4 in. x 1/2 in.
	2	009 (A)	1/4 in. x 3/8 in.
2		009 (B)	1/4 in. x 3/8 in.
	2	012 (A)	<sup>1</sup> 1/4 in. x 1/2 in.
2		012 (A)	<sup>1</sup> 1/4 in. x 1/2 in.
	2	012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.

<sup>1</sup> 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

<sup>2</sup> 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

<sup>3</sup> 1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

**Table 8. Multi-Zone System Piping Connections and Line Set Usage - 4DHP1S18M-1P**

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)	
Indoor Unit A 1/4" liq + 3/8" Gas	1	018 (A)	<sup>1</sup> 1/4 in. x 1/2 in.	
	2	009 (A)	1/4 in. x 3/8 in.	
		009 (B)	1/4 in. x 3/8 in.	
	2	009 (B)	1/4 in. x 3/8 in.	
		012 (A)	<sup>1</sup> 1/4 in. x 1/2 in.	
	2	009 (B)	1/4 in. x 3/8 in.	
		018 (A)	<sup>1</sup> 1/4 in. x 1/2 in.	
	2	012 (A)	<sup>1</sup> 1/4 in. x 1/2 in.	
		012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
	2	012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
		018 (A)	<sup>1</sup> 1/4 in. x 1/2 in.	
	2	018 (A)	<sup>1</sup> 1/4 in. x 1/2 in.	
		018 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
	Indoor Unit B 1/4" liq + 3/8" Gas	3	009 (A)	1/4 in. x 3/8 in.
			009 (B)	1/4 in. x 3/8 in.
			009 (C)	1/4 in. x 3/8 in.
Indoor Unit C 1/4" liq + 3/8" Gas	3	009 (B)	1/4 in. x 3/8 in.	
		009 (C)	1/4 in. x 3/8 in.	
		012 (A)	<sup>1</sup> 1/4 in. x 1/2 in.	
3	009 (C)	1/4 in. x 3/8 in.		
	012 (A)	<sup>1</sup> 1/4 in. x 1/2 in.		
	012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.		
3	009 (B)	1/4 in. x 3/8 in.		
	009 (C)	1/4 in. x 3/8 in.		
	018 (A)	<sup>1</sup> 1/4 in. x 1/2 in.		
3	012 (A)	<sup>1</sup> 1/4 in. x 1/2 in.		
	012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.		
	012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.		

<sup>1</sup> 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

<sup>2</sup> 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

<sup>3</sup> 1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

**Table 9. Multi-Zone System Piping Connections and Line Set Usage - 4DHP1S30M-1P**

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)	
Indoor Unit A 1/4" liq + 1/2" Gas  Indoor Unit B 1/4" liq + 3/8" Gas  Indoor Unit C 1/4" liq + 3/8" Gas  Indoor Unit D 1/4" liq + 3/8" Gas	2	009 (B)	1/4 in. x 3/8 in.	
		018 (A)	1/4 in. x 1/2 in.	
	2	009 (B)	1/4 in. x 3/8 in.	
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.	
	2	012 (A)	1/4 in. x 1/2 in.	
		012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
	2	012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
		018 (A)	1/4 in. x 1/2 in.	
	2	012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.	
	2	018 (A)	1/4 in. x 1/2 in.	
		018 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
	3	3	009 (B)	1/4 in. x 3/8 in.
			009 (C)	1/4 in. x 3/8 in.
			009 (D)	1/4 in. x 3/8 in.
	3	3	009 (B)	1/4 in. x 3/8 in.
			009 (C)	1/4 in. x 3/8 in.
			012 (A)	1/4 in. x 1/2 in.
	3	3	009 (B)	1/4 in. x 3/8 in.
			009 (C)	1/4 in. x 3/8 in.
			018 (A)	1/4 in. x 1/2 in.
	3	3	009 (C)	1/4 in. x 3/8 in.
			012 (A)	1/4 in. x 1/2 in.
			012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.
	3	3	009 (C)	1/4 in. x 3/8 in.
			012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.
			018 (A)	1/4 in. x 1/2 in.
	3	3	009 (C)	1/4 in. x 3/8 in.
018 (A)			1/4 in. x 1/2 in.	
018 (B)			<sup>1</sup> 1/4 in. x 1/2 in.	
3	3	012 (A)	1/4 in. x 1/2 in.	
		012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.	
3	3	012 (A)	1/4 in. x 1/2 in.	
		012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
		018 (A)	<sup>1</sup> 1/4 in. x 1/2 in.	

<sup>1</sup> 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).  
<sup>2</sup> 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).  
<sup>3</sup> 1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

**Table 10. Multi-Zone System Piping Connections and Line Set Usage - 4DHP1S36M-1P**

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)	
Indoor Unit A 1/4" liq + 1/2" Gas  Indoor Unit B 1/4" liq + 3/8" Gas  Indoor Unit C 1/4" liq + 3/8" Gas  Indoor Unit D 1/4" liq + 3/8" Gas	3	012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.	
		018 (A)	1/4 in. x 1/2 in.	
		018 (B)	<sup>1</sup> 1/4 in. x 1/2 in.	
	3	3	012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.
			012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
			024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	4	4	009 (B)	1/4 in. x 3/8 in.
			009 (C)	1/4 in. x 3/8 in.
			009 (D)	1/4 in. x 3/8 in.
			009 (A)	<sup>1</sup> 1/4 in. x 3/8 in.
	4	4	009 (B)	1/4 in. x 3/8 in.
			009 (C)	1/4 in. x 3/8 in.
			009 (D)	1/4 in. x 3/8 in.
			012 (A)	1/4 in. x 1/2 in.
	4	4	009 (B)	1/4 in. x 3/8 in.
			009 (C)	1/4 in. x 3/8 in.
			009 (D)	1/4 in. x 3/8 in.
	4	4	018 (A)	1/4 in. x 1/2 in.
			009 (C)	1/4 in. x 3/8 in.
			009 (D)	1/4 in. x 3/8 in.
	4	4	012 (A)	1/4 in. x 1/2 in.
			012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.
			009 (C)	1/4 in. x 3/8 in.
	4	4	009 (D)	1/4 in. x 3/8 in.
			012 (A)	1/4 in. x 1/2 in.
			012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.
	4	4	012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
			012 (A)	1/4 in. x 1/2 in.
			012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.
			012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
	4	4	012 (D)	<sup>1</sup> 1/4 in. x 1/2 in.

<sup>1</sup> 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).  
<sup>2</sup> 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).  
<sup>3</sup> 1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

**Table 10. Multi-Zone System Piping Connections and Line Set Usage - 4DHP1S36M-1P**

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
Indoor Unit A 1/4" liq + 1/2" Gas  Indoor Unit B 1/4" liq + 1/2" Gas  Indoor Unit C 1/4" liq + 3/8" Gas  Indoor Unit D 1/4" liq + 3/8" Gas  Indoor Unit E 1/4" liq + 3/8" Gas	2	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	2	012 (B)	1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	2	012 (B)	1/4 in. x 1/2 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	2	018 (A)	1/4 in. x 1/2 in.
		018 (B)	1/4 in. x 1/2 in.
	2	018 (B)	1/4 in. x 1/2 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	2	024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
		024 (B)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	3	009 (A)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
	3	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
	3	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
	3	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	3	009 (C)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
	3	009 (C)	1/4 in. x 3/8 in.
		012 (B)	1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
3	009 (C)	1/4 in. x 3/8 in.	
	012 (B)	1/4 in. x 1/2 in.	
	024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.	
3	009 (C)	1/4 in. x 3/8 in.	
	018 (A)	1/4 in. x 1/2 in.	
	018 (B)	1/4 in. x 1/2 in.	

<sup>1</sup> 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).  
<sup>2</sup> 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).  
<sup>3</sup> 1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

**Table 11. Multi-Zone System Piping Connections and Line Set Usage - 4DHP1S48M-1P**

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
Indoor Unit A 1/4" liq + 1/2" Gas  Indoor Unit B 1/4" liq + 1/2" Gas  Indoor Unit C 1/4" liq + 3/8" Gas  Indoor Unit D 1/4" liq + 3/8" Gas  Indoor Unit E 1/4" liq + 3/8" Gas	3	009 (C)	1/4 in. x 3/8 in.
		018 (B)	1/4 in. x 1/2 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	3	009 (C)	1/4 in. x 3/8 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
		024 (B)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	3	012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
	3	012 (B)	1/4 in. x 1/2 in.
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	3	012 (C)	1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
		018 (B)	<sup>1</sup> 1/4 in. x 1/2 in.
	3	012 (B)	1/4 in. x 1/2 in.
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	3	012 (B)	1/4 in. x 1/2 in.
		018 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	3	012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
		024 (B)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	3	018 (A)	1/4 in. x 1/2 in.
		018 (B)	1/4 in. x 1/2 in.
		018 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
	3	018 (B)	1/4 in. x 1/2 in.
		018 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
4	009 (A)	<sup>1</sup> 1/4 in. x 3/8 in.	
	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.	
	009 (C)	1/4 in. x 3/8 in.	
4	009 (D)	1/4 in. x 3/8 in.	
	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.	
	009 (C)	1/4 in. x 3/8 in.	
4	009 (D)	1/4 in. x 3/8 in.	
	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.	
	012 (A)	1/4 in. x 1/2 in.	

<sup>1</sup> 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).  
<sup>2</sup> 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).  
<sup>3</sup> 1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

**Table 11. Multi-Zone System Piping Connections and Line Set Usage - 4DHP1S48M-1P**

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
Indoor Unit A 1/4" liq + 1/2" Gas  Indoor Unit B 1/4" liq + 1/2" Gas  Indoor Unit C 1/4" liq + 3/8" Gas  Indoor Unit D 1/4" liq + 3/8" Gas  Indoor Unit E 1/4" liq + 3/8" Gas	4	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
	4	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		018 (A)	1/4 in. x 1/2 in.
	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		018 (B)	1/4 in. x 1/2 in.
	4	009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		018 (B)	1/4 in. x 1/2 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
	4	009 (D)	1/4 in. x 3/8 in.
		012 (A)	<sup>1</sup> 1/4 in. x 1/2 in.
		012 (B)	<sup>1</sup> 1/4 in. x 1/2 in.
		012 (C)	1/4 in. x 1/2 in.
	4	009 (D)	1/4 in. x 3/8 in.
		012 (B)	1/4 in. x 1/2 in.
012 (C)		<sup>1</sup> 1/4 in. x 1/2 in.	
018 (A)		1/4 in. x 1/2 in.	
4	009 (D)	1/4 in. x 3/8 in.	
	012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.	
	018 (A)	1/4 in. x 1/2 in.	
	018 (B)	1/4 in. x 1/2 in.	

<sup>1</sup> 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).  
<sup>2</sup> 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).  
<sup>3</sup> 1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

**Table 11. Multi-Zone System Piping Connections and Line Set Usage - 4DHP1S48M-1P**

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
Indoor Unit A 1/4" liq + 1/2" Gas  Indoor Unit B 1/4" liq + 1/2" Gas  Indoor Unit C 1/4" liq + 3/8" Gas  Indoor Unit D 1/4" liq + 3/8" Gas  Indoor Unit E 1/4" liq + 3/8" Gas	4	012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
		012 (D)	<sup>1</sup> 1/4 in. x 1/2 in.
	4	012 (B)	1/4 in. x 1/2 in.
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
		012 (D)	<sup>1</sup> 1/4 in. x 1/2 in.
		018 (A)	1/4 in. x 1/2 in.
	5	009 (A)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
	5	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
	5	009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
	5	018 (A)	1/4 in. x 1/2 in.
		009 (B)	<sup>1</sup> 1/4 in. x 3/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
	5	009 (E)	1/4 in. x 3/8 in.
		024 (A)	<sup>2,3</sup> 3/8 in. x 5/8 in.
		009 (C)	1/4 in. x 3/8 in.
		009 (D)	1/4 in. x 3/8 in.
	5	009 (E)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
012 (B)		1/4 in. x 1/2 in.	
009 (C)		1/4 in. x 3/8 in.	
5	009 (D)	1/4 in. x 3/8 in.	
	009 (E)	1/4 in. x 3/8 in.	
	012 (B)	1/4 in. x 1/2 in.	
	018 (A)	1/4 in. x 1/2 in.	

<sup>1</sup> 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).  
<sup>2</sup> 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).  
<sup>3</sup> 1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

**Table 11. Multi-Zone System Piping Connections and Line Set Usage - 4DHP1S48M-1P**

Outdoor Model	No. of Zones	Indoor Unit Capacity (Unit No.)	Line Set Required (Liquid x Gas)
Indoor Unit A 1/4" liq + 1/2" Gas	5	009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
Indoor Unit B 1/4" liq + 1/2" Gas	5	009 (D)	1/4 in. x 3/8 in.
		009 (E)	1/4 in. x 3/8 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
Indoor Unit C 1/4" liq + 3/8" Gas	5	018 (A)	1/4 in. x 1/2 in.
		009 (E)	1/4 in. x 3/8 in.
		012 (A)	1/4 in. x 1/2 in.
Indoor Unit D 1/4" liq + 3/8" Gas	5	012 (B)	1/4 in. x 1/2 in.
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
		012 (D)	<sup>1</sup> 1/4 in. x 1/2 in.
Indoor Unit E 1/4" liq + 3/8" Gas	5	012 (A)	1/4 in. x 1/2 in.
		012 (B)	1/4 in. x 1/2 in.
		012 (C)	<sup>1</sup> 1/4 in. x 1/2 in.
		012 (D)	<sup>1</sup> 1/4 in. x 1/2 in.
		012 (E)	<sup>1</sup> 1/4 in. x 1/2 in.

<sup>1</sup> 3/8 x 1/2 in. gas pipe adapter is required for line set connection to outdoor unit (furnished with outdoor unit).

<sup>2</sup> 1/4 x 3/8 in. liquid pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

<sup>3</sup> 1/2 x 5/8 in. gas pipe adapter is required for line set connection to the 048 outdoor unit (furnished with outdoor unit).

**Table 11. Multi-Zone System Piping Connections and Line Set Usage - 4DHP1S48M-1P**

## Multi-Zone System Wiring Connections

### IMPORTANT

Install unit so that unit disconnect is accessible.

Use specified wiring and cable to make electrical connections. Clamp cables securely and make sure that connections are tight to avoid strain on wiring. Insecure wiring connections may result in equipment failure and risk of fire.

Wiring must be installed so that all cover plates can be securely closed.

### WARNING

Electric Shock Hazard. Can cause injury or death. Unit must be grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power sources.

### CAUTION

All terminal connections must be made as illustrated in the following diagrams. Improperly connected wiring could damage unit or cause communication errors between indoor and outdoor units.

In the U.S.A., wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

#### **Outdoor Unit**

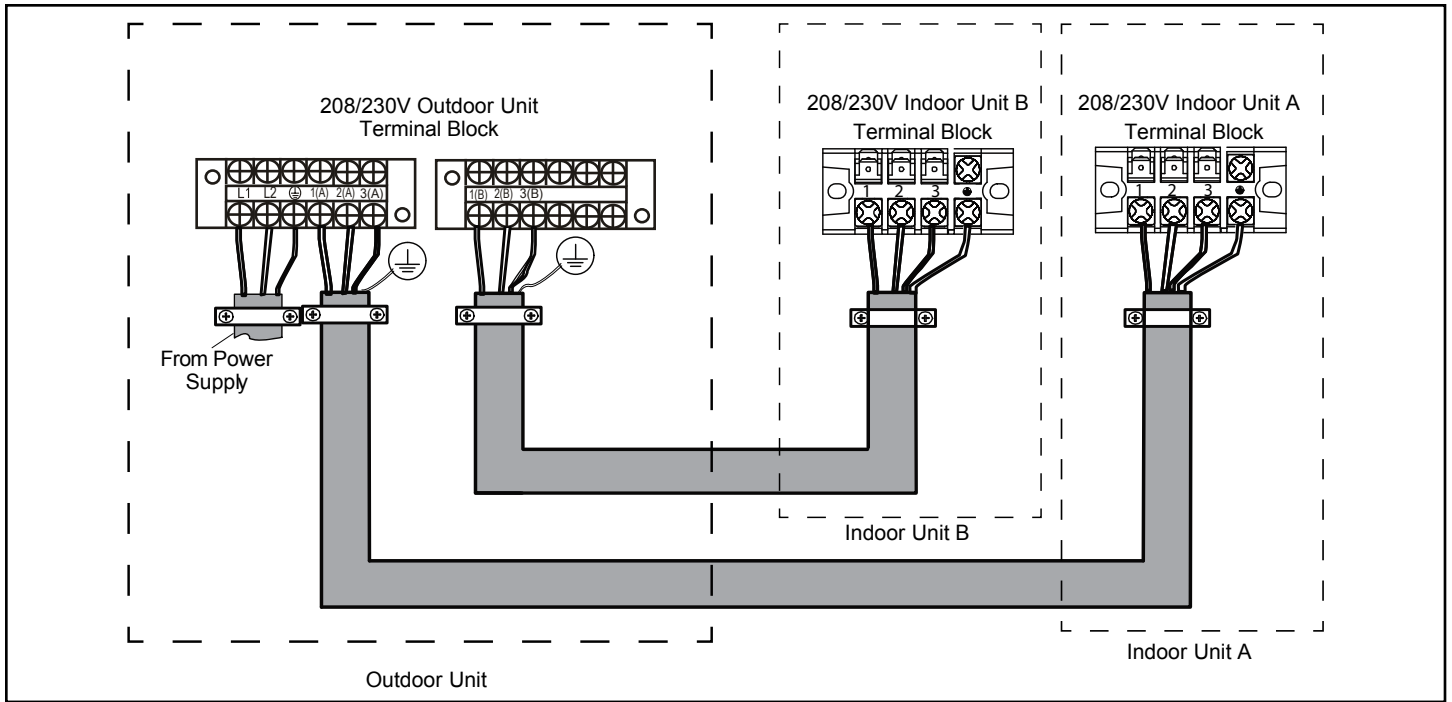
- Refer to unit nameplate for minimum circuit ampacity and maximum over-current protection size
- Make all electrical power wiring connections at the outdoor unit
- Be sure to reattach all electrical box covers after connections are complete

#### **Indoor Units**

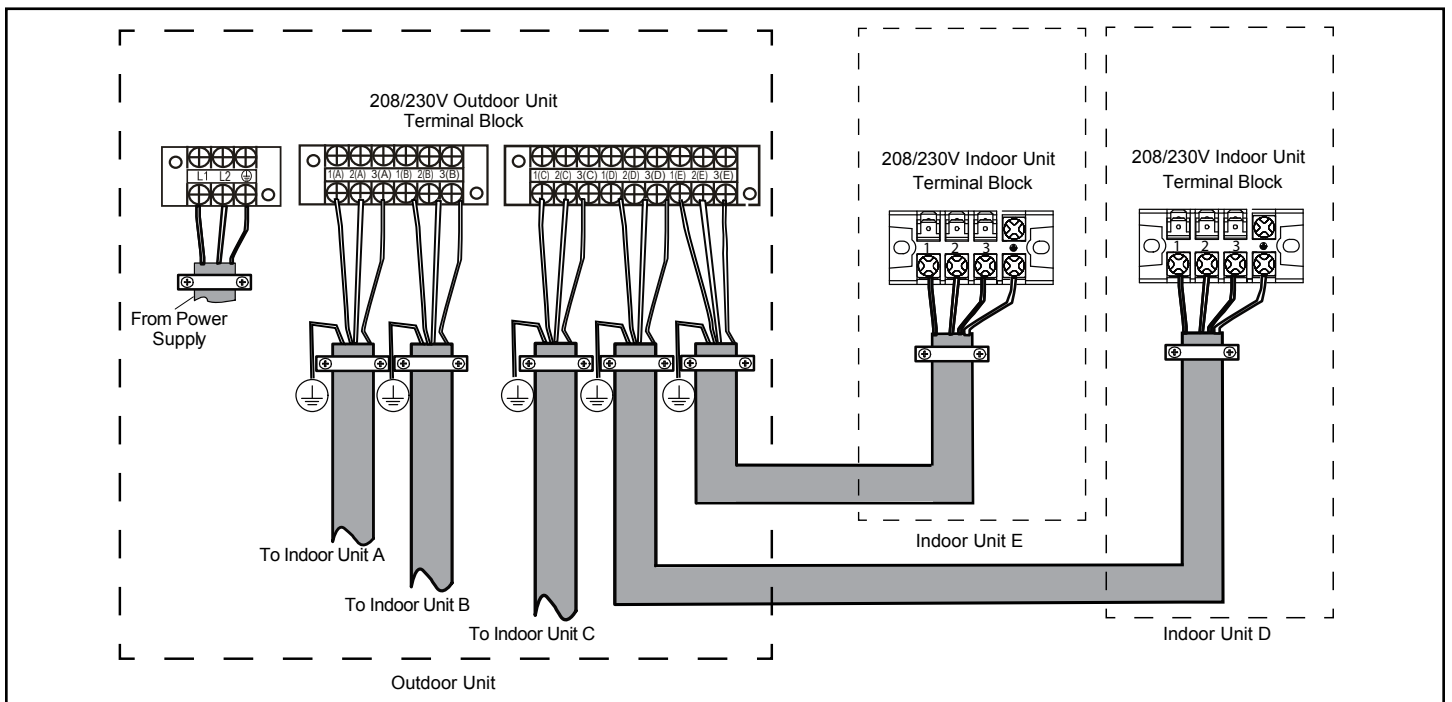
Refer to the applicable indoor unit section for further details.

### IMPORTANT

All wiring diagrams are typical wiring diagrams. Refer to the wiring diagram on the unit for actual wiring.



**Figure 33. Connection Diagram - Systems 30k and Below**



**Figure 34. Connection Diagram - Systems 36k and Above**

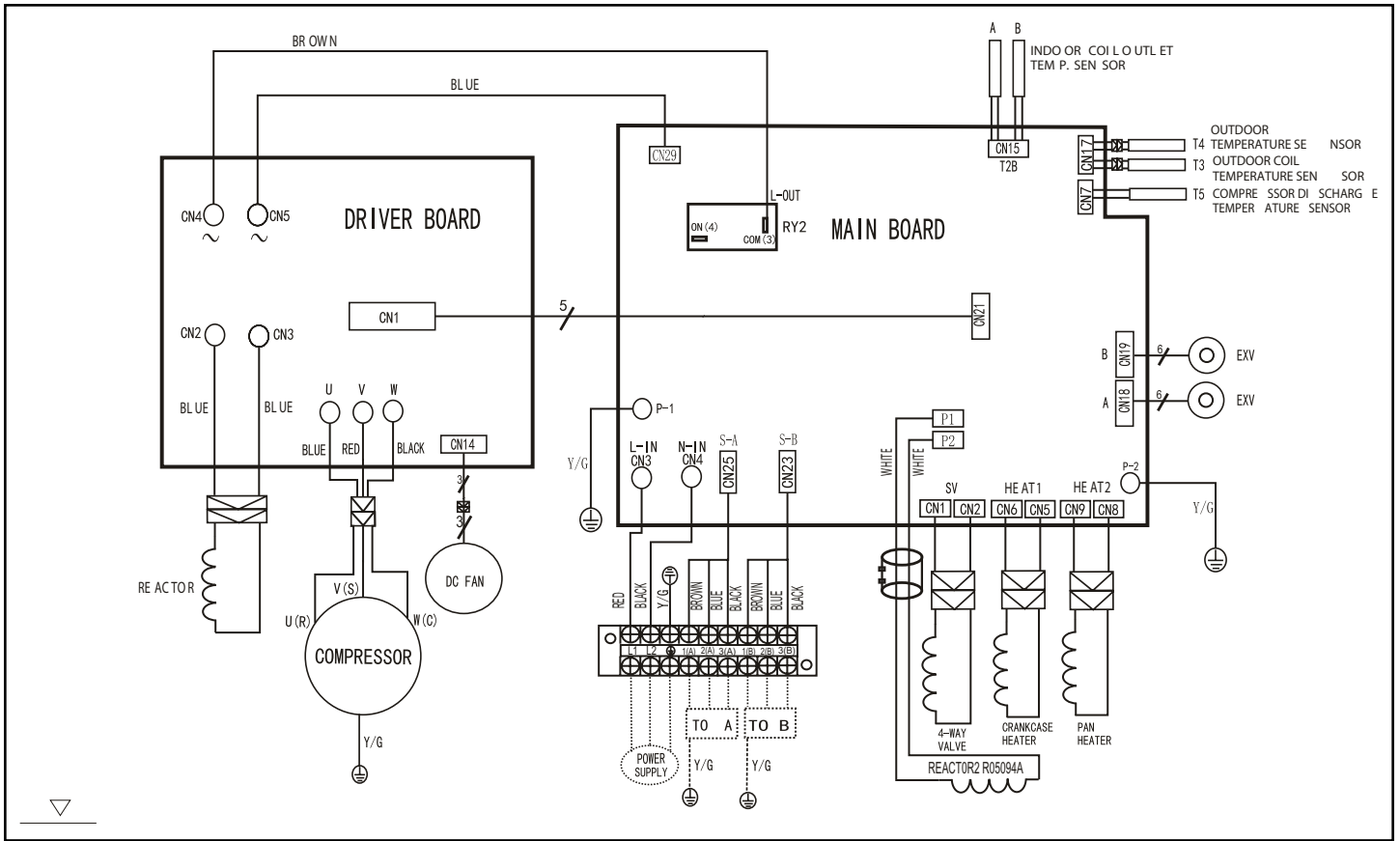


Figure 35. 4DHP1S18M-1P Outdoor Unit Wiring Diagram

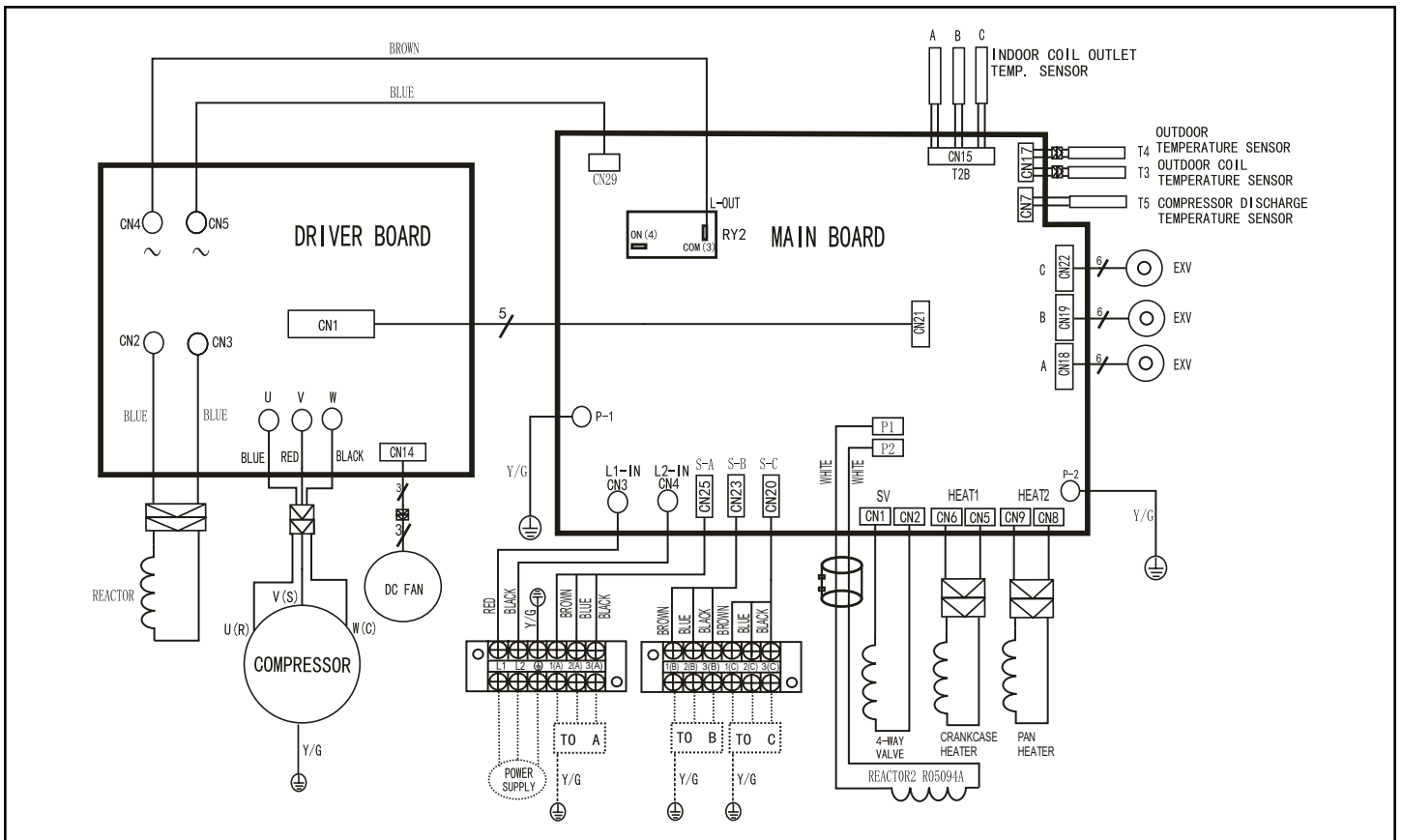


Figure 36. 4DHP1S30M-1P Outdoor Unit Wiring Diagram



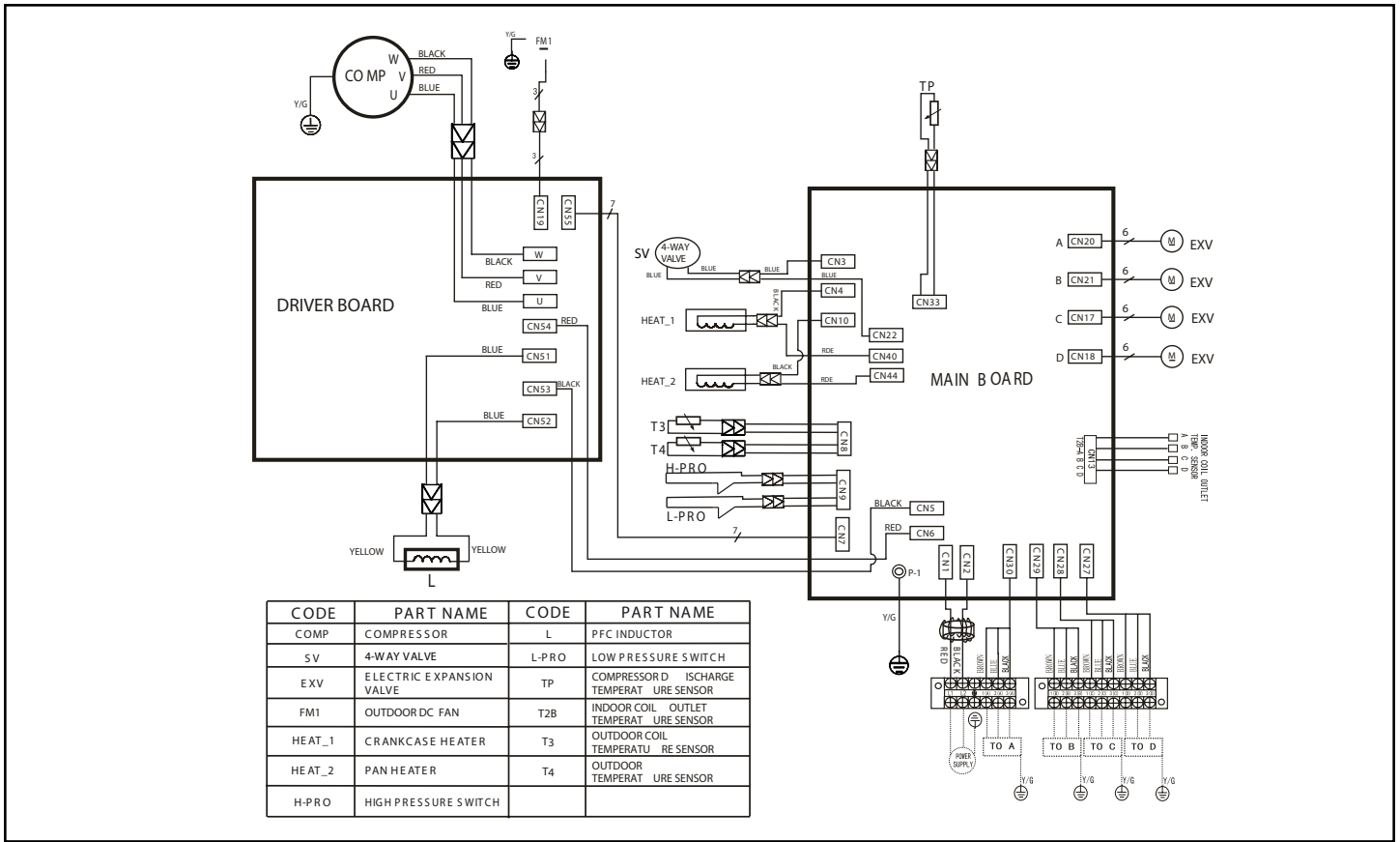


Figure 37. 4DHP1S36M-1P Outdoor Unit Wiring Diagram

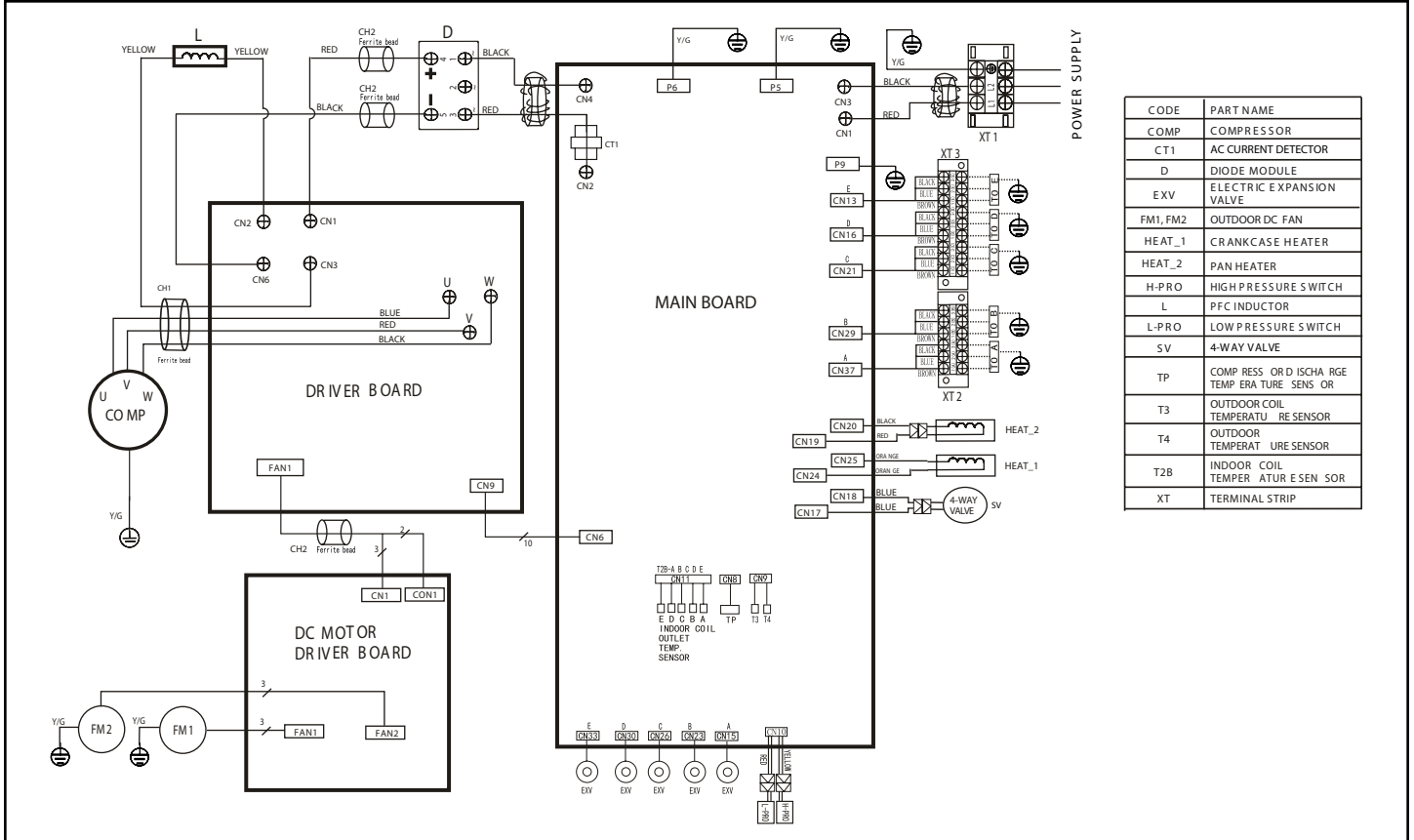


Figure 38. 4DHP1S48M-1P Outdoor Unit Wiring Diagram

### CAUTION

In order to avoid injury, take proper precaution when lifting heavy objects.

## General Installation Guidelines

### *Unit Placement Considerations*

#### **AVOID**

Do not install the unit in the following locations:

- Areas exposed to petrochemicals or petrochemical products
- Areas exposed to salt or other corrosive materials or caustic gases
- Areas exposed to extreme voltage variations (such as factories)
- Tightly enclosed areas that may impede service of the unit
- Areas exposed to fossil fuels (such as oil or gas in kitchens)
- Areas exposed to strong electromagnetic forces
- Areas exposed to acids or alkaline detergents



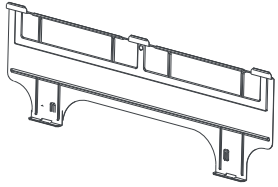
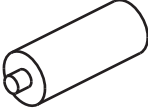
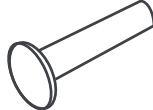
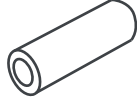
#### **DO**

- Place the unit so that it is not exposed to direct sunlight
- Ensure the structural ceiling can support the weight of the unit
- Select a location where the condensate line will have the shortest run to a suitable drain per local codes.
- Allow sufficient space around unit for proper operation and maintenance
- Install unit a minimum of 3 feet (1m) away from any antenna, power cord (line) radio, telephone, security system, or intercom. Electrical interference and radio frequencies from any of these sources may affect operation
- Be sure to instruct customers how to properly operate the unit (especially maintenance of air filter, and operation procedure) by having them carry out operations themselves while looking at the manual provided with the controller

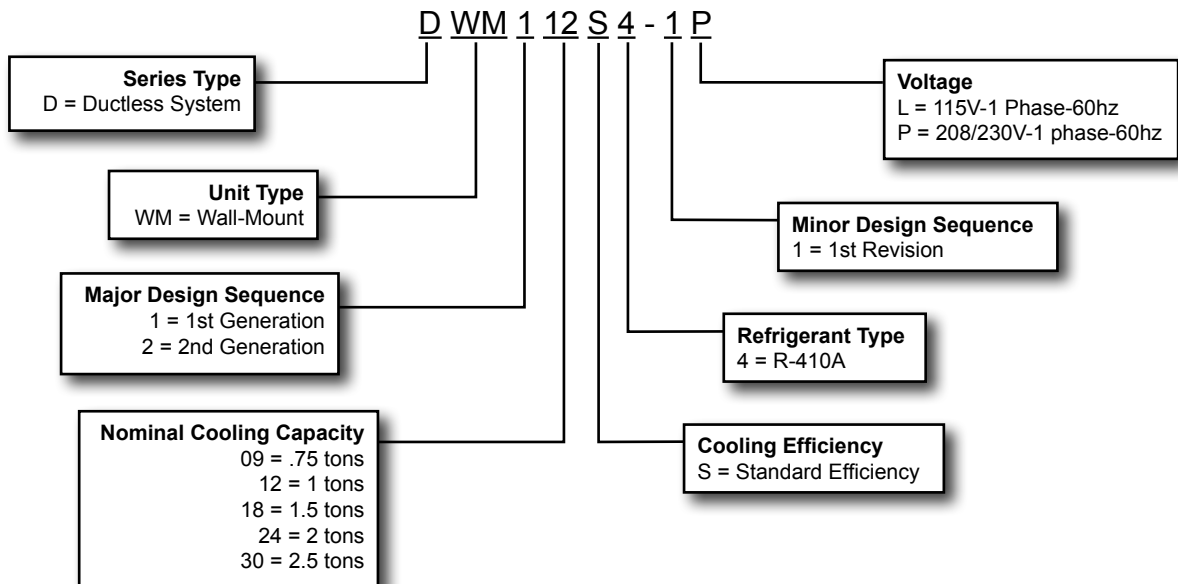
## DWM Wall-Mounted Indoor Unit

Check the components for shipping damage. If you find any damage, immediately contact the last carrier.

The assembled indoor unit will include the following items:

Parts	Figure	Quantity	Parts	Figure	Quantity
Wireless controller 1.861056		1	Installation and owner's manual		1 ea.
Wireless control holder with 2 mounting screws		1	Mounting plate		1
AAA Batteries		2	Mounting plate securing screws		5
			Plastic screw anchors		5

## Model Number Identification



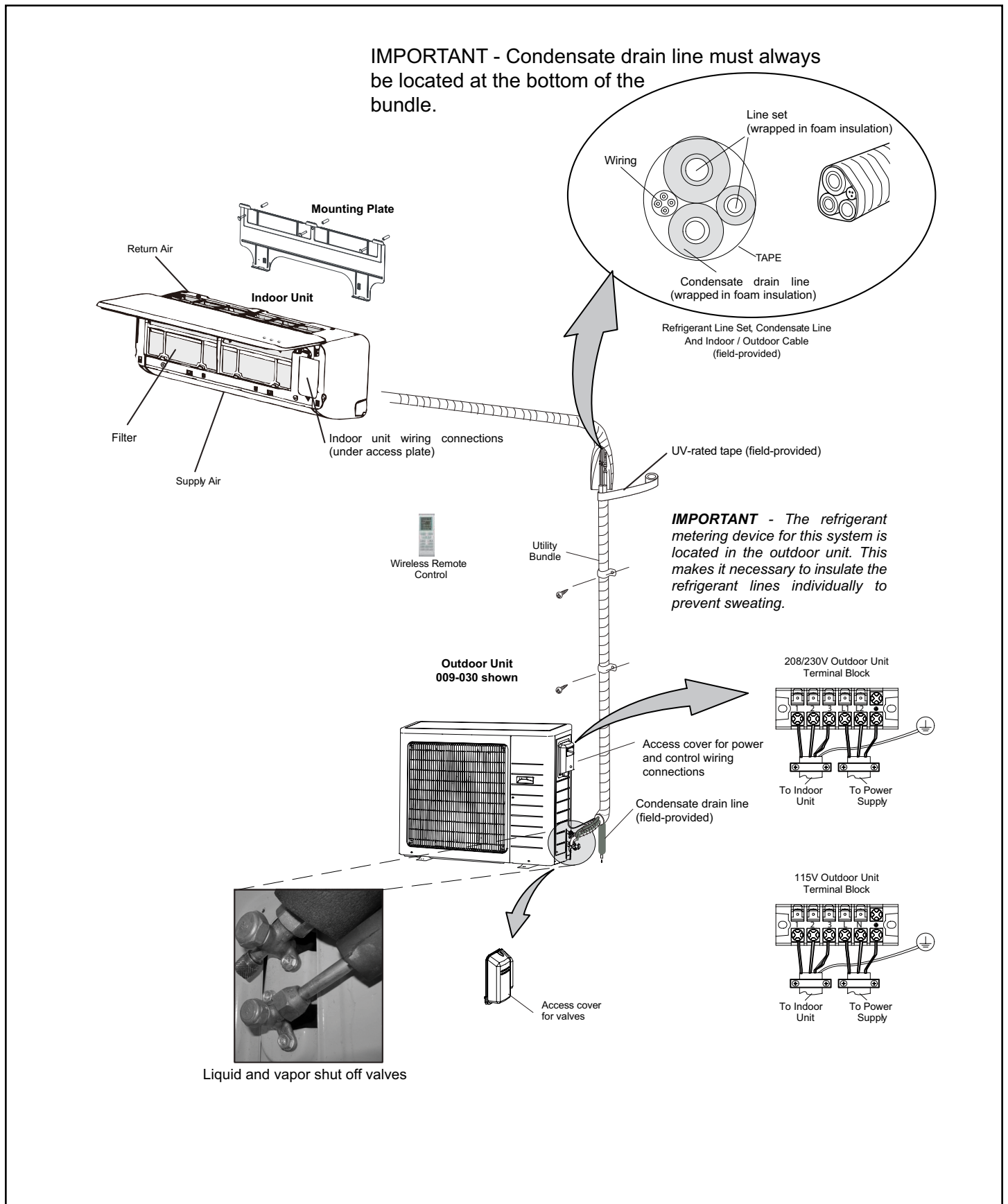
## DWM Indoor / Outdoor Unit Match-Ups

Outdoor Unit	Indoor Unit	Voltage
4DHP1S09S-1L	DWM109S4-1L	115V
4DHP1S12S-1L	DWM112S4-1L	115V
4DHP1S09S-1P	DWM109S4-1P	208/230V
4DHP1S12S-1P	DWM112S4-1P	208/230V
4DHP1S18S-1P	DWM118S4-1P	208/230V
4DHP1S24S-1P	DWM124S4-1P	208/230V
4DHP1S30S-1P	DWM130S4-1P	208/230V

**Table 12. DWM Indoor/Outdoor Unit Matchups - Single-Zone Systems**

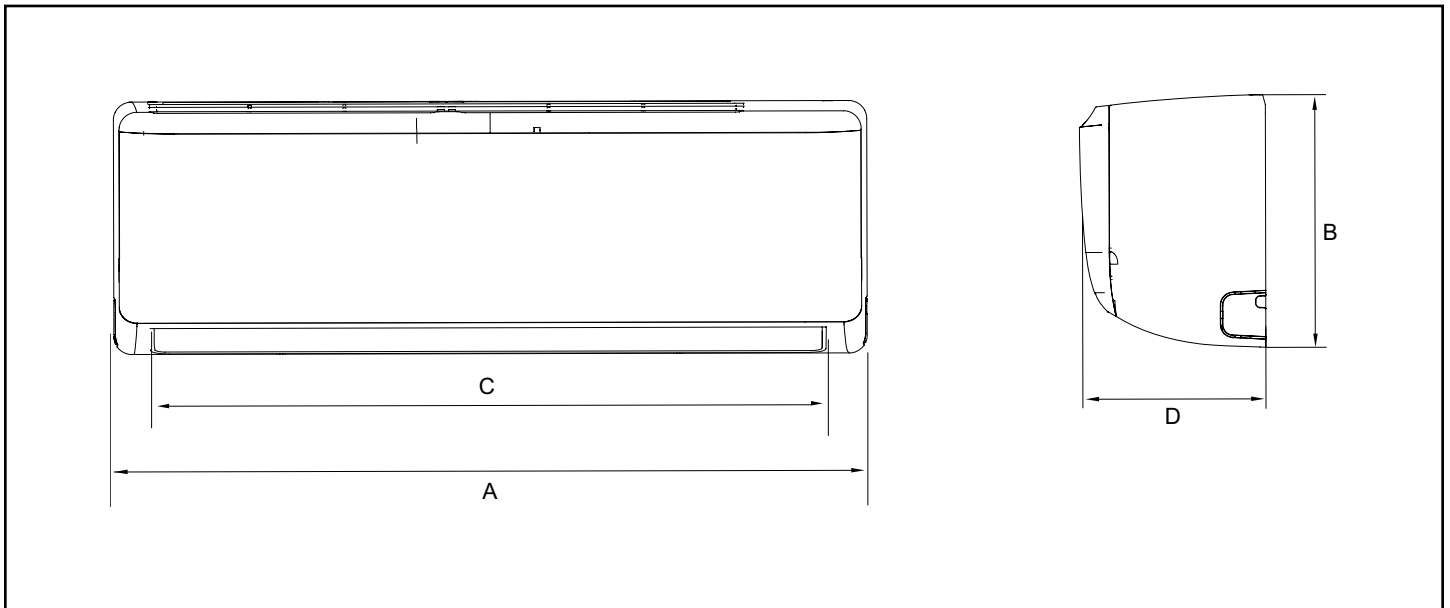
For unit matchups with multi-zone-capable outdoor units, refer to the Outdoor Unit section.

# DWM Typical System Components



**Figure 39. Typical Single-Zone System Shown**

## DWM Indoor Unit Dimensions



Size	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
DWM109S4-1L	32-7/8	835	11	279	29-1/4	743	7-7/8	200
DWM112S4-1L								
DWM109S4-1P								
DWM112S4-1P								
DWM118S4-1P	39	991	12-3/8	314	34-3/4	883	8-5/8	219
DWM124S4-1P	46-3/4	1187	13-1/2	343	42-1/2	1080	10-1/4	260
DWM130S4-1P								

**Figure 40. DWM Indoor Unit Dimensions**

# DWM Indoor Unit Clearances

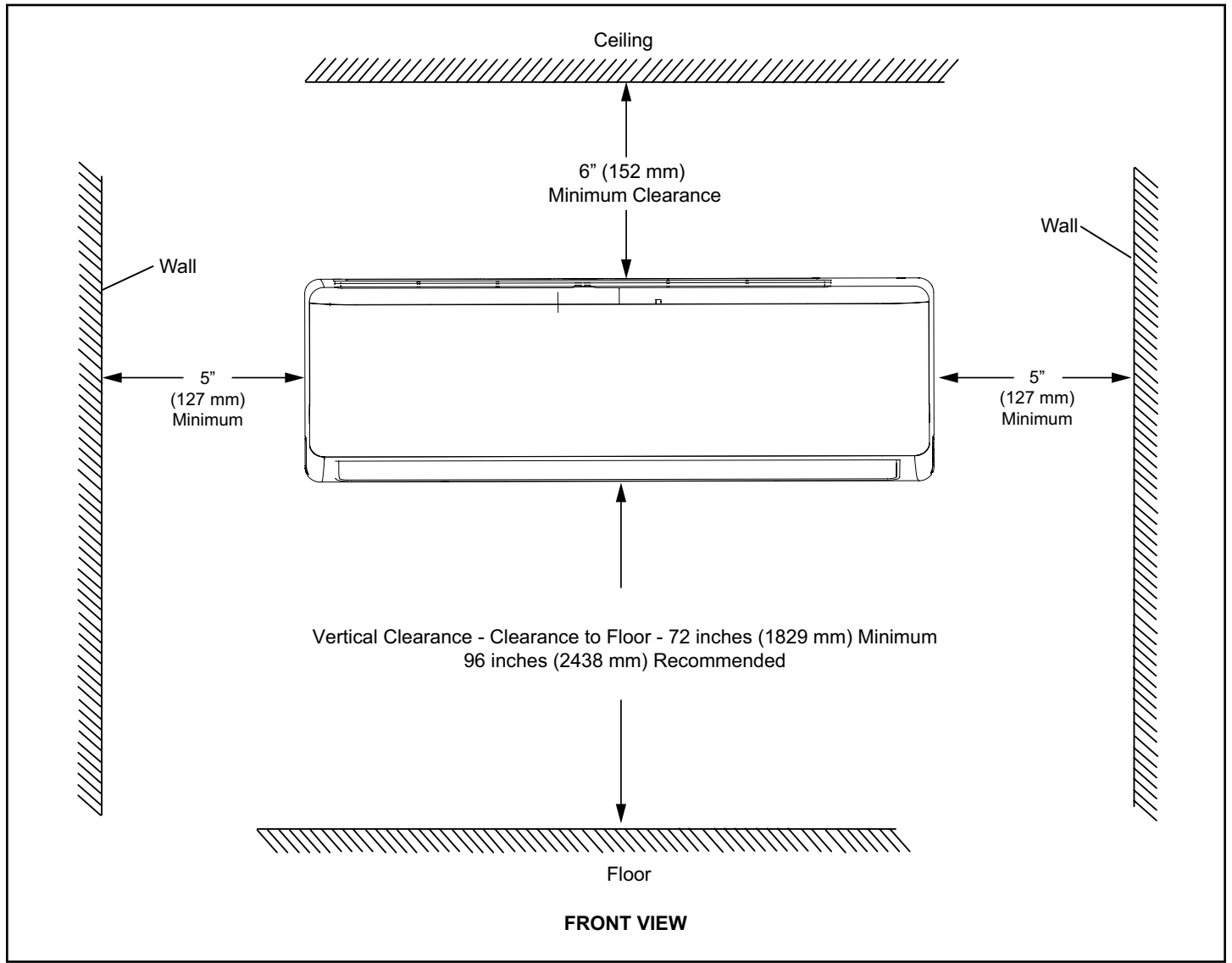
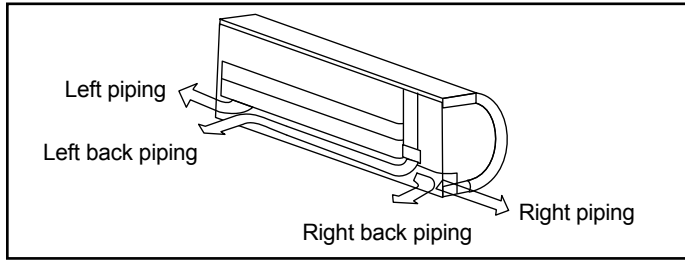


Figure 41. DWM Indoor Unit Clearances

## DWM Indoor Unit Installation

### Determining Wall Mounting Plate Location



**Figure 42. Determining Exit Locations**

1. Remove the wall mounting plate from the back of the indoor unit.
2. Determine the best exit location for utility bundle (line set, condensate line and wiring). For wall sleeve installation instructions see the Installation of Wall Sleeve section.
3. Position the wall mounting plate on the wall so that, when installed, the unit will be at least 6 inches (152 mm) from the ceiling and 5 inches (127 mm) from the wall on either side. The wall mounting plate must be level side-to-side.
4. Use the wall mounting plate as a template to determine the exit point for utility bundle. Mark the wall to facilitate drilling hole for utility bundle.

### Installation of Wall Mounting Plate

Install the wall mounting plate so that it is correctly positioned horizontally and vertically. The indoor unit must be installed level on the wall to allow proper condensate drainage. See Figure 47 for information regarding the various wall mounting plates.

1. Use a carpenter's level or measuring tape to verify the wall mounting plate is horizontally level.
2. Secure the wall mounting plate to the wall using the provided screws and screw anchors.

**NOTE:** *It is important to use all screws provided to secure the wall mounting plate to the wall. Additional holes may be drilled through the metal wall mounting plate to better secure wall plate. Field-provided anchors/fixings may be required depending on wall construction. Use the appropriate type of anchors for the application.*

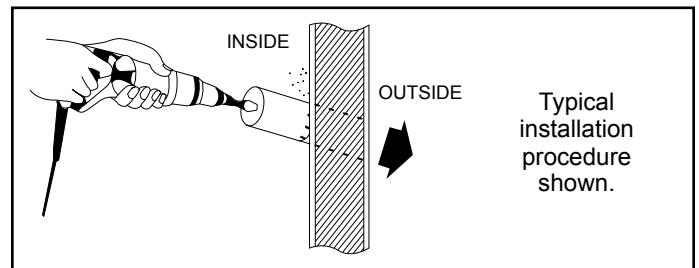
3. The wall mounting plate must be installed flush against the wall so that the indoor unit will be flush after installation. Any space between the wall and unit will cause noise and vibration.
4. The wall mounting plate must be installed horizontally level on the wall.

### Installation of Wall Sleeve

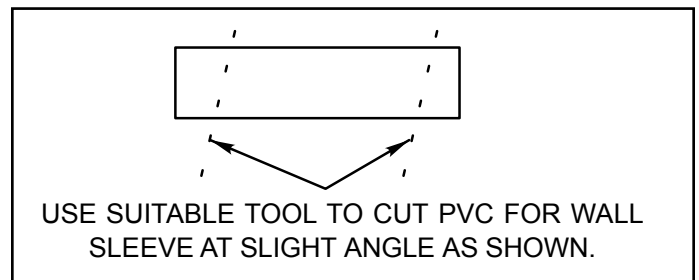
The utility bundle may be routed out of the back of the unit or out either side. If the bundle is to be routed out the back through an external wall, use a field-provided wall sleeve to protect the utility bundle.

**NOTE:** *If the utility bundle will be routed out the side of the indoor unit and up the wall above a false ceiling, continue to the next section.*

1. Prior to making the hole and installing the wall sleeve for the utility bundle, check to ensure that there are no other utilities located in the wall behind the hole location.
2. Cut a hole in the wall using a suitable hole saw. Hole should be at a slight downward slant - 3/16" to 3/8" toward the outdoor side.
3. Measure the thickness of the wall from the inside edge to the outside edge and cut the field-provided wall sleeve at a slight angle 1/4" (6 mm) shorter than the thickness of the wall.



**Figure 43. Boring Hole for Wall Sleeve**



**Figure 44. PVC Wall Sleeve Installation**

**NOTE:** *When passing bundled services through an exterior brick or concrete wall, protect the copper pipes and wiring from the effects of these construction materials by using a sleeve made of suitable material. The integrity of copper pipe and wiring can deteriorate when exposed to these construction materials.*



## Installation of Indoor Unit on Wall Mounting Plate

1. A length of field-provided flexible condensate piping should be connected to the drain prior to securing the unit to the wall mounting plate.
2. If the factory-provided refrigerant piping connections and field-provided flexible condensate piping are long enough to enable final field connections after unit is installed on wall mounting plate, use field-provided tape to bundle them together.
3. The utility bundle may be routed out of the back of the unit or out either side. If the bundle is to be routed out the back through an external wall, feed the utility bundle through the wall sleeve. If the utility bundle is to be routed out of the side of the indoor unit and up an inside wall, carefully form the utility bundle so that it makes a gentle 90° turn.
4. Align the back of the indoor unit with the hooks at the top of the wall mounting plate. Move the unit from side to side to make sure that it settles securely.
5. The bottom of the unit can be lifted to facilitate refrigerant piping and condensate drain connections, if necessary.

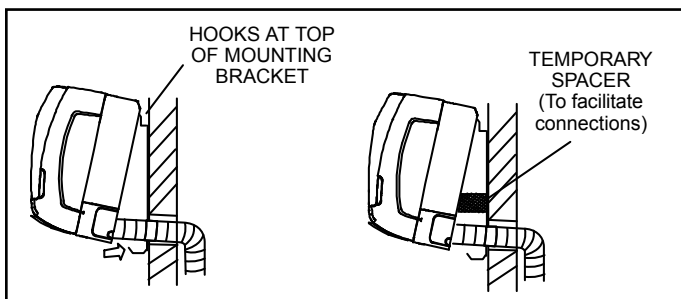


Figure 45. Secure Unit to Wall Mounting Plate

## Indoor Unit Condensate Piping Connections

### ⚠ IMPORTANT

Make sure that drain piping is properly routed and insulated to prevent both leaks and condensation.

1. Use a field-provided hose clamp to secure the drain line stub on the side of the cabinet to a field-supplied 1-inch (25 mm) drain line.

**NOTE:** Take care not to over-tighten the hose clamps this may damage the drain line stub.

**NOTE:** Connection between stub and drain line must be watertight. Apply non hardening plumbing joint compound if needed to ensure a watertight seal.

2. Confirm proper slope (not less than 1/4 inch per foot (18 mm per m)) and routing of condensate lines to ensure moisture is drained away from the indoor unit.
3. Drain should be as short as possible and should not have any droops or kinks that would restrict condensate flow and shall be approved resistant pipe. There must be a 2-inch (51 mm) space between the end of the condensate drain and the final termination point (ground, open drain, etc.) to ensure that the line will drain freely.
4. After the system installation is complete, the condensate drain line must be checked for leaks and proper drainage. If a field-provided condensate pump has been installed, it must be checked to ensure proper operation. This check is part of the start-up process which must be done by the installing contractor.

### ⚠ IMPORTANT

Drain should have a slope of at least 1/4 inch per foot and should be approved corrosion-resistant pipe. You must confirm operation of every drain and pump in the system as part of the commissioning procedure.

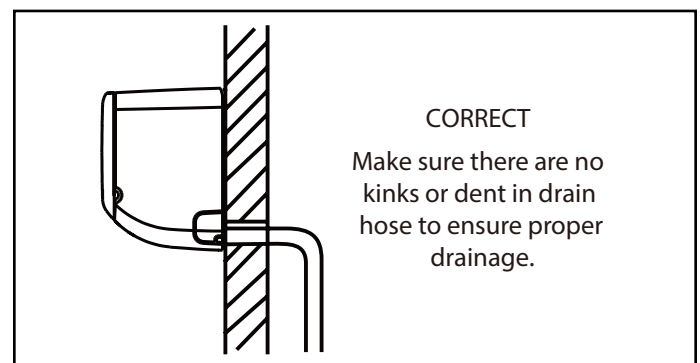
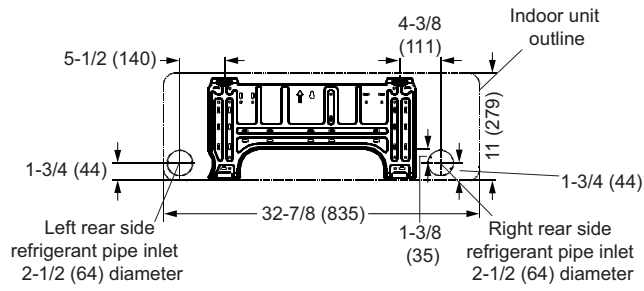
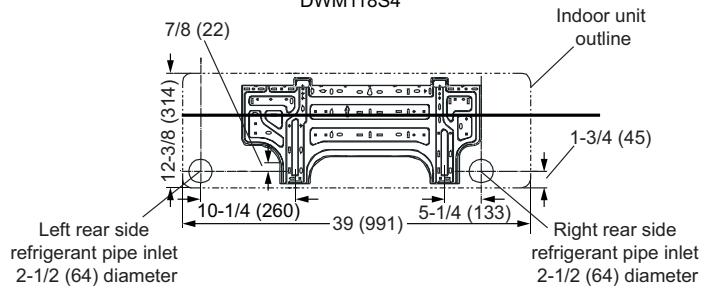


Figure 46. Condensate Line

DWM109S4, DWM112S4



DWM118S4



DWM124S4, DWM130S4

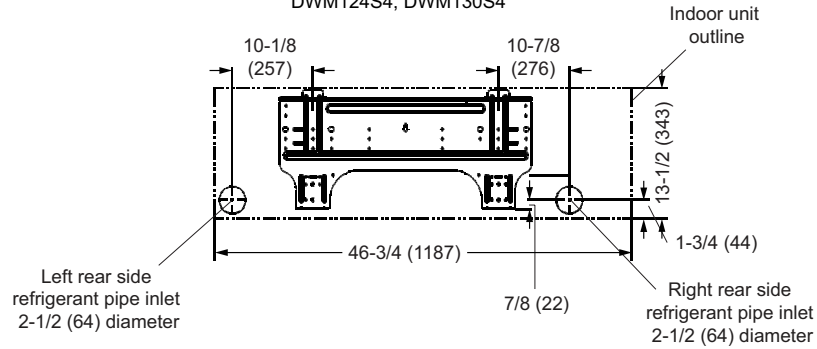


Figure 47. Wall Mounting Plates

## DWM Wiring Connections

### **WARNING**

Electric Shock Hazard. Can cause injury or death. Unit must be grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power sources.

### **CAUTION**

All terminal connections must be made as illustrated in the following diagrams. Improperly connected wiring could damage unit or cause communication errors between indoor and outdoor units.

In the U.S.A., wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

#### **Outdoor Unit**

- Refer to unit nameplate for minimum circuit ampacity and maximum over-current protection size
- Make all electrical power wiring connections at the outdoor unit
- Be sure to reattach all electrical box covers after connections are complete

#### **Indoor Unit**

- All indoor units are powered by the outdoor unit
- Communication Wiring (Indoor Units 30K and Below): Use one stranded 4-conductor wire to provide power and communication
- Communication Wiring (Indoor Units 36K and Above): Use one stranded 3-conductor wire to provide power and one stranded 2-conductor wire to provide communication
- Use minimum of 18 GA stranded wiring

**NOTE:** *When installing a condensate pump the line voltage will have to be broken by using the condensate wiring or through the use of an external relay or contactor.*

### **IMPORTANT**

This unit must be properly grounded and protected by a circuit breaker. The ground wire for the unit must not be connected to a gas or water pipe, a lightning conductor or a telephone ground wire.

Do not connect power wires to the outdoor unit until all other wiring and piping connections have been completed.

Do not install the unit near a lighting appliance that includes a ballast. The ballast may affect remote control operation.

### **IMPORTANT**

All wiring diagrams are typical wiring diagrams. Refer to the wiring diagram on the unit for actual wiring.

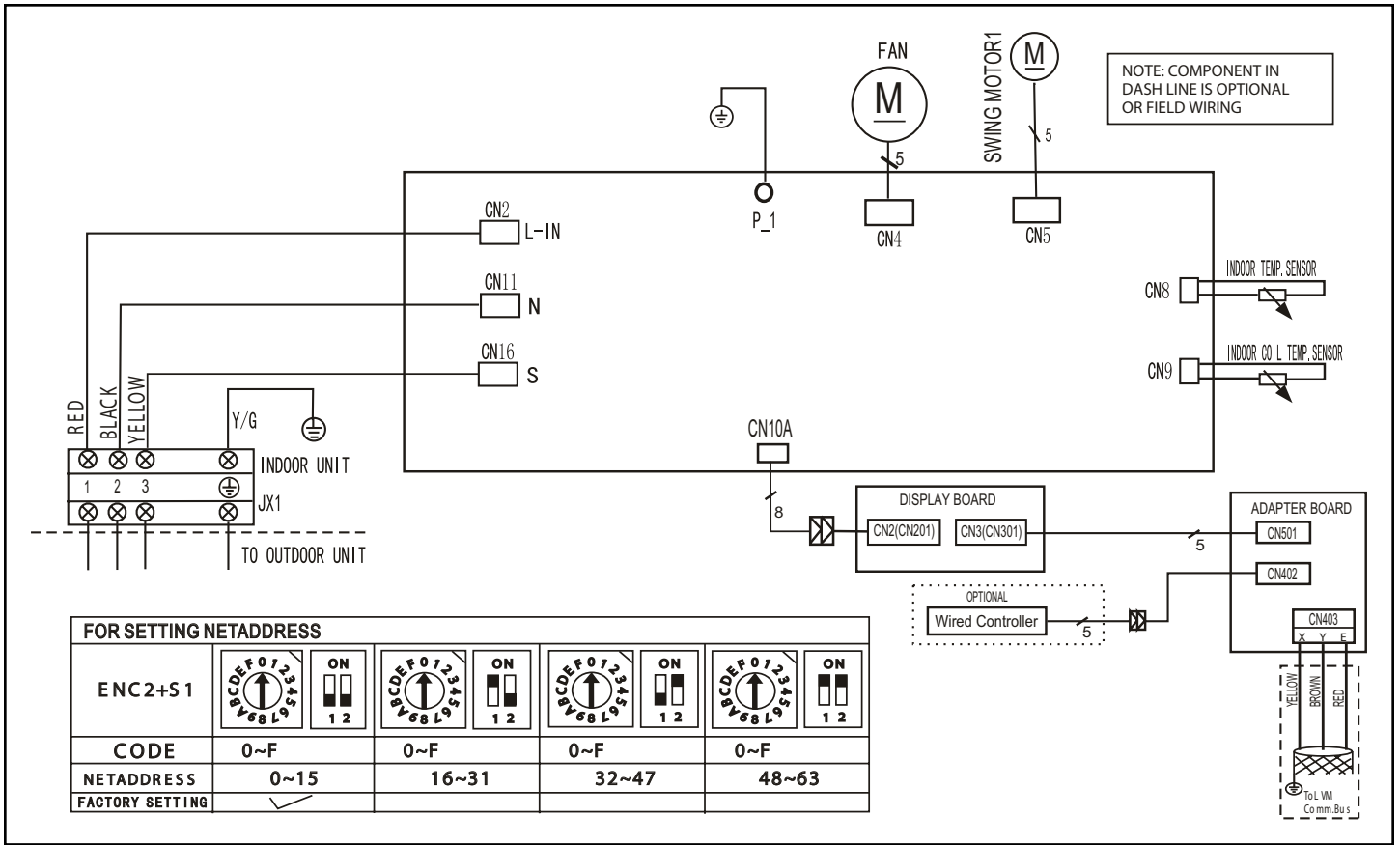


Figure 48. DWM Unit Wiring Diagram




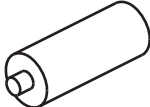
## D22C / D33C Ceiling Cassette Indoor Unit

Check the components for shipping damage. If you find any damage, immediately contact the last carrier.

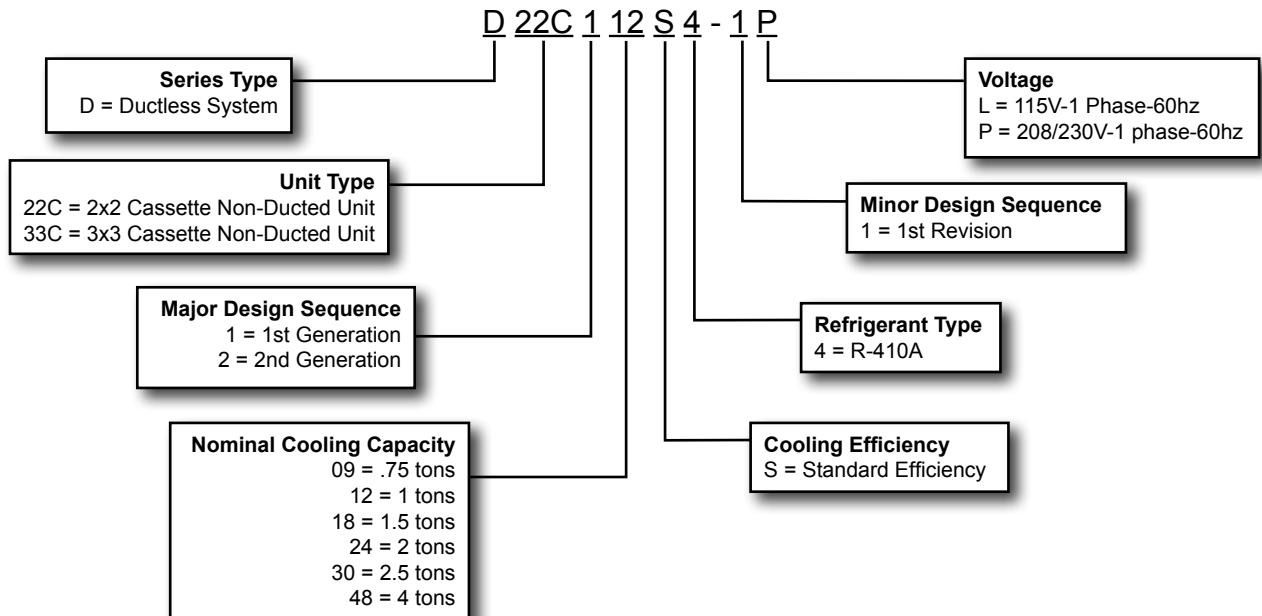
Package 1 of 1 contains the following:

1 - Assembled Indoor Unit

The assembled indoor unit will include the following items:

Parts	Figure	Quantity	Parts	Figure	Quantity
Wireless controller 1.861056		1	Installation and owner's manual		1 ea.
Wireless control holder with 2 mounting screws		1	Paper template for installation		1
Batteries		2			

### Model Number Identification



## D22C / D33C Indoor / Outdoor Unit Matchups

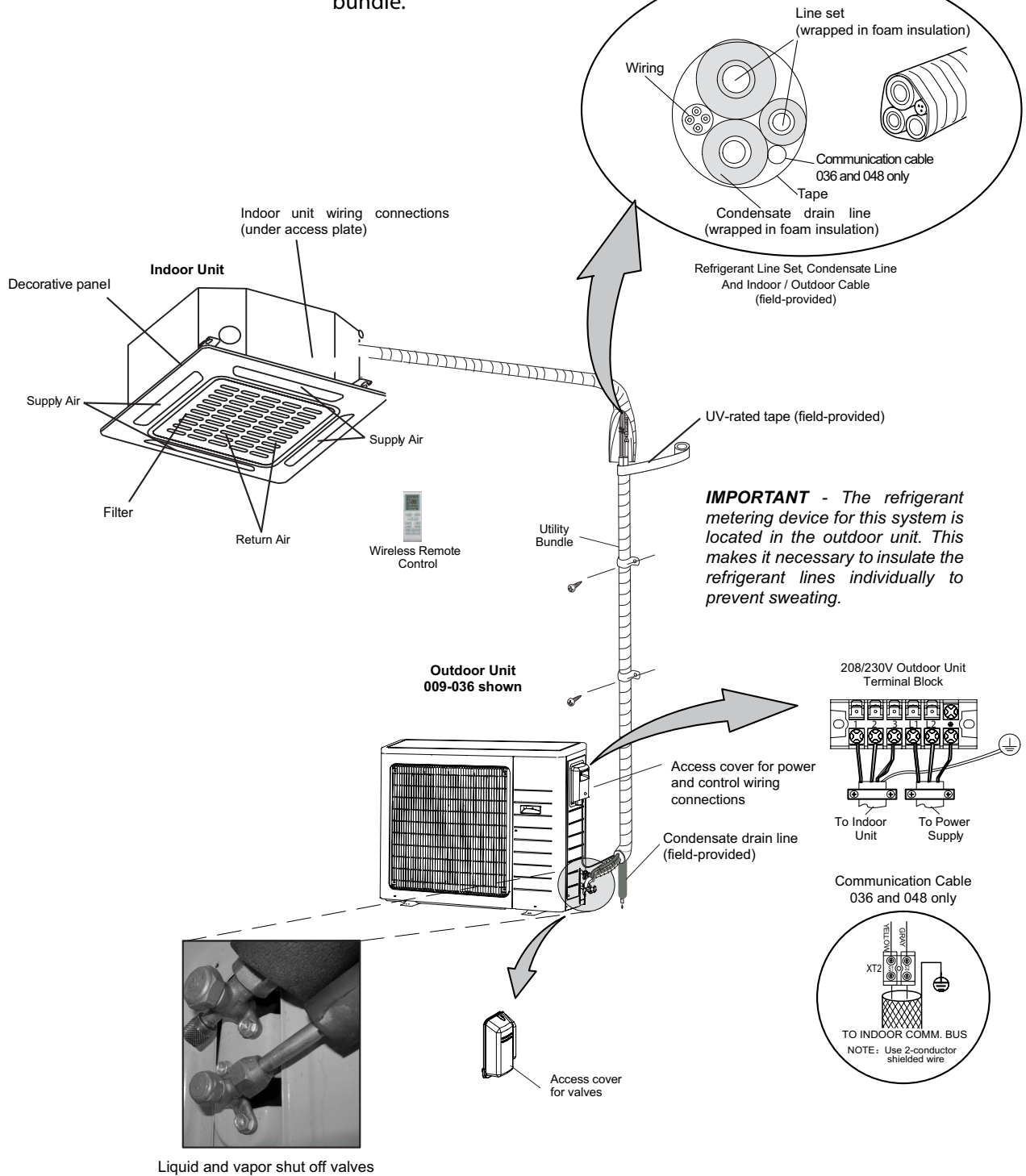
Outdoor Unit	Indoor Unit Match-Up	Voltage
4DHP1S09S-1P	D22C109S4-1P	208/230V
4DHP1S12S-1P	D22C112S4-1P	208/230V
4DHP1S18S-1P	D22C118S4-1P	208/230V
4DHP1S24S-1P	D33C124S4-1P	208/230V
4DHP1S36S-1P	D33C136S4-1P	208/230V
4DHP1S48S-1P	D33C148S4-1P	208/230V

**Table 13. D22C / D33C Indoor/Outdoor Unit Matchups - Single-Zone Systems**

For unit matchups with multi-zone-capable outdoor units, refer to the Outdoor Unit section.

# D22C / D33C Typical System Components

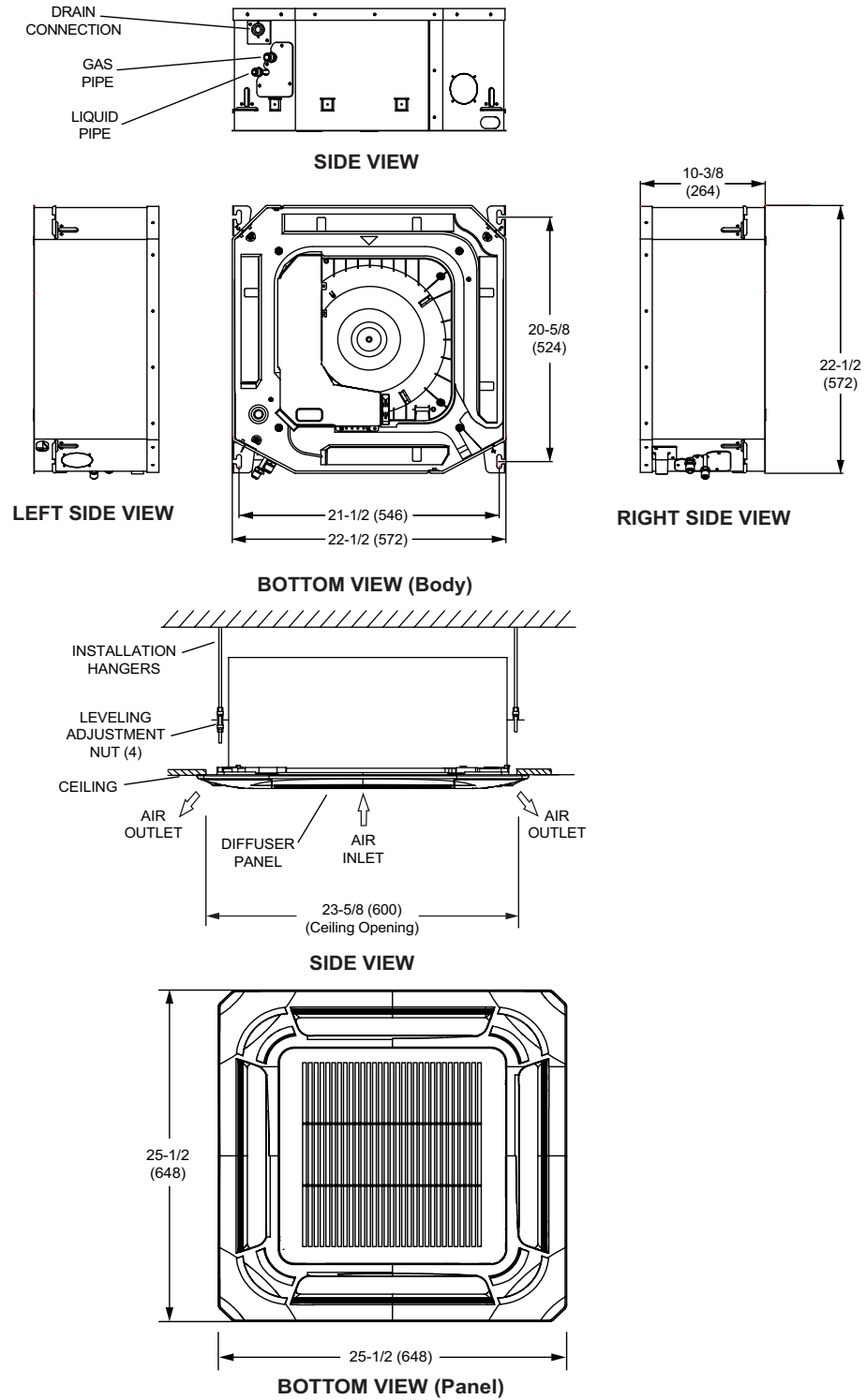
**IMPORTANT** - Condensate drain line must always be located at the bottom of the bundle.



**Figure 49. Typical Single-Zone System Shown**

# D22C / D33C Unit Dimensions

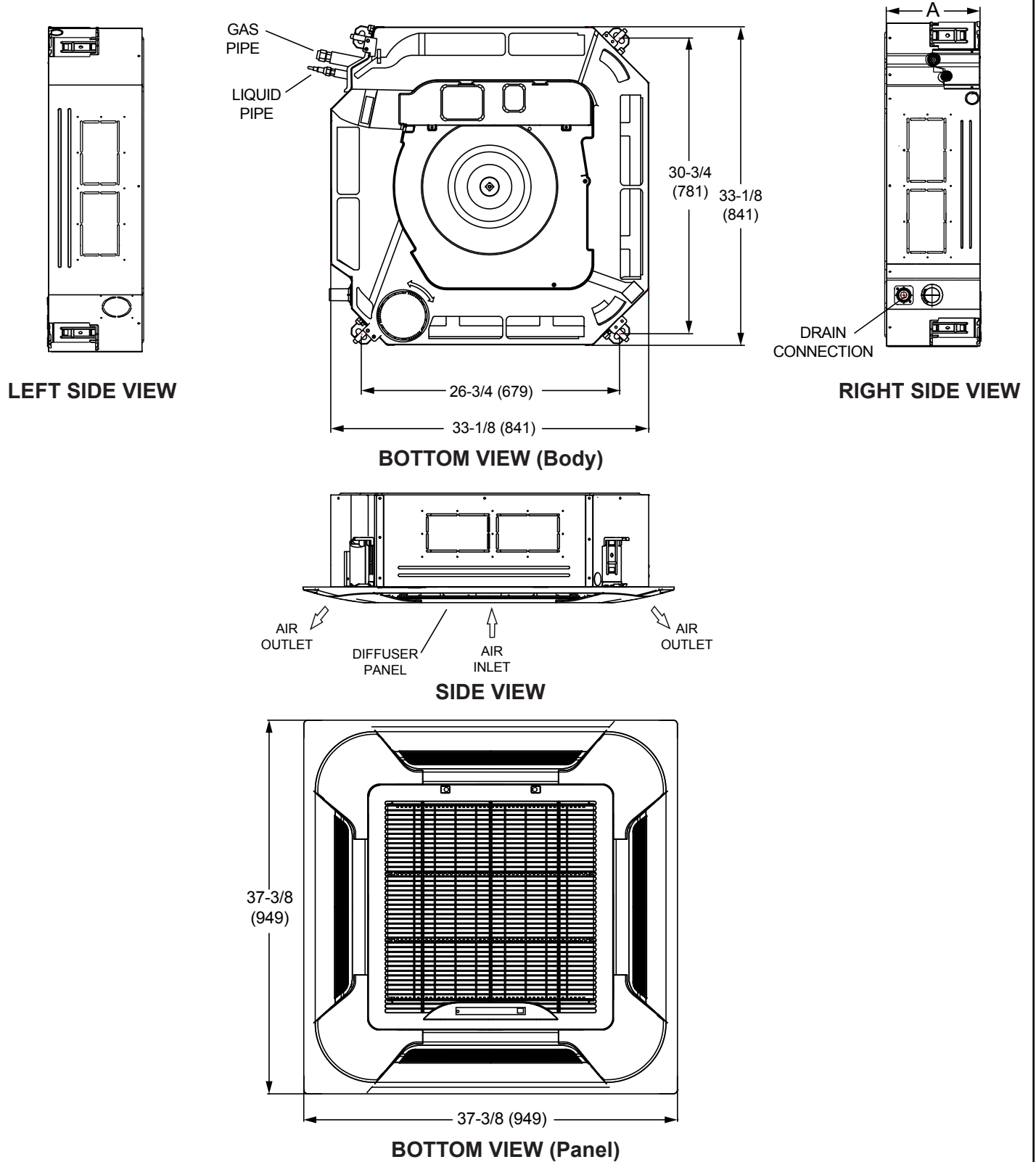
## D22C109S4, D22C112S4, D22C118S4



**Figure 50. D22C Indoor Cassette Unit Dimensions**

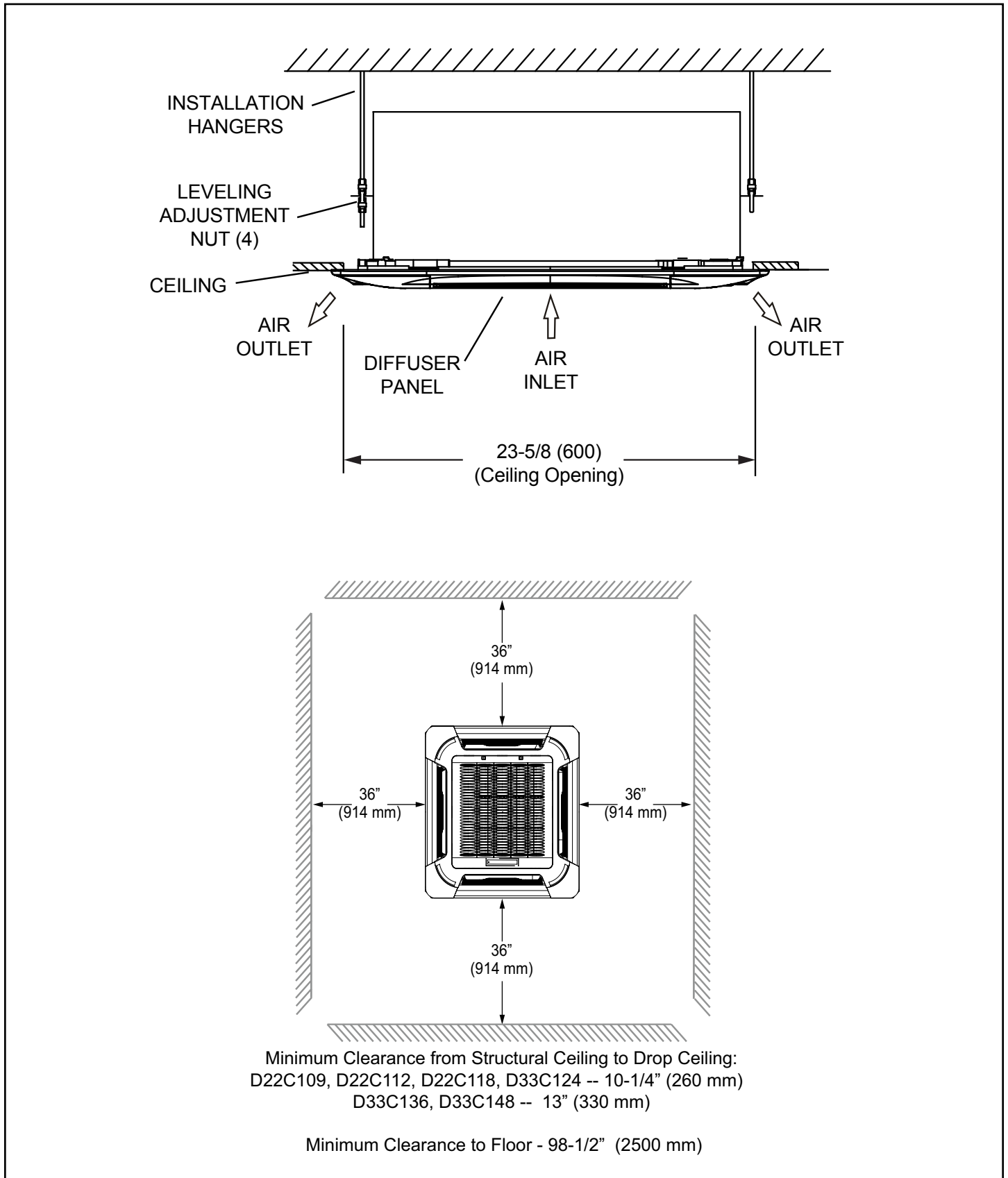


**D33C124S4, D33C136S4, D33C148S4**



**Figure 51. D33C Indoor Cassette Unit Dimensions**

## D22C / D33C Unit Clearances



**Figure 52. D22C / D33C Clearances**

## D22C / D33C Indoor Unit Installation

### Installation of Cassette Base

It is important to place the cassette unit in the center of the area that is being conditioned. This will provide the best air distribution.

1. If the unit is to be installed in an application that includes a drop-down tile ceiling, remove the ceiling tiles necessary to accommodate installation of the four-way cassette. Before removing the drop ceiling support grid, use a plumb line or laser device to identify the center point of the structural ceiling. Make sure that the ceiling is supported before removing any of the support grid. It may be necessary to add extra support to maintain the structural integrity of the drop ceiling.
2. If the unit is to be installed in an application that includes a sheet rock (plasterboard) ceiling, the installation site must be carefully measured and the sheet rock must be cut to accommodate the cassette unit. First, identify the center point of the installed cassette. Use a plumb line to transfer the center mark to the floor for future use. Use the provided template to mark the area of the required opening. Carefully cut the required opening. Make sure that the removal of the required ceiling support does not affect the structural integrity of the ceiling. It may be necessary to add extra support.
3. Use the unit as a template or use the provided paper template to mark the location of the hanging brackets on the floor. Use a plumb line or a laser to transfer the bracket positions to the main structural ceiling.
4. Make sure that the structural ceiling is able to support the weight of the cassette unit. It may be necessary to add extra support. If the structural ceiling is constructed of concrete, install anchors to accept four  $\frac{3}{8}$ " threaded rods to suspend the cassette base. If the structural ceiling includes wooden joists, use angle iron or a Unistrut channel fixed securely in place to accept the  $\frac{3}{8}$ " threaded rods.
5. Slide one nut and one washer onto each threaded rod. Use electrical tape to keep the washer from falling off. Position the nuts slightly above the final resting place of the four suspension brackets.

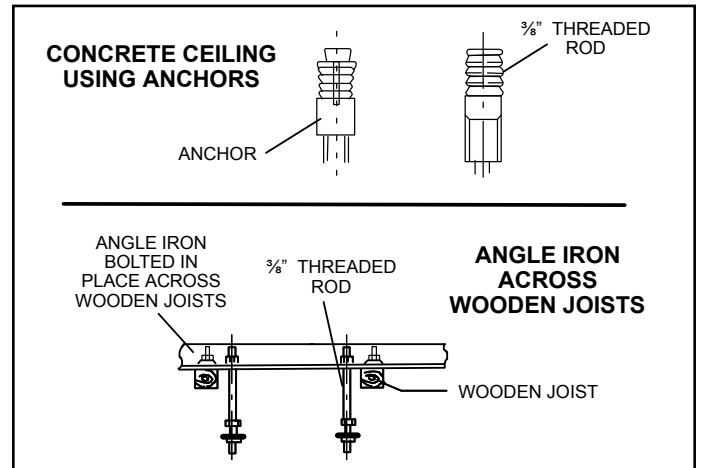


Figure 53. Suspending Methods

6. Use either a mechanical lifting device or a minimum of two people to raise the unit and insert the threaded rods into the suspension brackets on the cassette base. Slide a washer and then a nut onto each rod below each suspension bracket. Use the leveling nut (beneath suspension bracket) to adjust the cassette base to the correct height. Remove the electrical tape holding the upper washers and nuts in place and tighten each of the four nuts above the brackets down onto the brackets. This will ensure that the unit remains level.
7. If the unit is being installed in an application that includes a sheet rock (plasterboard) ceiling, it is recommended to install an access panel in a suitable location to allow final connection of the refrigerant piping, condensate line and electrical connections. This will also allow access for future maintenance. If this is not possible, make final connections before installing cassette cover panel.

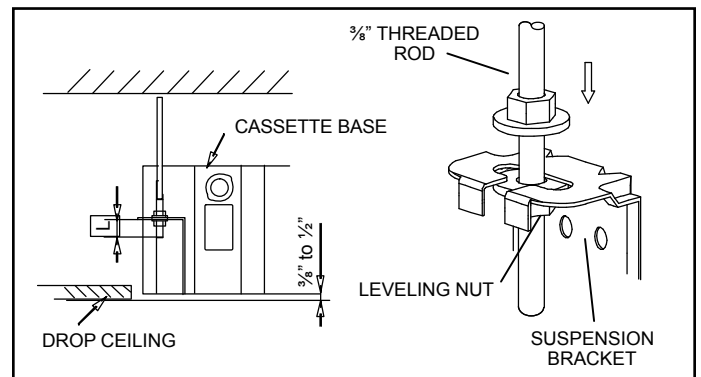


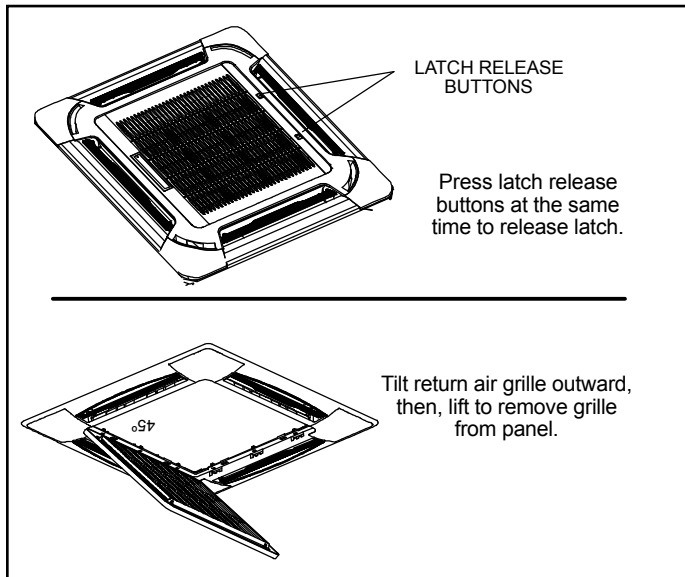
Figure 54. Suspension Hardware

## Installation of D33C Cassette Cover Panel

### **! IMPORTANT**

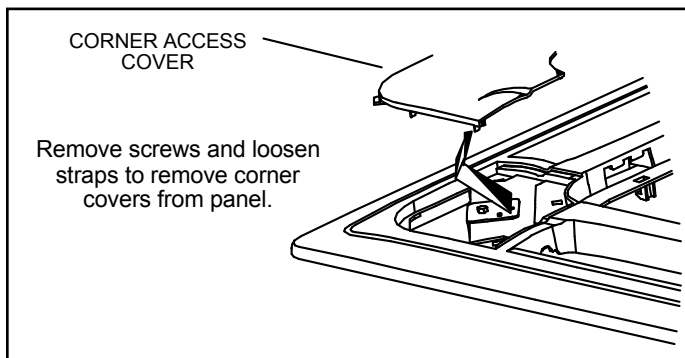
Do not place the cover panel with the diffusers face down on the floor or other surface. Louvers will be damaged if pressure is applied to them.

1. Carefully remove the cassette cover panel from its protective packaging and place the panel diffuser-side-out on a clean, level surface.
2. Press the two grille latch release buttons at the same time to release the grille as illustrated in Figure 55. Tilt the return air grille outward at a 45° angle and lift the grille away from the panel. Carefully place the return air grille off to the side.

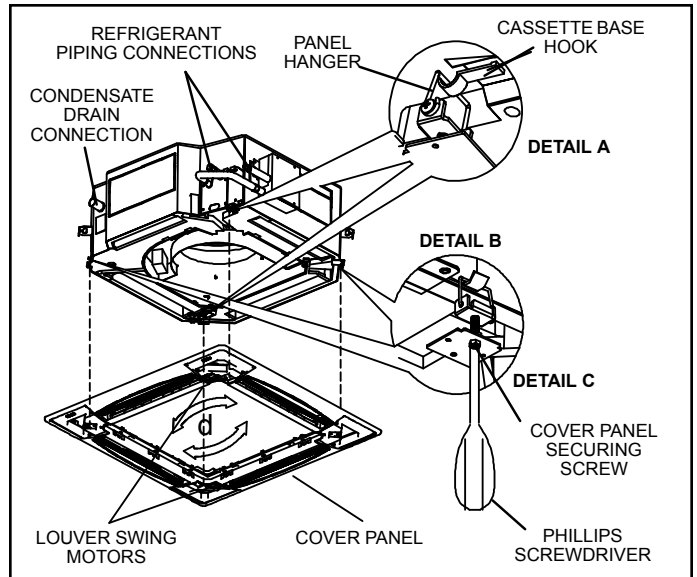


**Figure 55. Remove Return Air Grille**

3. Remove access covers from each corner of the panel.



**Figure 56. Remove Corner Covers**

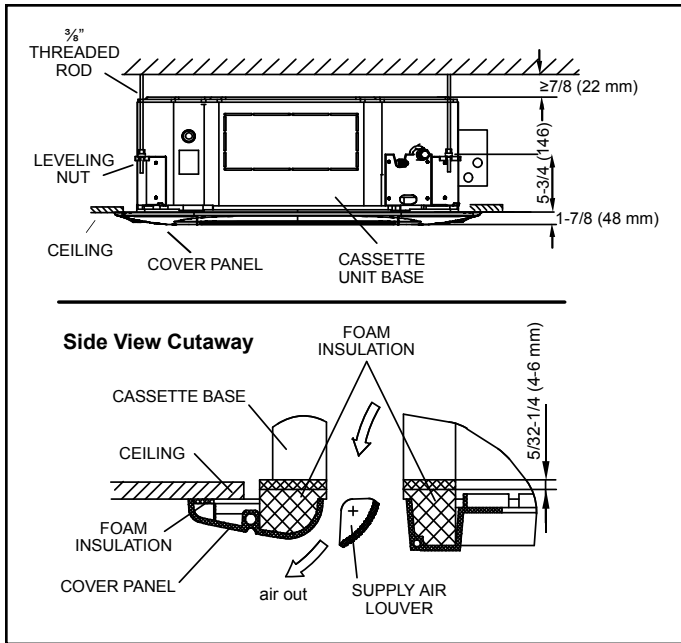


**Figure 57. Install Cover Panel**

4. Position the ceiling panel so that the arrow on the panel is aligned with the arrow sticker on the cassette base (both arrow stickers should be on the same side of the cassette base).

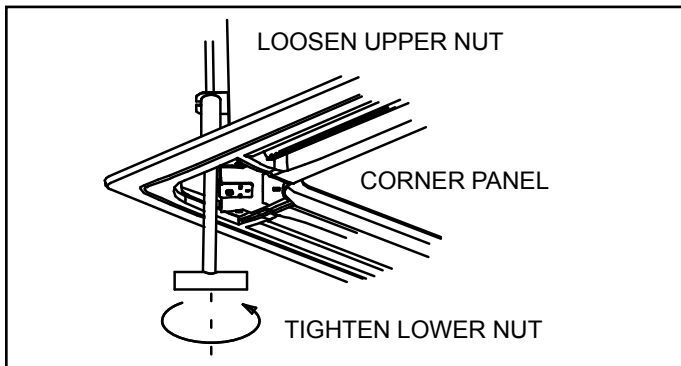
**NOTE:** If the panel and the base are not properly aligned, the airflow will be blocked and the harness plugs from the panel to the cassette base will not be long enough to plug together.

5. Place the cover panel hangers on the two corners with the louver swing motors. Place these two hangers on the corresponding hooks on the corners of the cassette base. See detail A in Figure 57. Then, place the other hangers from the other two corners over their corresponding hooks on the cassette base as shown in detail B in Figure 57.
6. Connect the six-pin harness plugs from each of the two swing motors to the matching six-pin plugs from the control box in the cassette base.
7. Connect the black harness from the display on the cover panel to the corresponding black plug from the control box in the cassette base.
8. Connect the black two-pin plug from the temperature sensor to the corresponding black plug from the control box in the cassette base.
9. Tighten the provided screws in the bracket in the cover panel immediately below each panel hanger. See detail C in Figure 57. Adjust the cover panel by turning slightly clockwise, if necessary, to make sure that the panel is properly aligned with the cassette base.



**Figure 58. Cover Panel in Place**

10. Continue to tighten the cover panel securing screws until the insulation between the cover panel and the cassette base has been compressed to approximately  $\frac{1}{4}$ " (6 mm). The cover panel must form a seal with the ceiling and the cassette base around the entire perimeter of the unit.



**Figure 59. Adjust Unit Height through Corner Panel**

11. If it is necessary to adjust the cassette height after the cover panel has been installed, access the leveling nut through the removable access cover on each corner.
12. The return air grille must be reinstalled on the cover panel. Align the four tabs on the grille with the four slots in the cover panel. Tilt the panel back into place. Press the opposite side of the cover gently until the latches engage.

## Indoor Unit Condensate Piping Connections

### **⚠ IMPORTANT**

Make sure that drain piping is properly routed and insulated to prevent both leaks and condensation.

1. Use a field-provided hose clamp to secure the drain line stub on the side of the cabinet to a field-supplied 1-inch (25 mm) drain line.

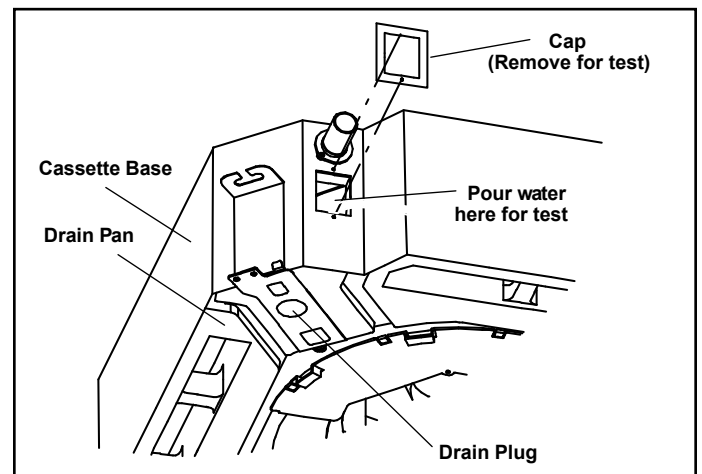
**NOTE:** Take care not to over-tighten the hose clamps this may damage the drain line stub.

**NOTE:** Connection between stub and drain line must be watertight. Apply non hardening plumbing joint compound if needed to ensure a watertight seal.

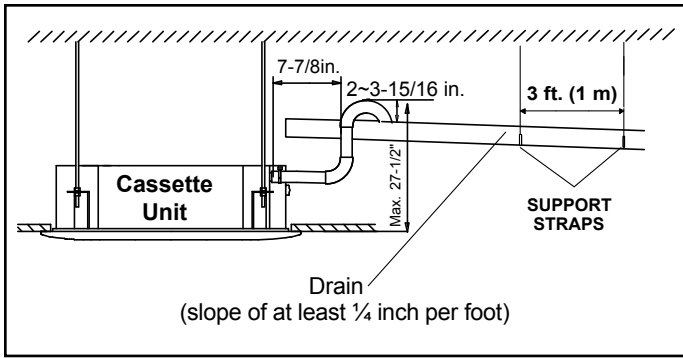
2. Confirm proper slope (not less than  $\frac{1}{4}$  inch per foot (18 mm per m)) and routing of condensate lines to ensure moisture is drained away from the indoor unit.
3. Drain should be as short as possible and should not have any droops or kinks that would restrict condensate flow and shall be approved resistant pipe. There must be a 2-inch (51 mm) space between the end of the condensate drain and the final termination point (ground, open drain, etc.) to ensure that the line will drain freely.
4. After the system installation is complete, the condensate drain line must be checked for leaks and proper drainage. If a field-provided condensate pump has been installed, it must be checked to ensure proper operation. This check is part of the start-up process which must be done by the installing contractor.

### **⚠ IMPORTANT**

Drain should have a slope of at least  $\frac{1}{4}$  inch per foot and should be approved corrosion-resistant pipe. You must confirm operation of every drain and pump in the system as part of the commissioning procedure.



**Figure 60. Test Condensate Drain**



**Figure 61. Indoor Unit Condensate Drain**

## D22C / D33C Wiring Connections

### **⚠ IMPORTANT**

Install unit so that unit disconnect is accessible.

Use specified wiring and cable to make electrical connections. Clamp cables securely and make sure that connections are tight to avoid strain on wiring. Insecure wiring connections may result in equipment failure and risk of fire.

Wiring must be installed so that all cover plates can be securely closed.

### **⚠ WARNING**

**Electric Shock Hazard.** Can cause injury or death. Unit must be grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power sources.

### **⚠ CAUTION**

All terminal connections must be made as illustrated in the following diagrams. Improperly connected wiring could damage unit or cause communication errors between indoor and outdoor units.

In the U.S.A., wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

Refer to unit nameplate for minimum circuit ampacity and maximum over-current protection size.

## **Outdoor Unit**

- Refer to unit nameplate for minimum circuit ampacity and maximum over-current protection size
- Make all electrical power wiring connections at the outdoor unit
- Be sure to reattach all electrical box covers after connections are complete

## **Indoor Unit**

- All indoor units are powered by the outdoor unit
- Communication Wiring (Indoor Units 30K and Below): Use one stranded 4-conductor wire to provide power and communication
- Communication Wiring (Indoor Units 36K and Above): Use one stranded 3-conductor wire to provide power and one stranded 2-conductor wire to provide communication
- Use minimum of 18 GA stranded wiring

**NOTE:** When installing a condensate pump, wire in-line with the CN5 float switch.

### **⚠ IMPORTANT**

This unit must be properly grounded and protected by a circuit breaker. The ground wire for the unit must not be connected to a gas or water pipe, a lightning conductor or a telephone ground wire.

Do not connect power wires to the outdoor unit until all other wiring and piping connections have been completed.

Do not install the unit near a lighting appliance that includes a ballast. The ballast may affect remote control operation.

### **⚠ IMPORTANT**

All wiring diagrams are typical wiring diagrams. Refer to the wiring diagram on the unit for actual wiring.

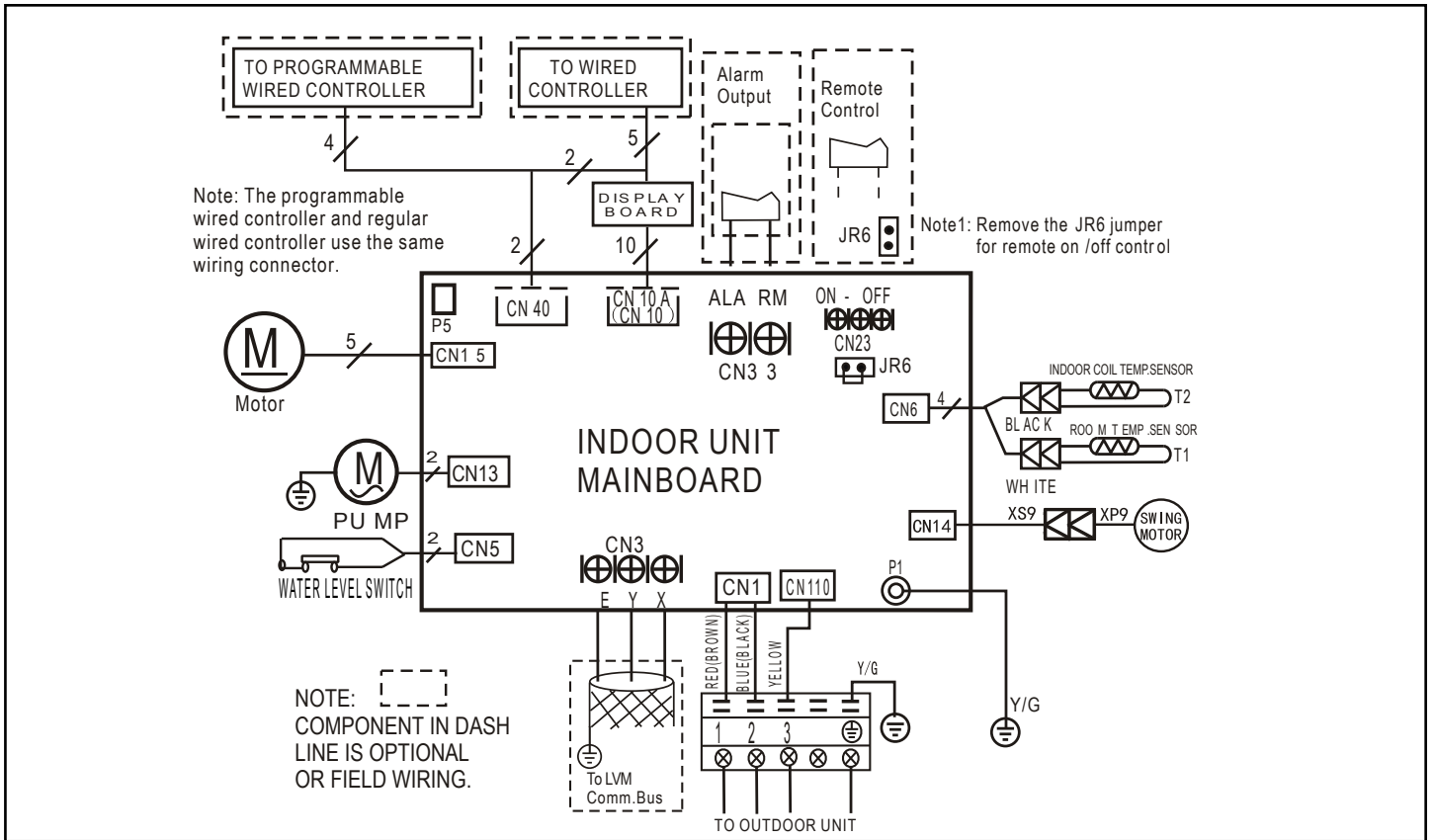


Figure 62. D22C109S4-1P, D22C112S4-1P, D22C118S4-1P, and D33C124S4-1P Unit Wiring Diagram

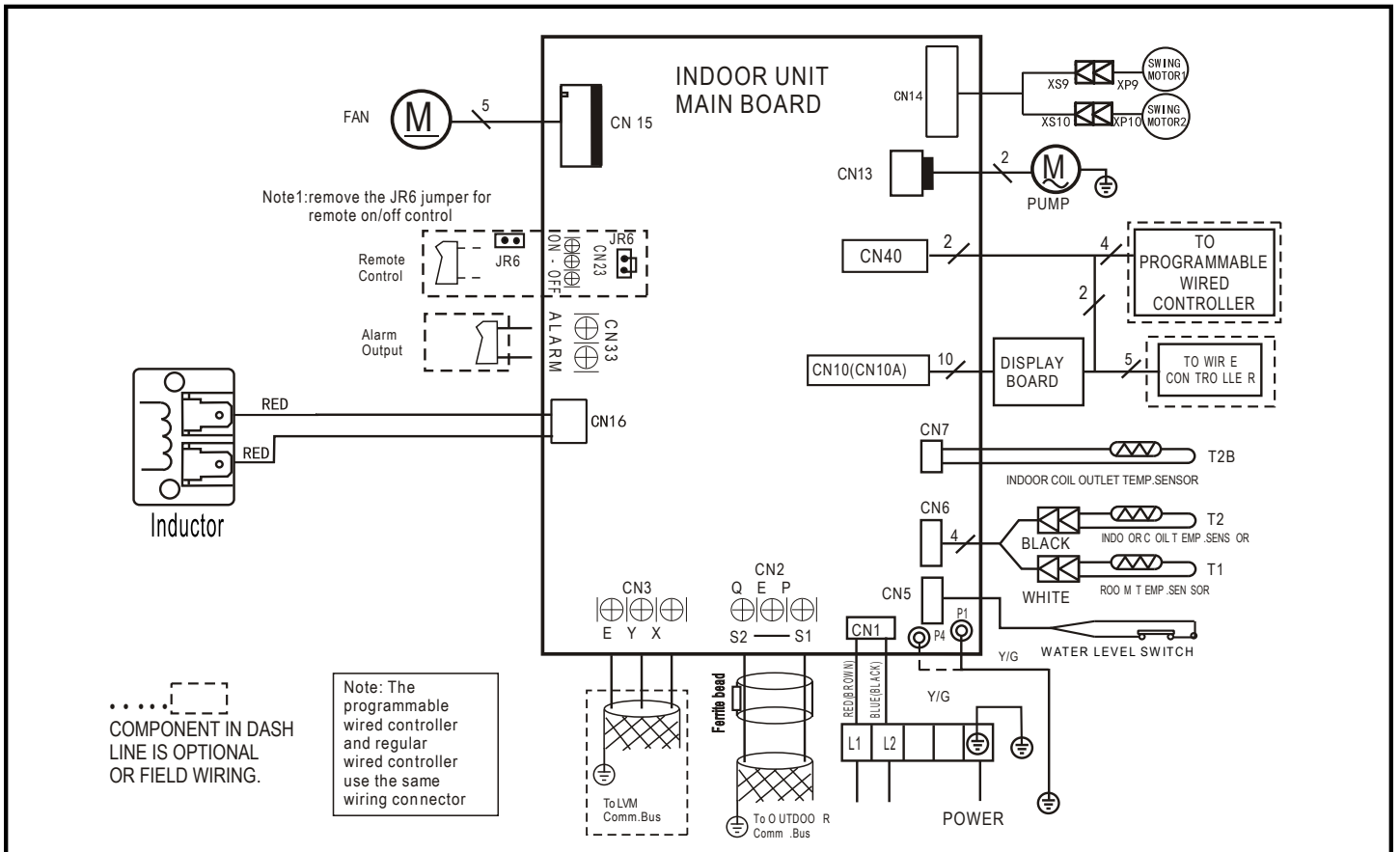


Figure 63. D33C136S4-1P and D33C148S4-1P Unit Wiring Diagram



# DMD Medium Static Ducted Indoor Unit

Check the components for shipping damage. If you find any damage, immediately contact the last carrier.

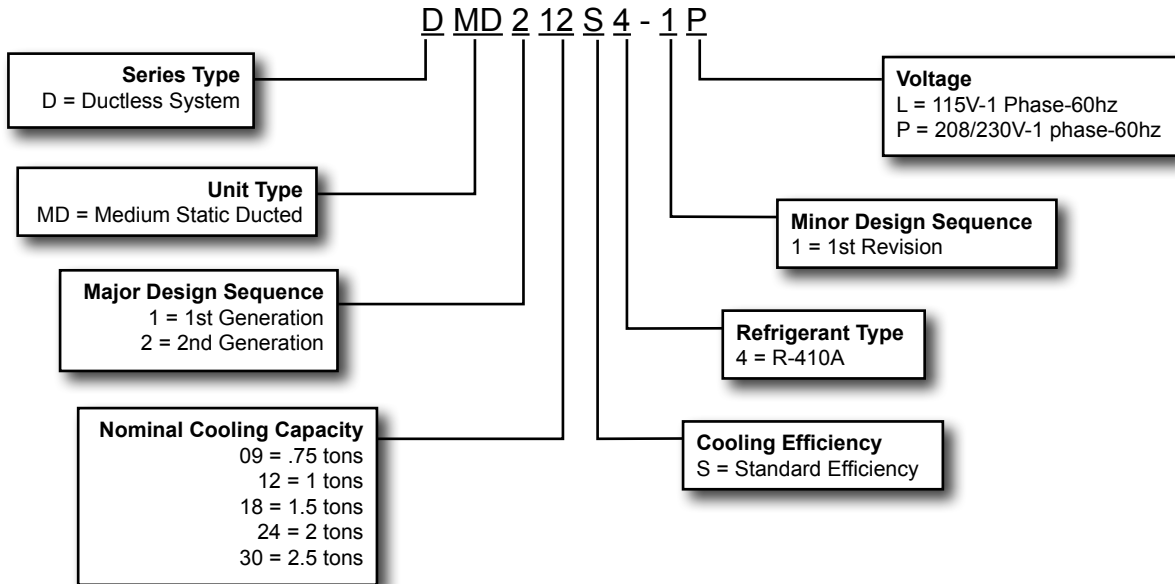
Package 1 of 1 contains the following:

1 - Assembled Indoor Unit

The assembled indoor unit will include the following items:

Parts	Figure	Quantity	Parts	Quantity
Wired controller 1.861057		1	Installation and owner's manual	1 ea.
Wired controller extension cable 6 ft (2m)		1		

## Model Number Identification





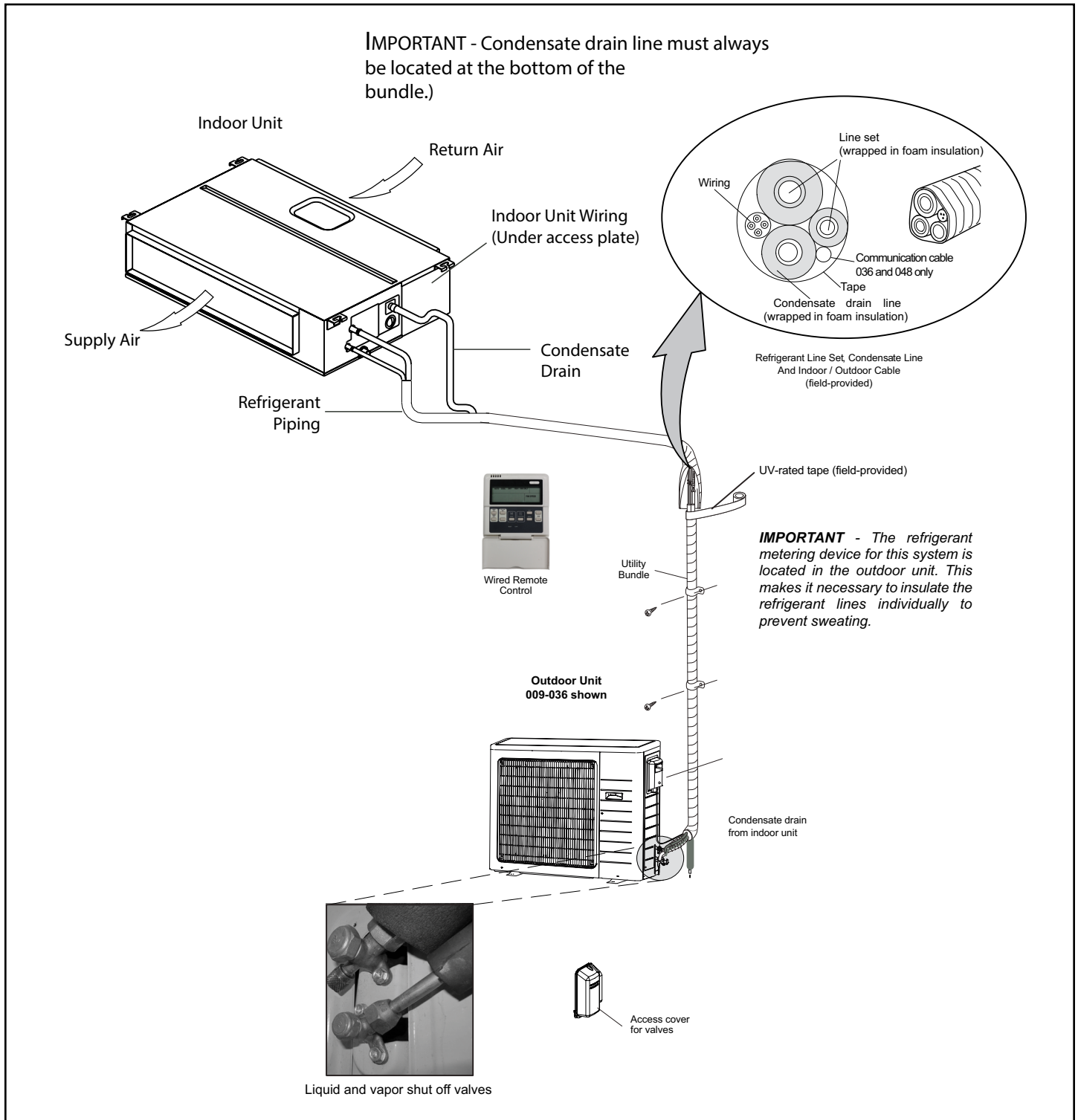
## DMD Indoor / Outdoor Unit Matchups

Outdoor Unit	Indoor Unit	Voltage
4DHP1S09S-1P	DMD209S4-1P	208/230V
4DHP1S12S-1P	DMD212S4-1P	208/230V
4DHP1S18S-1P	DMD218S4-1P	208/230V
4DHP1S24S-1P	DMD224S4-1P	208/230V
4DHP1S36S-1P	DMD236S4-1P	208/230V
4DHP1S48S-1P	DMD248S4-1P	208/230V

**Table 14. D22C / D33C Indoor/Outdoor Unit Matchups - Single-Zone Systems**

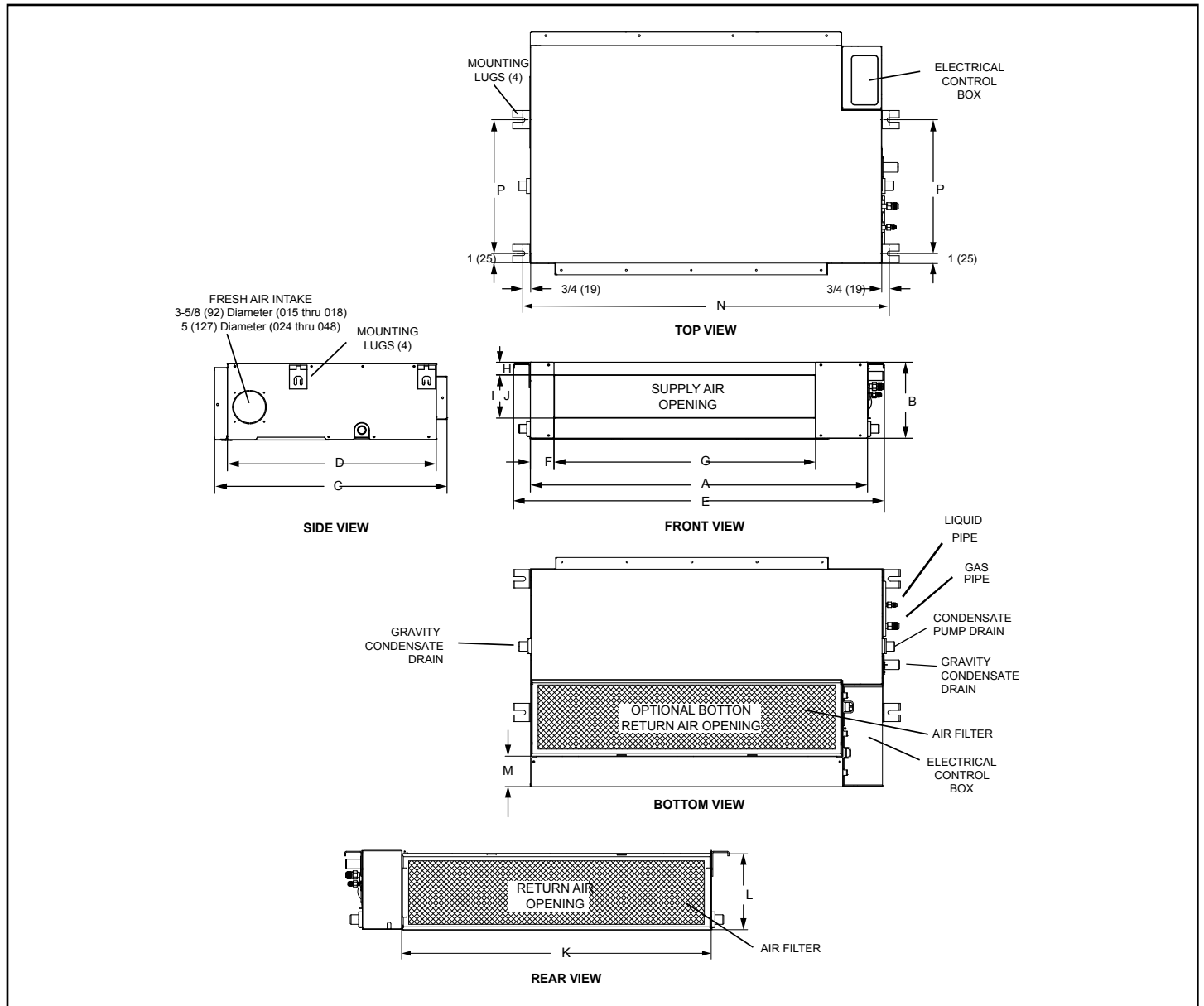
For unit matchups with multi-zone-capable outdoor units, refer to the Outdoor Unit section.

# DMD Typical System Components



**Figure 64. Typical Single-Zone System Shown**

# DMD Unit Dimensions



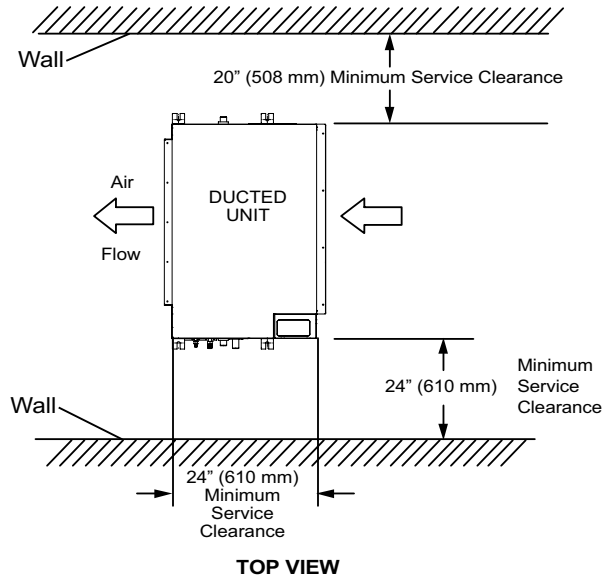
Size	A		B		C		D		E		F		G		H	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
009 thru 012	27-5/8	702	7-7/8	200	19-7/8	505	17-3/4	451	30-3/4	781	5-3/8	137	21-1/8	537	1-1/8	29
018	34-5/8	879	8-1/4	210	26-1/2	673	23-5/8	600	37-7/8	962	5-1/2	140	27-3/4	705	2	51
024	43-1/4	1099	9-3/4	248	30-1/2	775	27-1/2	699	46-1/2	1181	5-1/2	140	36-1/2	927	2	51
036	53-1/2	1359	9-3/4	249	30-1/2	775	27-1/2	699	56-3/4	1441	5-1/2	140	46-3/4	1187	2	51
048	47-1/4	1200	11-7/8	302	34-3/8	873	31-1/2	800	50-1/2	1283	4-7/8	124	41-1/8	1045	2	51

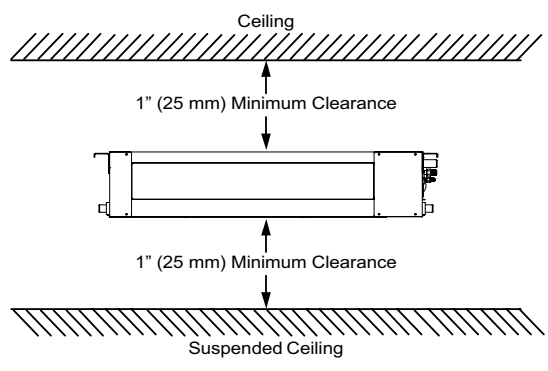
Size	J		K		L		M		N		P	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
009 thru 012	6	152	23-5/8	600	7-3/8	187	2	51	29-1/8	740	14-1/8	359
018	5-3/8	137	30-3/4	781	7-1/2	191	1-5/8	41	36-1/4	921	20	508
024	6-7/8	175	39-3/8	1000	9	229	1/4	6	44-7/8	1140	23-1/2	597
036	6-7/8	175	49-5/8	1260	9	229	1/4	6	55-1/8	1400	23-1/2	597
048	9	229	43-3/8	1102	11	279	1/4	6	48-7/8	1241	27-1/2	699

Figure 65. DMD Indoor Ducted Unit Dimensions

# DMD Unit Clearances



**TOP VIEW**



**FRONT VIEW**

**Figure 66. DMD Clearances**

## DMD Indoor Unit Installation

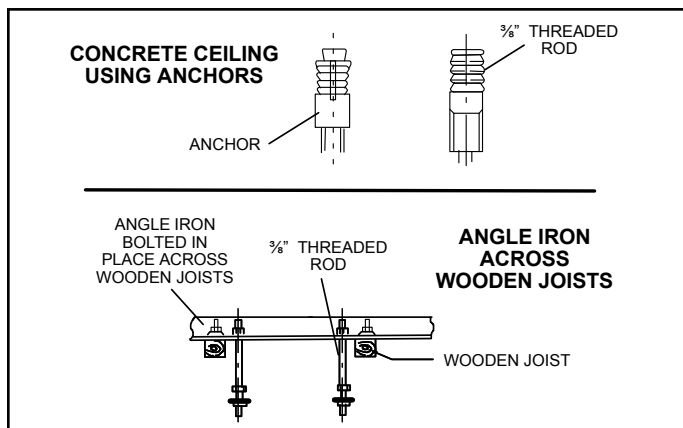
### Installation Guidelines

- Provide separate support for the weight of the duct system. Duct system must not be supported by the indoor unit
- Use flexible joints (canvas) at the point where the duct connects to the unit on both ends. Material must meet all local and national code requirements
- When unit is being installed in a location where even the slightest noise would be a problem (meeting room or other very quiet space), design duct system to avoid transmission of vibration to the structure to the extent possible
- Follow ACCA manual D guidelines for return air filter grille sizing. The return air filter grille should have a minimum surface area of 200 square inch per ton (1290 cm<sup>2</sup> per 3.5kW)

### Installation

1. Make sure that the structural ceiling or slab is able to support the weight of the indoor unit. It may be necessary to add extra support.
2. Install suspension rods in the structural ceiling or concrete slab in a suitable location. If the structural ceiling is constructed of concrete, install anchors to accept four 3/8" threaded rods to suspend the indoor unit. If the structural ceiling includes wooden joists, use angle iron or Unistrut channel fixed securely in place to accept the 3/8" threaded rods.

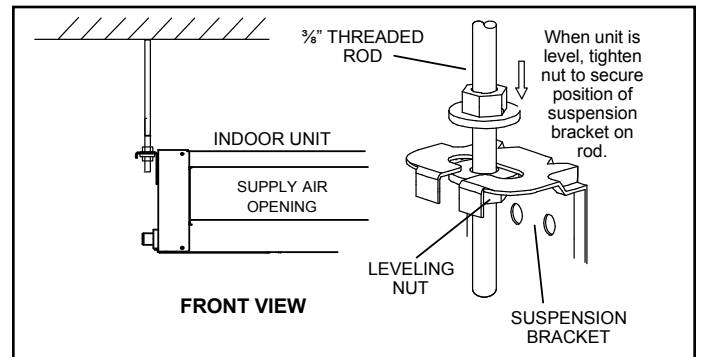
**NOTE:** Threaded rod is the **ONLY** acceptable method of suspending the unit; do not use chains or straps. See Figure 67.



**Figure 67. Suspending Methods**

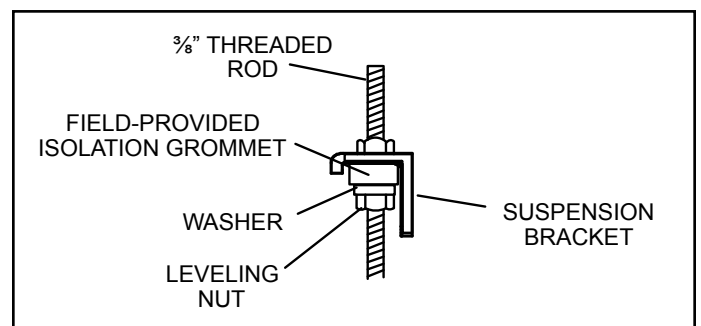
3. Slide one nut and one washer onto each threaded rod. Use electrical tape to keep the washer from falling off. Position the nuts slightly above the final resting place of the four suspension brackets. See Figure 68.
4. Use either a mechanical lifting device or a minimum of two people to raise the unit and insert the threaded rods into the suspension brackets on the unit chassis. Slide a washer and then a nut onto each rod below each

suspension bracket. Use the leveling nut (beneath suspension bracket) to adjust the unit to the correct height. Remove the electrical tape holding the upper washers and nuts in place and tighten each of the four nuts above the brackets down onto the brackets. This will ensure that the unit remains level.



**Figure 68. Suspension Hardware**

5. If necessary, install a field-provided isolation grommet as shown in Figure 69 to prevent transmission of vibration from unit to structural ceiling.
6. If the unit is being installed in an application that includes a sheet rock (plasterboard) ceiling, it is required that an access panel be installed in a suitable location. This will also allow access for future maintenance. Access is required during the start up process to test the condensate disposal system. See Figure 74.
7. The unit is factory-configured for the supply air to be delivered from the front and the return air filter at the rear of the unit. The return air filter location can be relocated in the field for bottom return air filter access, if more convenient. See Figure 70.



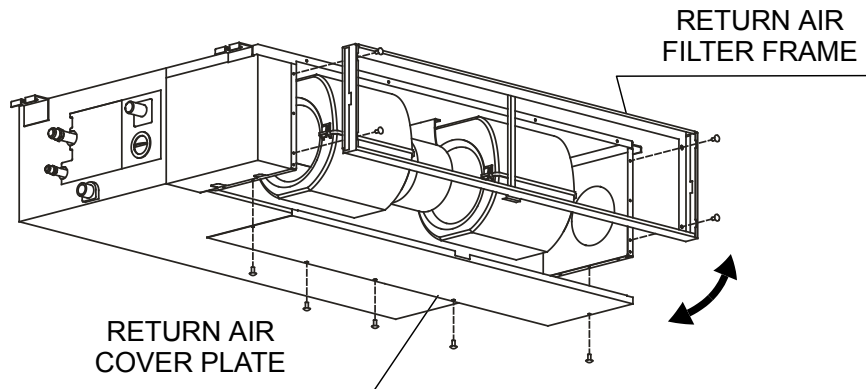
**Figure 69. Isolation Grommet**

**NOTE:** No part of the suspended ceiling, or other supports not directly associated with the indoor unit installation, can be fixed to, or touch the indoor unit, in any form. Minimum clearances must be observed at all times.

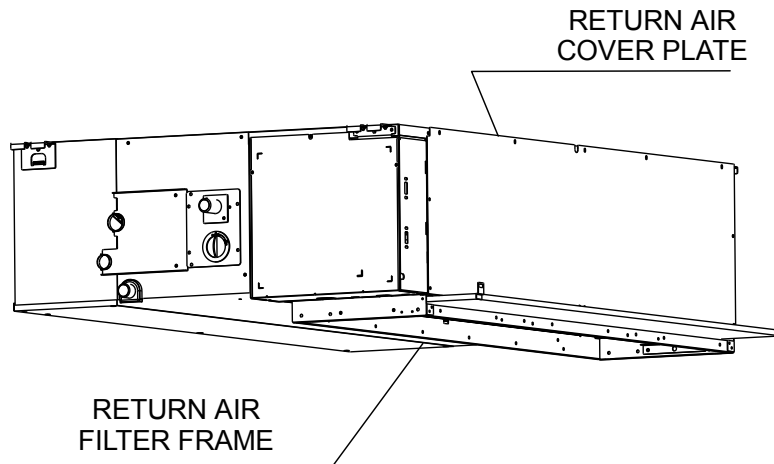
### Field-Relocation of Return Air Filter

Depending on installation requirements, the return air filter may need to be relocated as a bottom return air. See Figure 70 for field-relocating the return air filter.

- 1** Remove the return air filter from its existing location at the rear of the unit.  
Remove the screws that secure the filter frame to the rear of the unit and set the frame aside.  
Remove the screws that secure the return air cover plate to the bottom of the unit. Set the cover plate aside.



- 2** Re-install the return air filter in the repositioned filter frame in the bottom of the unit. Refer to the arrows in the illustration below.



**Figure 70. Field-Relocation of Return Air Filter (Typical) - Bottom Return Air**

## Indoor Unit Condensate Piping Connections

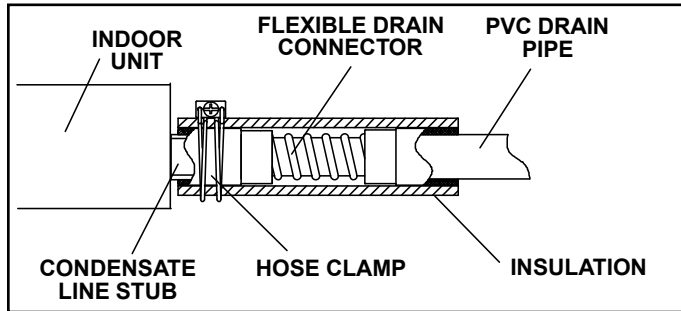
### **⚠ IMPORTANT**

Make sure that drain piping is properly routed and insulated to prevent both leaks and condensation.

1. Use a field-provided hose clamp to secure the drain line stub on the side of the unit chassis to a field-supplied 1" (25 mm) drain line.

**NOTE:** Take care not to over-tighten the hose clamp as this may damage the drain line stub.

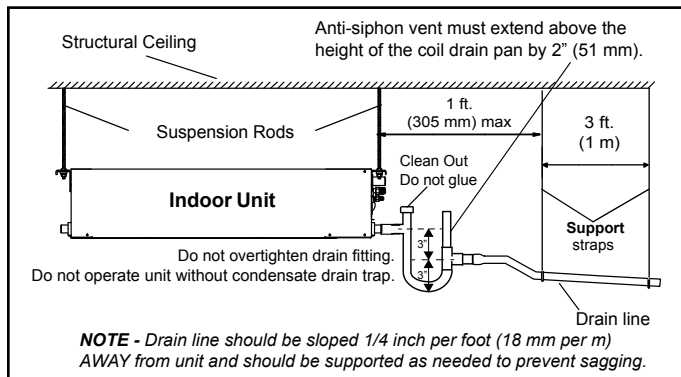
**NOTE:** Connection between stub and drain line must be watertight. Apply non hardening plumbing joint compound if needed to ensure a watertight seal.



**Figure 71. Condensate Gravity Drain Option**

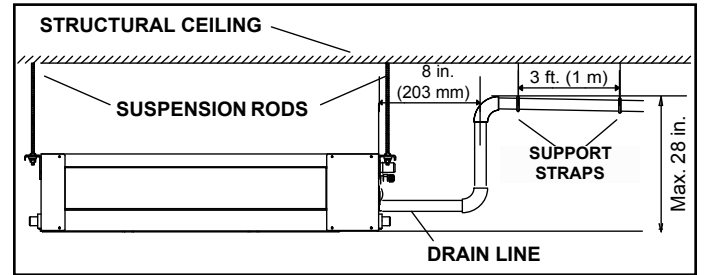
**NOTE:** If using the gravity drain you must cap the condensate pump drain to prevent condensate from exiting if the gravity drain gets restricted.

2. For applications including an indoor unit and a gravity drain. In this case, ensure that the drain line is properly sloped (no less than 1/4 inch per foot (18 mm per m)) and condensate lines are routed to ensure moisture is drained away from the indoor unit.



**Figure 72. Slope Condensate Drain**

3. For applications including an indoor unit using the internal drain pump.



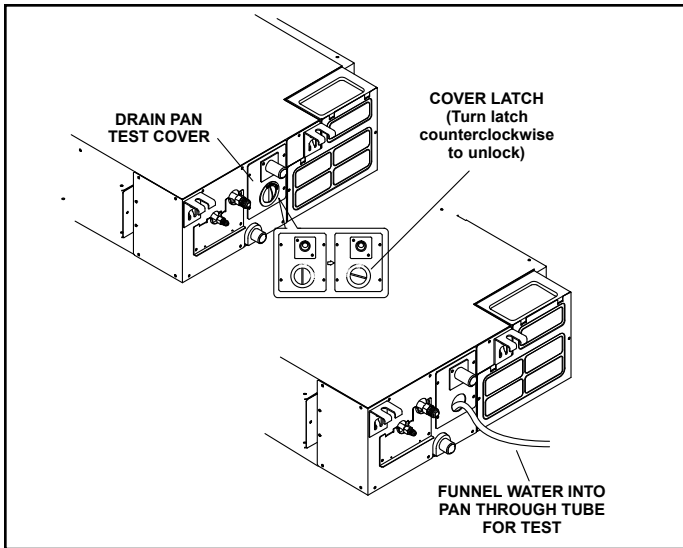
**Figure 73. Condensate Drain with Factory Condensate Pump**

4. In all cases, drain should be as short as possible and should not have any droops or kinks that would restrict condensate flow and shall be constructed using an approved pipe. There must be a 2-inch (51 mm) space between the end of the condensate drain and the final termination point (ground, open drain, etc.) to ensure that the line will drain freely.

### **⚠ IMPORTANT**

Drain should have a slope of at least 1/4 inch per foot and should be approved corrosion-resistant pipe. You must confirm operation of every drain and pump in the system as part of the commissioning procedure.

5. After system installation is complete, the condensate drain line must be checked for leaks and the condensate pumps must be checked to ensure proper operation. This check is part of the start-up process which must be done by the installing contractor. Turn the condensate drain pan test cover latch counterclockwise to open the cover and access the drain pan. Funnel enough water to engage the pump into the drain pan through a flexible tube.
6. Operate the system in the cooling mode. If the internal pump is being used, ensure that the pump is operating and the water in the pan is draining freely. If the internal pump is not being used, pour the water into the drain pan and confirm that it has flowed freely out of the pan and out of the drain termination. If a leak is found, shut down power to the unit at once and do not restore power to the unit until the problem has been resolved.
7. Return the test cover and turn the latch clockwise to re-lock it.



**Figure 74. Condensate Drain Test**

### DMD Wiring Connections

#### **⚠ WARNING**

Electric Shock Hazard. Can cause injury or death. Unit must be grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power sources.

#### **⚠ CAUTION**

All terminal connections must be made as illustrated in the following diagrams. Improperly connected wiring could damage unit or cause communication errors between indoor and outdoor units.

In the U.S.A., wiring must conform with current local codes and the current National Electric Code (NEC). In Canada, wiring must conform with current local codes and the current Canadian Electrical Code (CEC).

### **Outdoor Unit**

- Refer to unit nameplate for minimum circuit ampacity and maximum over-current protection size
- Make all electrical power wiring connections at the outdoor unit
- Be sure to reattach all electrical box covers after connections are complete

### **Indoor Unit**

- All indoor units are powered by the outdoor unit
- Communication Wiring (Indoor Units 30K and Below): Use one stranded 4-conductor wire to provide power and communication
- Communication Wiring (Indoor Units 36K and Above): Use one stranded 3-conductor wire to provide power and one stranded 2-conductor wire to provide communication
- Use minimum of 18 GA stranded wiring
- When installing a condensate pump, wire in-line with the CN5 float switch.

#### **⚠ IMPORTANT**

This unit must be properly grounded and protected by a circuit breaker. The ground wire for the unit must not be connected to a gas or water pipe, a lightning conductor or a telephone ground wire.

Do not connect power wires to the outdoor unit until all other wiring and piping connections have been completed.

Do not install the unit near a lighting appliance that includes a ballast. The ballast may affect remote control operation.

#### **⚠ IMPORTANT**

All wiring diagrams are typical wiring diagrams. Refer to the wiring diagram on the unit for actual wiring.



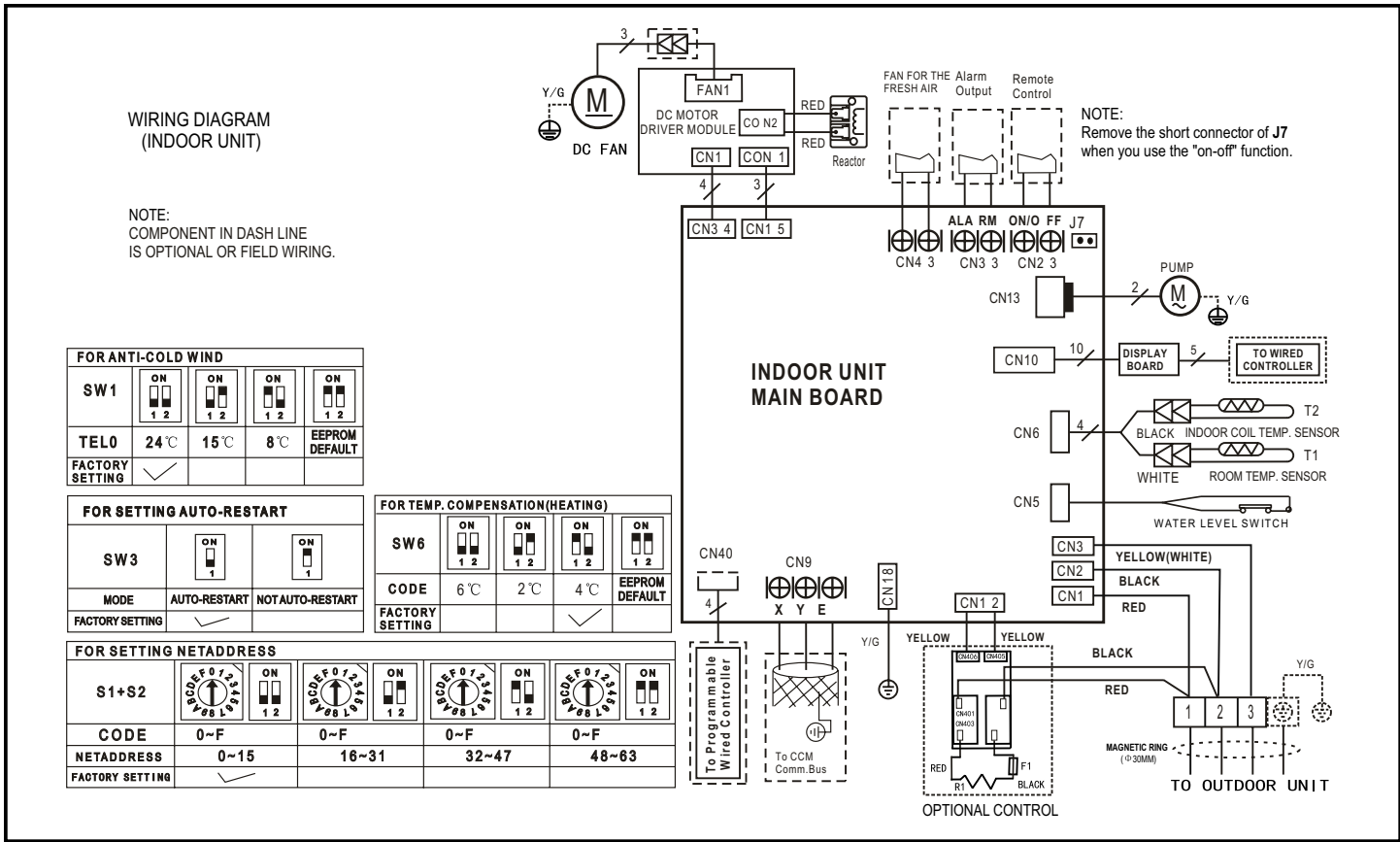


Figure 75. DMD209S4-1P, DMD212S4-1P, DMD218S4-1P and DMD224S4-1P Unit Wiring Diagram

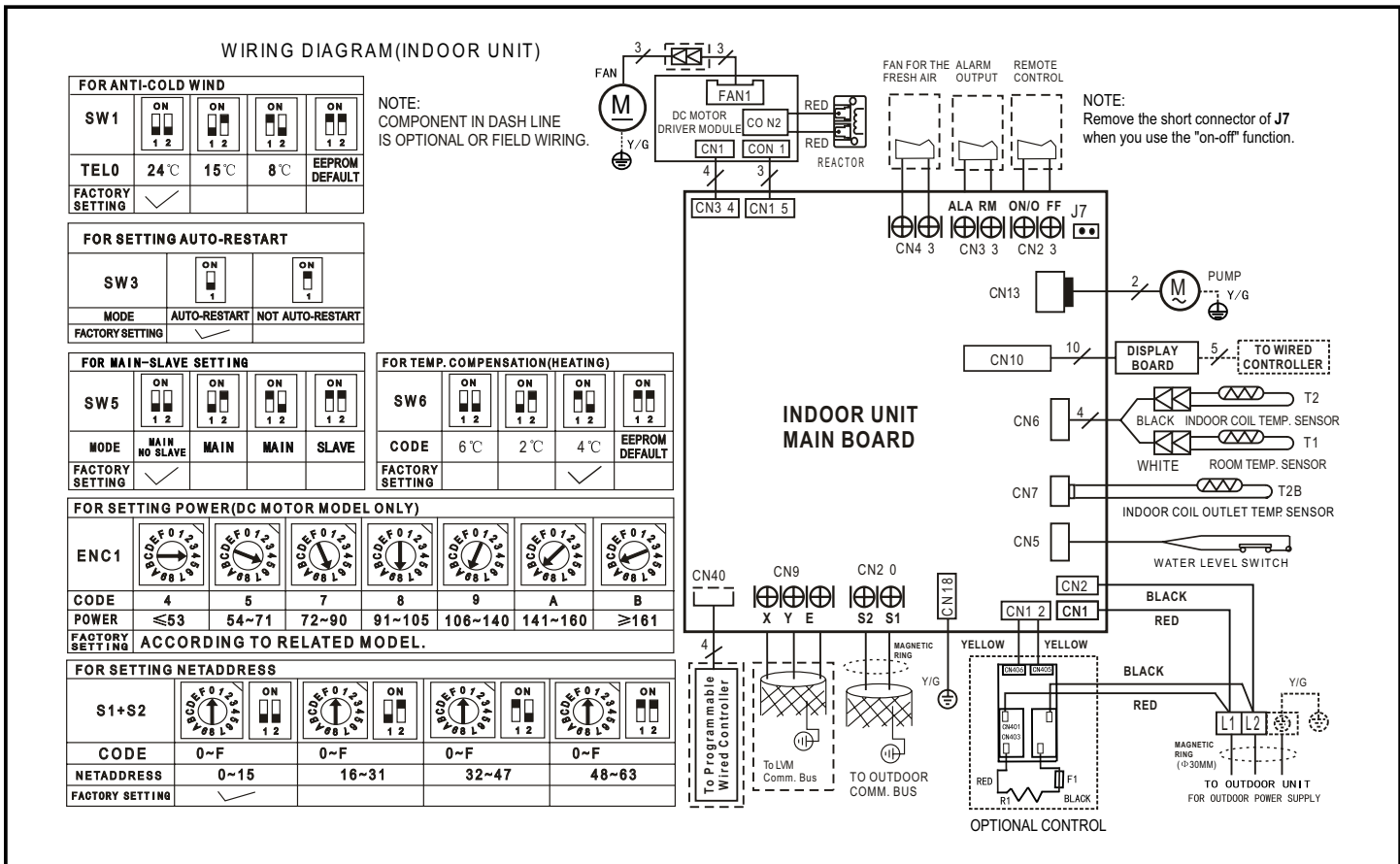


Figure 76. DMD236S4-1P and DMD248S4-1P Unit Wiring Diagram

## Post-Installation Checks and Additional Information

### Leak Test and Evacuation

Air and moisture remaining in the refrigerant system will have undesirable effects as indicated below:

- Pressure in the system rises
- Operating current rises
- Cooling or heating efficiency drops
- Moisture in the refrigerant circuit may freeze
- Water may lead to corrosion of parts in the refrigeration system

The line set between the indoor and outdoor units must be leak tested and evacuated to remove any non-condensables and moisture from the system.

#### Leak Test

Use the following procedure to test for system leaks:

1. Connect the manifold gauge set and dry nitrogen gas cylinder to the liquid and gas service ports.
2. Open valve on nitrogen cylinder.
3. Pressurize the system per the pressure test specifications in Table 15.
4. Check that the system pressure remains stable. If there is any movement, check system for leaks.
5. After the system is found to be free of leaks:
  - Close valve on nitrogen cylinder
  - Relieve the nitrogen pressure by loosening the charge hose connector at the nitrogen cylinder
  - When the system pressure is reduced to normal, disconnect the hose from the cylinder.

	Bar	Psig	kPa	Duration
1	3	44	303	Minimum of 10 minutes
2	15	220	1517	Minimum of 10 minutes
3	32	470	3241	Minimum of 10 minutes
4	45	650	4482	1 hour. Stress test to prove the integrity of the complete installation.
5	32	470	3241	24 hours. Lower system pressure test, after confirmation No. 4 was successfully completed.

**Table 15. Pressure Test Specifications**



**IMPORTANT**

Use only oxygen-free nitrogen (OFN).

### Triple Evacuation Procedure

A Micron or Torr gauge must be used for this procedure.

1. Discharge the oxygen-free nitrogen and evacuate the system to a reading of 8000 Microns (8 Torr) using all service valves.
2. Break the vacuum by allowing nitrogen into the port connections (liquid line and gas line pipes) until a positive pressure is achieved.
3. Evacuate the system to a reading of 5000 Microns (5 Torr).
4. Break the vacuum by allowing nitrogen into the port connections (liquid line and gas line pipes) until a positive pressure is achieved.
5. Evacuate the system to a minimum reading of 500 Microns (0.5 Torr).
6. For a moisture-free system, ensure the vacuum is held without movement for a minimum of 4 hours.
7. If vacuum fails to hold, carry out steps 2 through 6 until vacuum holds.

### Outdoor Unit Refrigerant Charge for Multi-Zone Systems

The outdoor unit is factory-charged with refrigerant. Calculate the additional refrigerant required according to the length of the liquid pipe (one way) between the outdoor unit and indoor unit connections.

Be sure to add the proper amount of additional refrigerant. Failure to do so may result in reduced performance.

System	Pre-charge Pipe Length	Amount of Refrigerant to add
Two-port	50 ft. (15 m)	0.16 oz ((L1 ft + L2 ft) - 50 ft) 0.005 kg ((L1 m + L2 m) - 15 m)
Three-port	75 ft. (23 m)	0.16 oz ((L1 ft + L2 ft + L3 ft) - 75 ft) 0.005 kg ((L1 m + L2 m + L3 m) - 23 m)
Four-port	100 ft. (30 m)	0.16 oz ((L1 ft + L2 ft + L3 ft + L4 ft) - 100 ft) 0.005 kg ((L1 m + L2 m + L3 m + L4 m) - 30 m)
Five-port	125 ft. (38 m)	0.16 oz ((L1 ft + L2 ft + L3 ft + L4 ft + L5 ft) - 125 ft) 0.005 kg ((L1 m + L2 m + L3 m + L4 m + L5 m) - 38 m)

**Table 16. Additional Refrigerant Charge - Multi-Zone Systems**

## Adding Refrigerant for Longer Line Set in Single-Zone Systems

The outdoor unit is factory-charged with refrigerant. Calculate the additional refrigerant required according to the diameter and the length of the liquid pipe between the outdoor unit and indoor unit connections.

Be sure to add the proper amount of additional refrigerant. Failure to do so may result in reduced performance.

System Size (KBtu)	Pipe Length (feet / meters)	Amount of Refrigerant to add
09	>25 (7.5)	0.161 oz/ft (15g/m)
12	>25 (7.5)	0.161 oz/ft (15g/m)
18	>25 (7.5)	0.161 oz/ft (15g/m)
24	>25 (7.5)	0.322 oz/ft (30g/m)
36	>25 (7.5)	0.322 oz/ft (30g/m)
48	>25 (7.5)	0.322 oz/ft (30g/m)

**Table 17. Additional Refrigerant Charge - Single-Zone Systems**

## Unit Start-Up

### IMPORTANT

Units should be energized 24 hours before unit start-up to prevent compressor damage as a result of slugging.

1. Inspect all factory- and field-installed wiring for loose connections.
2. Verify that the manifold gauge set is connected.
3. Add additional refrigerant charge if required before opening valves and while system is still under a vacuum.
4. Open the liquid and suction line service valves to release the refrigerant charge contained in outdoor unit into the system.
5. Replace the stem caps and tighten to the value listed in Table 1 on page 2.
6. Check voltage supply at the outdoor unit terminal strip. The voltage must be within the range listed on the unit's nameplate. If not, do not start the equipment until you have consulted with the power company and the voltage condition has been corrected.
7. Refer to the included user guide to operate the system using the provided remote control.
8. Visually check for binding of both indoor and outdoor fans.

## Test Run

### Pre-Checks

Only perform test run after you have completed the following steps:

- Electrical Safety Checks – Confirm that the unit's electrical system is safe and operating properly
- Refrigerant Leak Checks – Check all flare nut connections and confirm that the system is not leaking
- Confirm that suction and liquid valves are fully open.

### Procedure

You should perform the Test Run for at least 30 minutes.

1. Connect power to the unit.
2. Press the ON/OFF button on the remote controller to turn it on.
3. Press the mode button to scroll through the following functions, one at a time:
  - COOL - Select lowest possible temperature
  - HEAT - Select highest possible temperature
4. Let each function run for 5 minutes, and perform the following checks:

Checks	Pass	Fail
No electrical leakage		
Unit is properly grounded		
All electrical terminals properly covered		
Indoor and outdoor units are solidly installed		
All pipe connection points do not leak		
Water drains properly from drain hose		
All piping is properly insulated		
Unit performs COOL function properly		
Unit performs HEAT function properly		
Indoor unit louvers rotate properly		
Indoor unit responds to remote controller		

**Table 18. Test Run Checklist**

## Troubleshooting

Code	Description
E0	Indoor unit EEPROM error
E1	Communication error between indoor unit and outdoor unit
E3	Indoor fan speed error
E4	Indoor return air temperature sensor error
E5	Indoor coil temperature sensor error
EC	Low refrigerant
EE	High water level alarm
F0	Outdoor current overload sensed
F1	Outdoor ambient temperature sensor error
F2	Outdoor coil temperature sensor error
F3	Compressor discharge temperature sensor error
F4	Outdoor unit EEPROM error
F5	Outdoor unit fan speed error
P0	Inverter module IPM error
P1	High or low voltage protection
P3	Outdoor unit low temperature lockout
P4	Compressor drive error
--	Mode conflict
P6	Compressor high-pressure or low-pressure switch open

**Table 19. Troubleshooting Codes**

## Dry Mode Operation (Dehumidification)

### Procedure

1. Using the provided wireless or wired remote control, press the MODE button and select DRY mode.
2. Press the UP/ DOWN button to select the desired temperature. The temperature setting range is from 62°F (17°C) to 86°F (30°C) in one degree increments.

**NOTE:** *The blower is preset at a low speed and cannot be changed; therefore, it will get cold and most likely will overshoot the temperature setting by 6-10°F (3-5°C) depending on the room size or other various factors. Also the Follow Me mode does not operate in this mode.*

**NOTE:** *In addition, the indoor units do not have a humidistat installed; therefore, they are unable to determine humidity levels. This product is not recommended as a main source for dehumidification.*

### Sequence of Operation

When in dry mode operation the unit is actually in cooling mode with a low speed blower operation. Set remote temp to a lower room temp to begin the dry mode operation. The compressor will stop when the room temperature is 4°F (2°C) lower than the temperature setting.

However, there is a temperature compensation for cooling mode that is two degrees Celsius. So the unit will stop when the temperature is 8°F (4°C) lower than the room temperature settings.