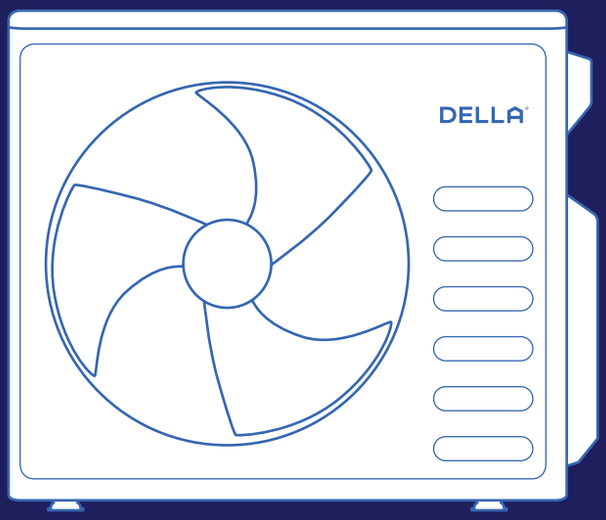
DELLA®



Multi-Zone Inverter

Instruction Manual
Installation Guide

Watch video
before Installation

Welcome to DELLA®

5 Things to know before installation

Thank You for trusting Della as your home comfort solution. We know no better how exicting it must be to have a new and functional AC to make your living space more comfortable. But AC installation, in reality, is far from being simple. Here are a few things you must know before installing the AC whether by yourself or by a professional HVAC technician. This will give you an idea of what to look out for installing an AC so that it can perform at its maximum efficiency and every dollar you invest in it pays off.

The installation location is critical

Not all places are created equal. Only proper placement of the AC will maximize efficency while balancing the interior aesthetic. As wall requires for the installation, you need to make sure to get the placement and location right the first time.

Page 22

Handle the refrigerant pipes perfectly

The refrigerant pipe is one of the most important, if not the most important, parts of the mini split AC system. So, be sure to understand what the entire process entails. You might need special-purpose tools to shorten and bend the pipe. Purchaseing lengthening pipes to match your connection might also be necessary. Any flow in the handling of the refrigerant pipes may cause a refrigerant leak or reduced efficiency. The cost to repair or re-install the refrigerant pipe can quickly frustrate and upset any DIYer, especially when trying to save money by not hiring a professional. Additional refrigerant might also be needed if you used lengthening pipes or find any leaks during your install. Further more, it's always a good idea to test for any refrigerant leaks after completing your installation by using soapy spray or professional detector tools. Please contact us if you need extra refrigerant.

Page 44

Bundle the line set correctly

The line set contains the refrigerant pipes, drain hose, and electrical wires. A good bundling prevent water condensation and protects it from extermal elements, as well as matching the exact distance of the installation. No one wants extra line set dangling around.

Page 28, 68

Vacuum pumping the refrigerant circuit

Mini-split AC absolutely needs vacuum pumping in order to perform efficently and prevent refrigerant from reacting with air moisture and damaing the internal parts of the machine. With a vacuum pump and a micron gauge, the process does not take very long, but it is important to do it right.

Page 60, 66

Safe electrical connection

A safe and properly electrical connection is crucial necessity for the installation. The voltage, power breaker protection, cable requirement and wiring must correspond to the specifications of each model. A poor connection can quickly becomes a fire hazard.

Page 20, 49, 50

QUICK TIPS

Most of the problems emerge from incorrect or poor installation. Installation performed by professional HVAC technician can greatly reduce the chance of having problems for years to come. On top of that, Della provide extended warranty for professional installation. If you need assistance or have questions, we are here for you.

support.dellahome.com

800-863-4143
6:00 a.m. - 4:00 p.m. PST
Monday - Friday

24/7 Live Chat

Table of Content

Before Installation

Installation

Warning and Safety

- Read this guide before installation. Failure to follow the safety instructions may result in property damage, serious injury, or death.
- Please Keep this manual.

DANGER

Danger:
Indicates an IMMINENTLY hazardous situation that, if not avoided, will result in death, serious injury, or serious property damage.

WARNING

Warning:
Indicates an POTENTIALLY hazardous situation that, if not avoided, will result in death, serious injury, or serious property damage.

CAUTION

Caution:
Indicates an POTENTIALLY hazardous situation that, if not avoided, will result in minor to moderate injury. It may also be used to indicate unsafe practice.

Attention:
Pay additional attention to the instruction.

DO NOT:
Indicates prohibited actions and / or practice.

About Refrigerant

DANGER

- The air conditioner is pre-charged with refrigerant. Handle the air conditioner with care and check if there is any refrigerant leakage during installation. Refrigerants have no odor and can be toxic and flammable. Rapid evaporation of refrigerant may cause frostbite, cardiac arrhythmia, and / or irritation, as well as cause environmental damage.
- In the case of refrigerant leakage, shut down the appliance and disconnect from the power supply. An inspection must be performed by a qualified technician.

Additional Information About R454B Refrigerant

WARNING

- In UL/CSA 60335-2-40, R454B refrigerant is classified as class A2L, which is mildly flammable. Therefore, R454B refrigerant is suitable for system needing additional refrigerant charge and which will limit the area of the rooms being served by the system. Similarly, the total amount of refrigerant in the system shall be less than or equal to the allowable maximum refrigerant charge. The allowable maximum refrigerant charge depends on the area of the rooms being served by the system.
- For R454B refrigerant, the maximum charge in a room shall be in accordance with the following:
  - $M_{max} = SF \times LFL \times h_0 \times A$
- or the minimum floor area A_{min} to install an appliance with refrigerange M_c (kg) shall be in accordance with:
  - $A_{min} = M_c / (SF \times LFL \times h_0)$
- M = Mass
- M_{max} = Maximum charge mass
- M_c = Mass charged
- A = Floor area
- LFL = Lower Flammable Limit, for R454B LFL is 0.296 kg / m^3

Warning and Safety

Additional Information About R454B Refrigerant

WARNING

- The minimum opening area for connected rooms. M_c = 1.73kg as an example.

A (m^2)	M_c (kg)	M_{max} (kg)	Anvmin (m^2)
4	1.73	1.48	0.0058
7	1.73	2.59	0.0000
10	1.73	3.70	0.0000
15	1.73	5.55	0.0000
20	1.73	7.4	0.0000
30	1.73	11.1	0.0000

- When the unit detects a refrigerant leak, the minimum airflow of the indoor unit is as follows:

Model	Minimum Airflow	
9K	65 CFM	110 m^3/h
12K	135 CFM	230 m^3/h
18K	224 CFM	380 m^3/h
23K	265 CFM	450 m^3/h

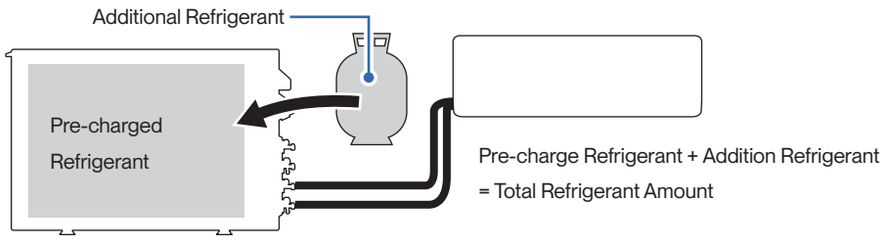
- Maximum Charge (kg)

Refrigerant	LFL (kg/m^3)	h_0 (m)	Floor Area (m^2)						
			4	7	10	15	20	30	50
R454B	0.296	1.8	1.07	1.86	2.66	3.81	4.39	5.38	6.95
		2.5	1.48	2.59	3.70	5.28	6.10	7.47	9.65
		2.8	3.06	4.04	4.83	5.92	6.83	8.37	10.81

- Minimum Room Area (m^2)

Refrigerant	LFL (kg/m^3)	h_0 (m)	Charge Amount (M)						
			0.71 kg	0.8 kg	1 kg	1.29 kg	1.56 kg	1.8 kg	2.0 kg
R454B	0.296	1.8	2.67	3.00	3.75	4.84	5.86	6.76	7.51
		2.5	1.92	2.16	2.70	3.49	4.22	4.86	5.41
		2.8	1.71	1.93	2.41	3.11	3.76	4.43	4.83

- The total refrigerant charge should be calculated by adding the precharge amount and additional amount.



Warning and Safety

Additional Information About R454B Refrigerant

- When Installing or using the appliance with R454B refrigerant, beware of the following symbols.

  - This symbol means this appliance uses a flammable refirgerant.
    If the refrigerant is leaded and exposed to an external ignition source, there is a rist of fire.

  - This symbol means that read the operation insturction carefully.

  - This symbol means that personnel handling the equipment should reference to the installation manual.

  - This symbol means information is available in the installation or operation instruction manual.

- Prior to any work on systems containing flammable refrigerants, always check the area to ensure that the risk of ignition is minimized. All possible ignition sources, such as cigarette, should be kept sifficiently far away from the site of installation, repairing, removing, and disposal during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment should be surveyed to make sure that there are no flammable hazards or ignition risk. "No smoking" sign shall be displayed.
- Installation or maintenance of refrigerant system shall be taken under a controlled procedure to minimize the risk of flammable gas or vapor being present while the work is being performed.
- All working personnal and others around the working area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off, and ensure that the conditions within the area have been made safe.
- The area shall be checked with an appropriate refrigerant detector prior to and during work to ensure the technician is aware of potentially flammable atmospheres.
- If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.
- Ensure that the area is in the open or it is adequately ventilated before breaking into the system or conducting any work that will product heat. A degree of ventilation shall continue during the period that the work is carried out.
- The folliwing checks shall be applied to installations using flammable refrigerants:
  - The refrigerant charge amount is in accordance with the room size within which the refrigerant containing parts are installed.
  - The ventilation machinery and outlet are operating adequately and are not obstructed.
  - If an indirect refrigerating curcuit is being used, the secondary circuit shall be check for the presence of refrigerant.
  - Refrigerant pipe or components are installed in a position where they are unlilely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitable protected against being corroded.
- Detection of flammable refrigerants:
  - Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch or any other detector using naked flame shall not be used.
  - Electronic leak detectors shall be used to detect flammable refrigerant. Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used.
  - Leak detection equipment shall be calibrated to the refrigerant employed and the appropriate percentage of gas (25% maximum) is confirmed.
  - Leak detection fluids are suitable for use with most refrigerants, but the use of detergents containing chlorine shall be avoided as chlorine may react with the refrigerant and corrode the pipe work.
  - If a leak is suspected, all open flame shall be removed or extinguished.
  - If a leakage of refrigerant found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.
  - Oxygen free nitogen shall be purged through the system both before and during the brazing process.

Warning and Safety

About Installation

- Do not install or store this appliance in a room with continuously operating ignition sources such as open flames, gas appliances, or electric heater.
- Do not install the appliance within 20” / 50cm of flammable substances such as alcohol, etc. Or pressurized containers such as spray cans.
- Do not alter, change, or modify the appliance.

- The room for the installation, use, repair, and / or storage of this air conditioner should be greater than 54 sq ft / 5m².
- Stop valve cover must be installed on the air conditioner to prevent possible refrigerant leak.
- Refrigerant leakage or damaged pipelines must be inspected and repaired by a qualified HVAC technician.
- The installation of refrigerant pipe work shall be kept to a minimum length.
- The appliance must be installed in accordance with applicable federal, state, and local regulations.

- Prevent children from accessing the work area during installation to prevent unforeseeable accident.
- The base of the outdoor unit must be firmly fixed.
- Carry out a test run after the installation.
- Installation of a mini split AC requires specialized training and equipment. Hire a licensed professional if not familiar with electrical wiring and HVAC system.
- The packaging materials are recyclable and should be disposed of in a separate waste bins.
- The appliance should not be installed in a location where the air outlet of the indoor or outdoor unit is obstructed. Obstruction of these opening may cause damage or malfunctions to the appliance.
- This instruction includes both imperial and metric measurement system. In the case of a measurement conflict, please use the metric system as the primary reference as the product is designed and produced using the metric system.

About Power and Electricity

- Ensure that the power voltage corresponds to that stamped on the rating plate.
- A fuse or overload protection device with a suitable capacity for indoor unit must be installed.
- The appliance must be fitted with means for disconnection from the main power supply under over-voltage category III conditions. All electrical wiring must follow federal, state, or local regulations.
- When working on the electric terminals, ensure the appliance is disconnected from the power supply.
- Make sure the appliance is properly grounded to prevent electric shock.

- Do not bend, tug, or compress the power cord during installation to prevent damaging the power cord. Damaged electrical cord should be replaced by a qualified electrician.
- Do not use power extensions and / or multi-socket modules for appliance installation.

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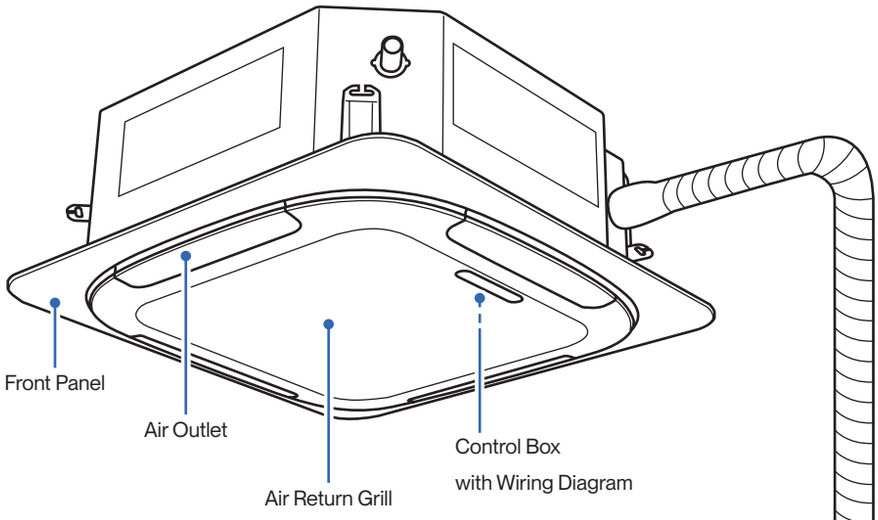
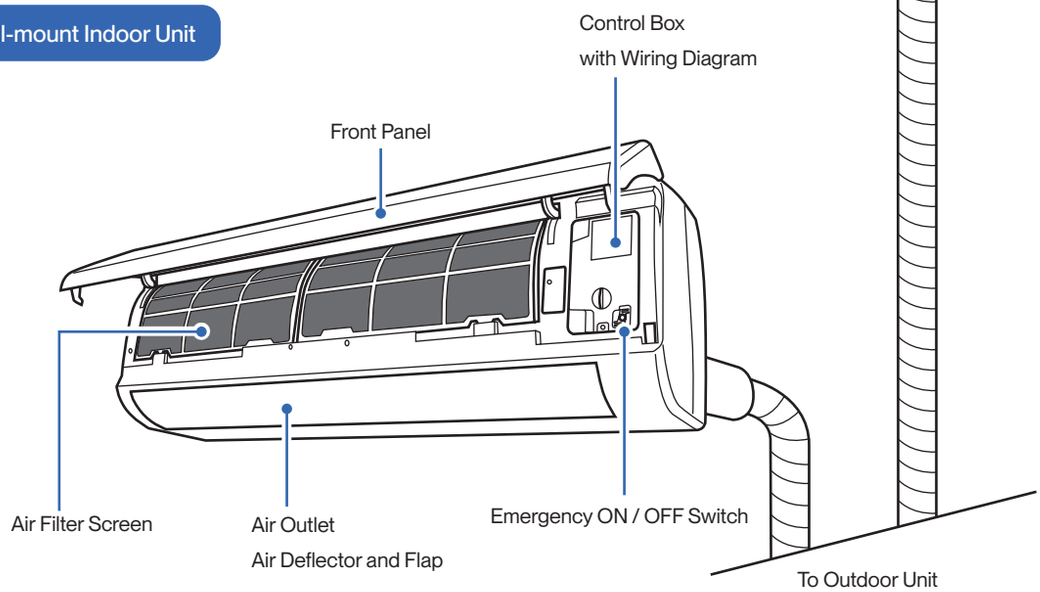
Name of Parts

Ceiling Cassette Indoor Unit

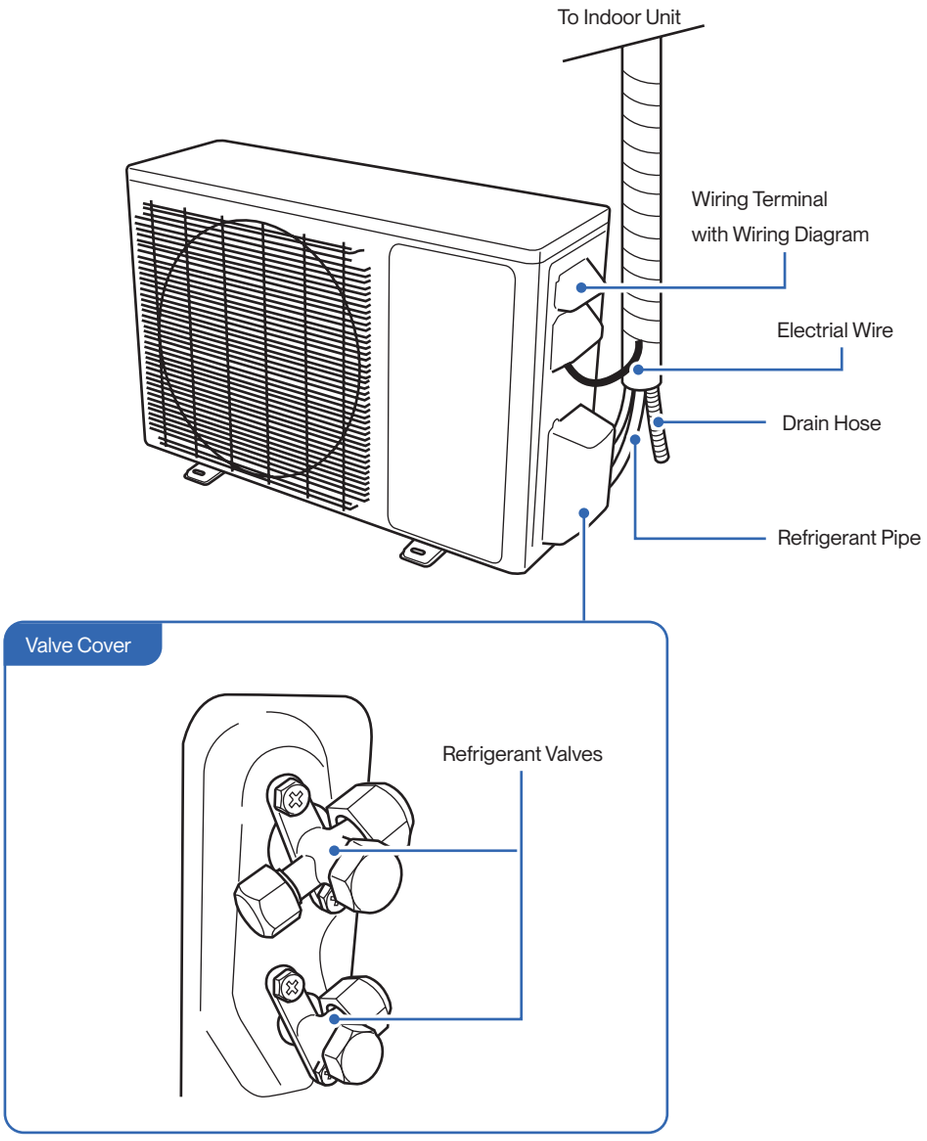


Wall-mount Indoor Unit



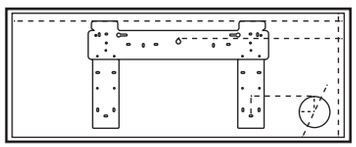
Name of Parts

Outdoor Unit



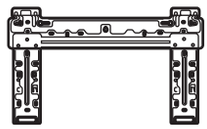
Name of Parts

Included Accessories (for each wall mount indoor unit)



Bracket Template

1x

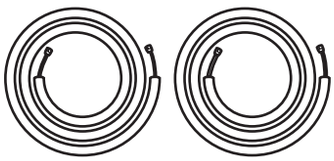


Mounting Plate

1x

Communication Cable

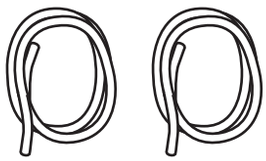
1x



Refrigerant Pipe

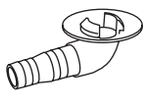
Narrow 1x

Thick 1x



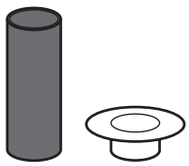
Drain Hose

2x



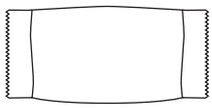
Drainage Joint

1x



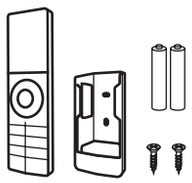
Wall Sleeve & Cover

1x



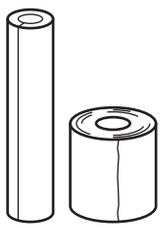
Plasticine Putty

1x



Remote Control, Holder 1x

Battery 2x



Insulation Foam & Wrap

1x

Rubber Foot Pad

4x

1/2" to 3/8" Lineset Converter [1]

5/8" to 3/8" Lineset Converter [2]

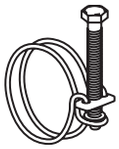
NOTE: [1] [2] Lineset converter is supplied with the outdoor unit for indoor unit models that uses a 1/2" or 5/8" refrigerant port.

Name of Parts

Included Accessories (for each ceiling cassette indoor unit)

Flexible Drain Hose

1x



Hose Clamp

1x

Phillips Pan Head Bolt

4x

Phippips Pan Head Screw

2x

Cable Clamp

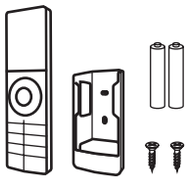
2x

Rubber Pad

4x

Zip Tie

4x

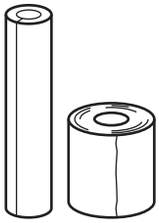


Remote Control, Holder 1x

Battery 2x

Installation Template

1x



Insulation Foam & Wrap

1x

1/2" to 3/8" Lineset Converter [1]

5/8" to 3/8" Lineset Converter [2]

NOTE: [1] [2] Lineset converter is supplied with the outdoor unit for indoor unit models that uses a 1/2" or 5/8" refrigerant port.

Name of Parts

Tools Needed for Wall Mounted Indoor Unit (Not included)

- Screw Driver
- Hole Saw Ø2.75" / Ø70mm
- Refrigerant Leak Detector / Liquid Leak Detector
- Allen Wrench
- Spanner
- Torque Wrench
- Measuring Tape
- Spirit Level
- Stud Finder
- Thermometer
- Vacuum Pump
- Dry Wall Anchors / Molly Bolts
- Wood Screws
- Floor Mounting Base Kit / Wall Mount Kit
- Power Supply Cable
- Micron Gauge / AC manifold Gauge
- Copper Pipe Bender / Spring Bender
- Caulk
- Tubing Cutter*
- Pipe Reamer*
- Tubing Flaring Tool*
- Wire cutter*

Tools Needed for Cassette Indoor Unit (Not included)

- Screw Driver
- Hole Saw
- Wall Saw / Power Saw
- Refrigerant Leak Detector / Liquid Leak Detector
- Allen Wrench
- Spanner
- Torque Wrench
- Measuring Tape
- Bullseye Spirit Level
- Power Drill
- Thermometer
- Vacuum Pump
- Drop-In Anchor
- M10 Threaded Rod
- M10 Washer
- Threaded Rod Wrench
- PVC Drain Pipes
- PVC pipe cutter
- Insulation Foam
- Floor MountFloor Mounting Base Kit / Wall Mount Kit
- Power Supply Cable
- Micron Gauge / AC manifold Gauge
- Copper Pipe Bender / Spring Bender
- HVAC sealant / Nylog
- Caulk
- Wall Sleeve and Cover
- Tubing Cutter*
- Pipe Reamer*
- Tubing Flaring Tool*
- Wire cutter*

NOTE: Tools marked with * are needed for shortening the refrigerant pipe and / or electrical wire to the exact desired length.
ONLY a qualified HVAC technician should attempt altering the pipe length and / or the wire length.

	048-TL-9K2VB-20S-IN	048-TL-12K2VB-21S-IN	048-TL-18K2VB-21S-IN	048-TL-24K2VB-21S
Power Supply	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)	9000	12000	18000	24000
Rated Heating Capacity (Btu / h)	10000	12000	19000	24600
Noise Level	29 - 43 dBA	28 - 45 dBA	32 - 49 dBA	36 - 52 dBA
Dimension	31.92" x 11.49" x 7.99" 811 mm x 292 mm x 203 mm	31.92" x 11.49" x 7.99" 811 mm x 292 mm x 203 mm	39.76" x 12.40" x 8.66" 1010 mm x 315 mm x 220 mm	46.93" x 14.17" x 10.23" 1192 mm x 360 mm x 260 mm
Net Weight	19.8 lb / 9 kg	19.8 lb / 9 kg	27.6 lb / 12.5 kg	36.4 lb / 16.5 kg
Suitable Area	Up to 400 sq. ft	Up to 550 sq. ft	Up to 1000 sq. ft	Up to 1500 sq. ft
Moisture Removal (per hour)	2.3 pints / 1.1 L	3.4 pints / 1.6 L	4.6 pints / 2.2 L	5.5 pints / 2.6 L

	048-TL-36K2VB-21S-IN
Power Supply	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)	36000
Rated Heating Capacity (Btu / h)	36000
Noise Level	36 - 52 dBA
Dimension	46.93" x 14.17" x 10.23" 1192 mm x 360 mm x 260 mm
Net Weight	39.7 lb / 18 kg
Suitable Area	Up to 2500 sq. ft
Moisture Removal (per hour)	6.3 pints / 3 L

Before Installation

DELLA®

Product Specification (Indoor Unit - TP Series)

	048-TP-9K2V-23S-IN	048-TP-12K2V-24S-IN	048-TP-18K2V-23S-IN	048-TP-23K2V-23S
Power Supply	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)	9000	12000	18000	23000
Rated Heating Capacity (Btu / h)	10000	12200	19600	25000
Noise Level	30 - 43 dBA	27 - 42 dBA	32 - 50 dBA	34 - 50 dBA
Dimension	32.28" x 12.05" x 7.68" 820 mm x 306 mm x 195 mm	31.92" x 11.49" x 8.07" 811 mm x 292 mm x 205 mm	39.76" x 12.40" x 8.66" 1010 mm x 315 mm x 220 mm	43.18" x 13.07" x 8.74" 1192 mm x 360 mm x 260 mm
Net Weight	20.7 lb / 9.4 kg	19.8 lb / 9 kg	28.7 lb / 13 kg	36.4 lb / 16.5 kg
Suitable Area	Up to 400 sq. ft	Up to 550 sq. ft	Up to 1000 sq. ft	Up to 1500 sq. ft
Moisture Removal (per hour)	2.3 pints / 1.1 L	3.4 pints / 1.6 L	4.6 pints / 2.2 L	5.5 pints / 2.6 L

Product Specification (Indoor Unit - Cassette)

		048-CC-9K2V-IN	048-CC-12K2V-IN	048-CC-18K2V-IN	048-CC-24K2V-IN
Power Supply		208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)		9000	12000	18000	24000
Rated Heating Capacity (Btu / h)		9000	12000	18000	24000
Noise Level	Indoor Unit	32 - 43 dBA	32 - 45 dBA	37 - 48 dBA	37 - 51 dBA
Dimension	Indoor Unit	22.44" x 22.44" x 9.65" 570 mm x 570 mm x 245 mm	22.44" x 22.44" x 9.65" 570 mm x 570 mm x 245 mm	22.44" x 22.44" x 9.65" 570 mm x 570 mm x 245 mm	33.07" x 33.07" x 9.65" 840 mm x 840 mm x 245 mm
	Indoor Panel	25.59" x 25.59" x 2.36" 650 mm x 650 mm x 60 mm	25.59" x 25.59" x 2.36" 650 mm x 650 mm x 60 mm	25.59" x 25.59" x 2.36" 650 mm x 650 mm x 60 mm	37.40" x 37.40" x 2.87" 950 mm x 950 mm x 73 mm
Net Weight	Indoor Unit	32 lb / 14.5 kg	32 lb / 14.5 kg	32 lb / 14.5 kg	51.8 lb / 23.5 kg
	Indoor Panel	6 lb / 2.7 kg	6 lb / 2.7 kg	6 lb / 2.7 kg	13.2 lb / 6 kg
Suitable Area		Up to 400 sq. ft	Up to 550 sq. ft	Up to 1000 sq. ft	Up to 1500 sq. ft
Air Flow		113 - 193 CFM	112 - 211 CFM	149 - 259 CFM	284 - 492 CFM
Moisture Removal (per hour)		2.3 pints / 1.1 L	3.4 pints / 1.6 L	4.7 pints / 2.2 L	5.5 pints / 2.6 L
Refrigerant		R454B	R454B	R454B	R454B
Condensate Drain Connection Diameter		OD ø 32 mm	OD ø 32 mm	OD ø 32 mm	OD ø 32 mm

Before Installation

Before Installation

DELLA®

Product Specification (Outdoor Unit)

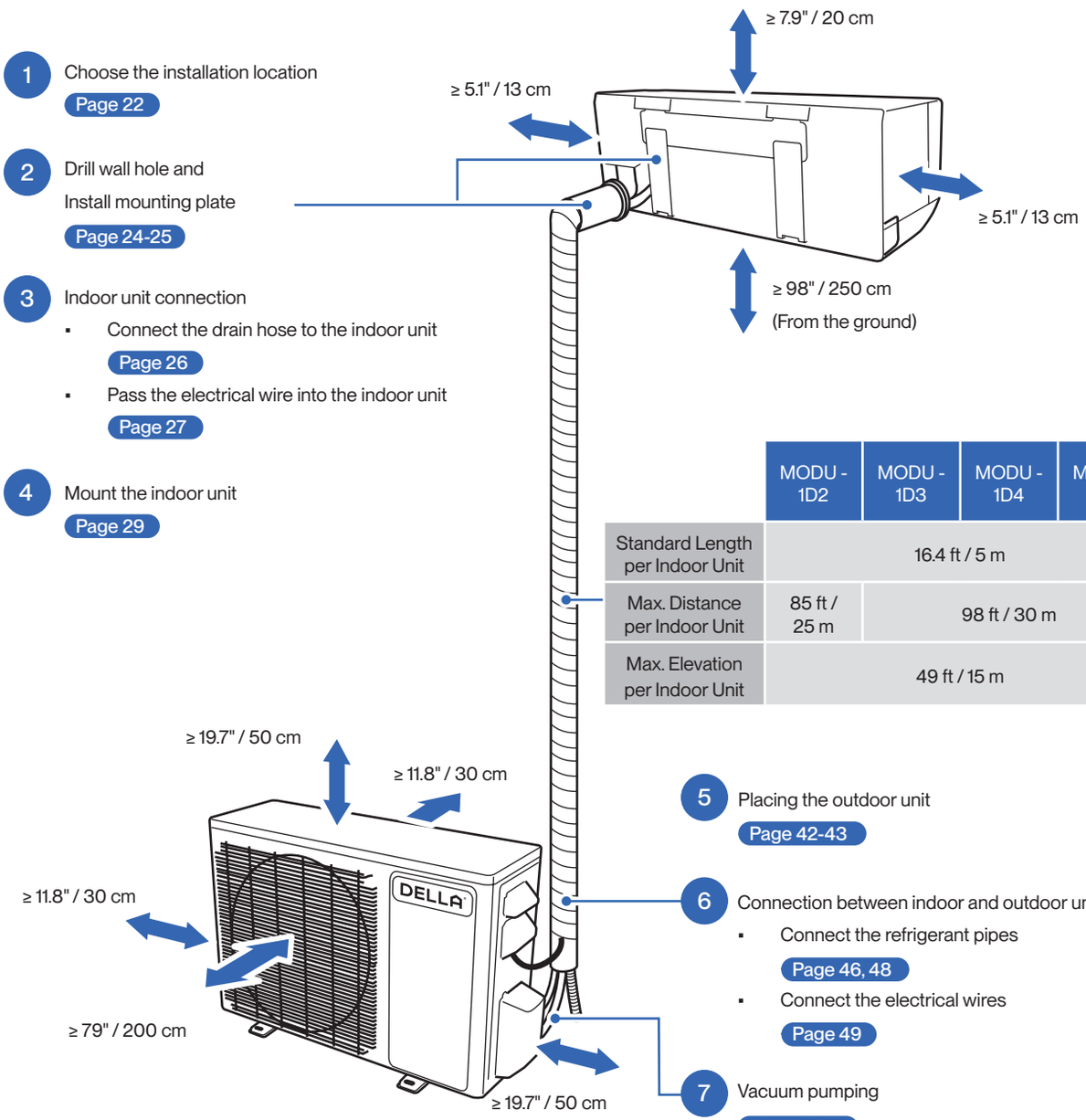
		048-TLP-MODU-1D2	048-TLP-MODU-1D3	048-TLP-MODU-1D4	048-TLP-MODU-1D5
Power Supply		208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Rated Cooling Capacity (Btu / h)		18000	27000	35000	42000
Rated Heating Capacity (Btu / h)		20000	28000	36000	42000
Cooling	Power Consumption	1370 W	2020 W	2930 W	3550 W
	Rated Current	6.1 A	9.1 A	13.1 A	15.9 A
Heating	Power Consumption	1410 W	1980 W	2680 W	3260 W
	Rated Current	6.3 A	8.9 A	12 A	14.6 A
Noise Level		58 dBA	62 dBA	65 dBA	65 dBA
Dimension		36.50" x 14.96" x 27.52" 927 mm x 380 mm x 699 mm	38.50" x 16.57" x 31.61" 927 mm x 421 mm x 803 mm	42.57" x 18.42" x 33.58" 1074 mm x 468 mm x 853 mm	42.57" x 18.42" x 33.58" 1074 mm x 468 mm x 853 mm
Net Weight		99.2 lb / 45 kg	127.9 lb / 58 kg	169.8 lb / 77 kg	198.4 lb / 90 kg
Refrigerant		R454B	R454B	R454B	R454B
Number of Indoor Unit Connection		2	3	4	5

	048-TLP-MODU-1D2	048-TLP-MODU-1D3	048-TLP-MODU-1D4	048-TLP-MODU-1D5
048-TL-9K2VB-20S-IN	O	O	O	O
048-TL-12K2VN-21S-IN	O	O	O	O
048-TL-18K2VB-21S-IN	X	O	O	O
048-TL-24K2VB-21S-IN	X	X	O	O
048-TL-36K2VB-29S-IN	X	X	X	O
048-TP-9K2V-24S-IN	O	O	O	O
048-TP-12K2V-24S-IN	O	O	O	O
048-TP-18K2V-23S-IN	X	O	O	O
048-TP-23K2V-23S-IN	X	X	O	O
048-CC-9K2V-IN	O	O	O	O
048-CC-12K2V-IN	O	O	O	O
048-CC-18K2V-IN	X	O	O	O
048-CC-24K2V-IN	X	X	O	O

NOTE: The total Btu for all connected indoor units must stay within 130% of the outdoor unit's Btu.
System performance decreases if all indoor units are on simultaneously and exceed outdoor unit's Btu capacity.

Before Installation

Installation Preview (Wall Mount Indoor Unit)



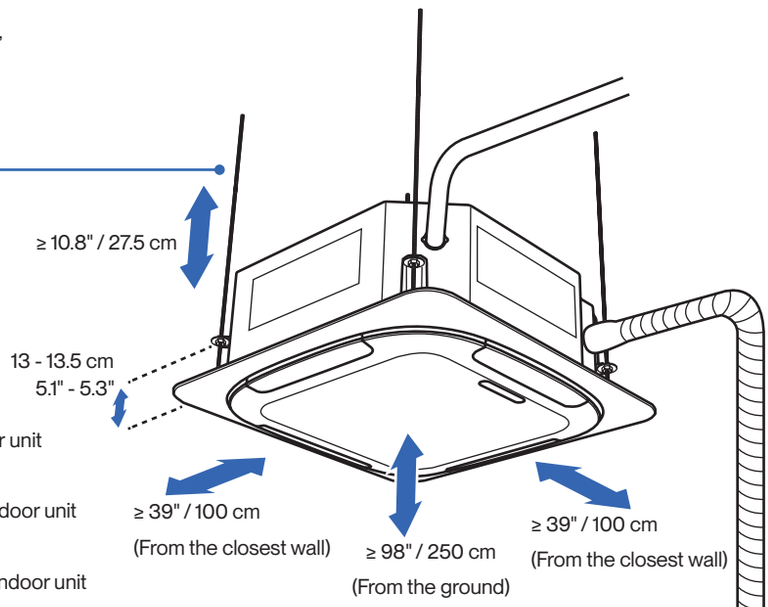
1. Choose the installation location
   Page 22
2. Drill wall hole and
   Install mounting plate
   Page 24-25
3. Indoor unit connection
   - Connect the drain hose to the indoor unit
     Page 26
   - Pass the electrical wire into the indoor unit
     Page 27
4. Mount the indoor unit
   Page 29

	MODU - 1D2	MODU - 1D3	MODU - 1D4	MODU - 1D5
Standard Length per Indoor Unit	16.4 ft / 5 m			
Max. Distance per Indoor Unit	85 ft / 25 m	98 ft / 30 m		
Max. Elevation per Indoor Unit	49 ft / 15 m			

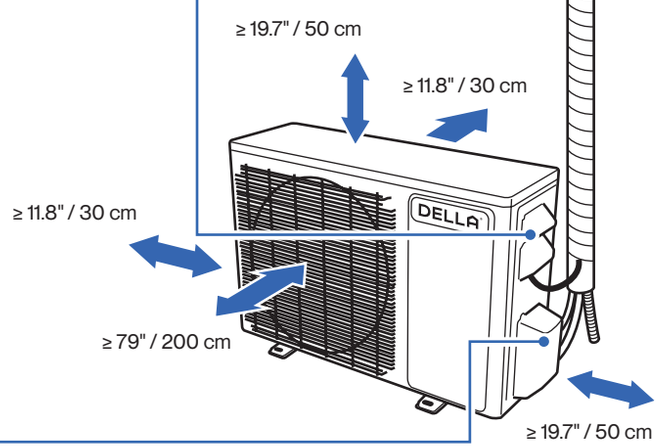
5. Placing the outdoor unit
   Page 42-43
6. Connection between indoor and outdoor unit
   - Connect the refrigerant pipes
     Page 46, 48
   - Connect the electrical wires
     Page 49
7. Vacuum pumping
   Page 62-67
8. Finishing
   Page 68
9. Check list
   Page 69
10. Test run
    Page 70

Installation Preview (Casstte Type Indoor Unit)

1. Choose the installation location
   Page 22
2. Ceiling hole, Refrigerant pipes, drain hose, and electrical wires preperation
   Page 30-31
3. Install hanging rods
   Page 32-33
4. Hanging the indoor unit
   Page 34
5. Indoor unit connection
   - Connect the drain hose to the indoor unit
     Page 35
   - Connect refrigerant pipes into the indoor unit
     Page 38
   - Connect the electrical wire into the indoor unit
     Page 39
6. Finsihing the indoor unit
   Page 40-41
7. Placing the outdoor unit
   Page 42-43
8. Outdoor unit connection
   - Connect the refrigerant pipes
     Page 47, 48
   - Connect the electrical wires
     Page 50
9. Vacuum pumping
   Page 62-67
10. Finishing the outdoor unit
    Page 68
11. Check list
    Page 69
12. Test run
    Page 70



	MODU - 1D2	MODU - 1D3	MODU - 1D4	MODU - 1D5
Standard Length per Indoor Unit	16.4 ft / 5 m			
Max. Distance per Indoor Unit	85 ft / 25 m	98 ft / 30 m		
Max. Elevation per Indoor Unit	49 ft / 15 m			



Power Supply and Breaker Size

		048-TLP-MODU-1D2	048-TLP-MODU-1D3	048-TLP-MODU-1D4	048-TLP-MODU-1D5
Power Supply		208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P	208 V - 230 V / 60 Hz / 1P
Cooling	Power Consumption	1370 W	2020 W	2930 W	3550 W
	Rated Current	6.1 A	9.1 A	13.1 A	15.9 A
Heating	Power Consumption	1410 W	1980 W	2680 W	3260 W
	Rated Current	6.3 A	8.9 A	12 A	14.6 A
Min. Circuit Ampacity		16 A	18 A	22 A	28 A
Min. Wire Size (American Wire Gauge)		12 AWG	12 AWG	10 AWG	10 AWG
Breaker Size		25 A	30 A	35 A	45 A

Refrigerant and Pipe Set Info

		048-TLP-MODU-1D2	048-TLP-MODU-1D3	048-TLP-MODU-1D4	048-TLP-MODU-1D5
Standard Length		16.4 ft / 5 m	16.4 ft / 5 m	16.4 ft / 5 m	16.4 ft / 5 m
Max. Distance Between Indoor and Outdoor Unit		85 ft / 25 m	98 ft / 30 m	98 ft / 30 m	98 ft / 30 m
Max. Elevation Between Indoor and Outdoor Unit		49 ft / 15 m	49 ft / 15 m	49 ft / 15 m	49 ft / 15 m
Type of Refrigerant		R454B	R454B	R454B	R454B
Factory Refrigerant Pre-charge for up to 25 ft pipe		60.01 oz / 1700 g	77.66 oz / 2200 g	98.84 oz / 2800 g	120.02 oz / 3400 g
Additional Refrigerant Charge		0.11 oz / ft (10 g / m)	0.11 oz / ft (10 g / m)	0.11 oz / ft (10 g / m)	0.11 oz / ft (10 g / m)
Liquid Line	Pipe Diameter	1/4"	1/4"	1/4"	1/4"
	Torque Parameter	18 - 20 N-M / 13.3 - 14.8 lbf-ft / 1.8 - 2.0 kgf-m	18 - 20 N-M / 13.3 - 14.8 lbf-ft / 1.8 - 2.0 kgf-m	18 - 20 N-M / 13.3 - 14.8 lbf-ft / 1.8 - 2.0 kgf-m	18 - 20 N-M / 13.3 - 14.8 lbf-ft / 1.8 - 2.0 kgf-m
Gas Line	Pipe Diameter	3/8"	3/8"	3/8"	3/8"
	Torque Parameter	30 - 35 N-M / 22.1 - 25.8 lbf-ft / 3.0 - 3.6 kgf-m	30 - 35 N-M / 22.1 - 25.8 lbf-ft / 3.0 - 3.6 kgf-m	30 - 35 N-M / 22.1 - 25.8 lbf-ft / 3.0 - 3.6 kgf-m	30 - 35 N-M / 22.1 - 25.8 lbf-ft / 3.0 - 3.6 kgf-m
3/8" to 1/2" Lineset Adapter[1]	For Pipe Diameter	N/A	1/2"	1/2"	1/2"
	Torque Parameter	N/A	45 - 50 N-M / 33.2 - 36.9 lbf-ft / 4.6 - 5.1 kgf-m	45 - 50 N-M / 33.2 - 36.9 lbf-ft / 4.6 - 5.1 kgf-m	45 - 50 N-M / 33.2 - 36.9 lbf-ft / 4.6 - 5.1 kgf-m
3/8" to 5/8" Lineset Adapter[2]	For Pipe Diameter	N/A	N/A	5/8"	5/8"
	Torque Parameter	N/A	N/A	60 - 65 N-M / 44.3 - 48.0 lbf-ft / 6.6 - 6.6 kgf-m	60 - 65 N-M / 44.3 - 48.0 lbf-ft / 6.6 - 6.6 kgf-m

NOTE: [1] [2] 3/8" to 1/2" Lineset converter and 3/8" to 5/8" Lineset converter should only be used with indoor unit that equiped with 1/2" or 5/8" gas line.

Installation Info

Picking a Installation Location for the Indoor Unit (Wall Type)

- Ensure the installation complies with the minimum clearance space surrounding the unit and is within the maximum piping length and maximum elevation defined in the installation information.

  Page 21
- Make sure the wall is strong enough to hold the weight of the indoor unit and prevent it from vibration.
- Make sure the air inlet and outlet are clear of any obstruction.
- Make sure condensation can be easily drained.
- A place where all connections can be easily made to the outdoor unit.
- A place where the indoor unit is out of children's reach.
- A place where the indoor unit is accessible for maintenance.
- Install the indoor unit 10 ft / 3 m away from TV or radio appliances.

  NOTE: Radio interference may occur if appliances are placed too close to each other.
- Do not install in a laundry room or by a swimming pool.
- There should not be any heat source near the indoor unit.
- Do not install the indoor unit near the door way.

  ⓘ To prevent the indoor unit from falling down and blocking exit way in case of an emergency such as fire or earthquake etc.

Picking a Installation Location for the Indoor Unit (Cassette Type)

- Ensure the installation complies with the minimum clearance space surrounding the unit and is within the maximum piping length and maximum elevation defined in the installation information.

  Page 21
- Make sure the ceiling and it's structure is strong enough to hold the weight of the unit and prevent it from vibration.
- Make sure the air return grill and outlet are clear of any obstruction.
- The unit should be installed to a place where it is accessible for maintenance.
- Do not install the unit in a kitchen where aerosolized grease, odor, and/or smoke may be present.
- Do not installi the unit in a laundry room or by a swimming pool.
- There should not be any heat source near the indoor unit.
- Avoid installing the unit near windows or doors.

Picking a Installation Location for the Outdoor Unit

- Do not install the outdoor unit near a heat source, steam, or flammable gas.
- Do not install the outdoor unit in windy or dusty locations.
- Do not install the outdoor unit in places where people often pass.
- Avoid installing the outdoor unit in places where it will be exposed to direct sunlight.

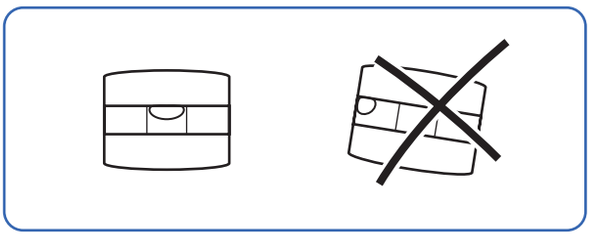
  NOTE: If necessary, build a protection that does not interfere with the airflow.
- Make sure there is enough space around the outdoor unit to circulate air.

  Page 18, 19
- Outdoor unit must be placed in a safe and solid location.
- The outdoor unit should ideally be placed on a elevated concrete pad.
- If installing in snowy region, it is recommended the outdoor unit to be installed above the seasonal snow level.

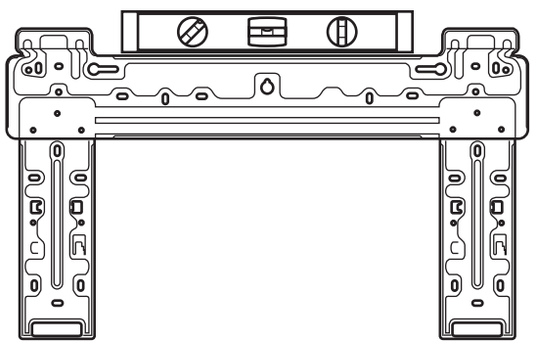
Indoor Unit Installation (Wall Mount Indoor Unit)

Install the Mounting Bracket

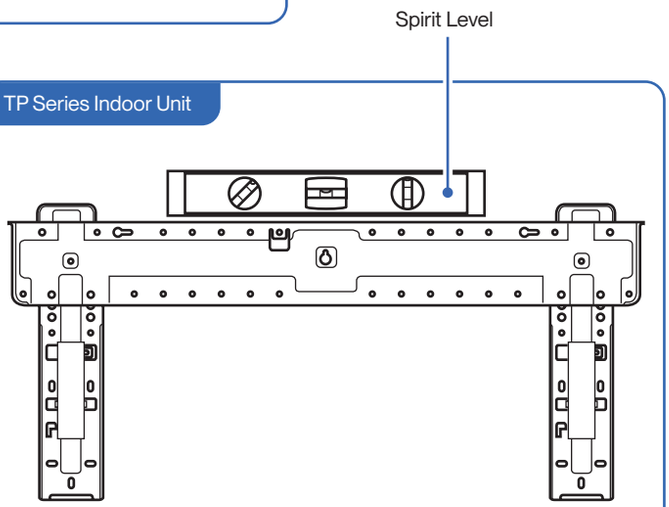
1. Locate the studs and electrical wires inside the wall. Then use the template included with the indoor unit or the etched marking on the mounting plate to determine the exact mounting location.
2. Use a spirit level to level the mounting plate on the wall. Then mark out the screw hole positions.
3. Insert wall anchors into the holes and affix the mounting plate to the wall using screws.
   Use a wood screw if the hole position is directly on a wood stud.



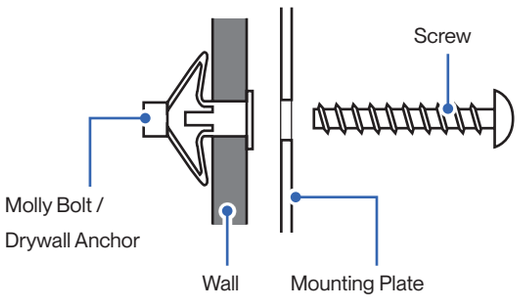
TL Series Indoor Unit



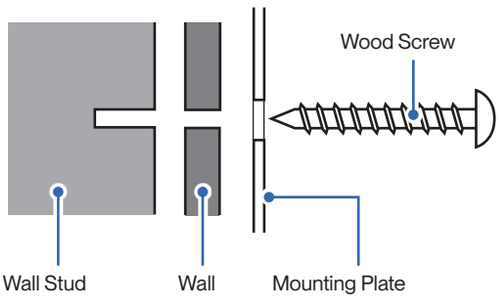
TP Series Indoor Unit



Hollow Drywall



Wood Stud



CAUTION

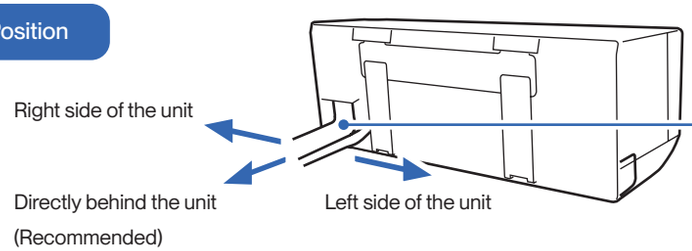
- You must use the correct wall anchor according to the type of the wall.

Indoor Unit Installation (Wall Mount Indoor Unit)

Drill Wall Hole and Insert Wall Sleeve

1. Pick 1 of the 3 piping positions on your indoor unit.

Piping Position



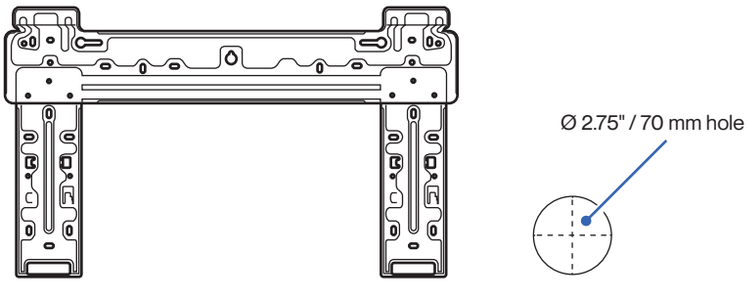
QUICK TIPS

Gently bend the pipe on the protected area

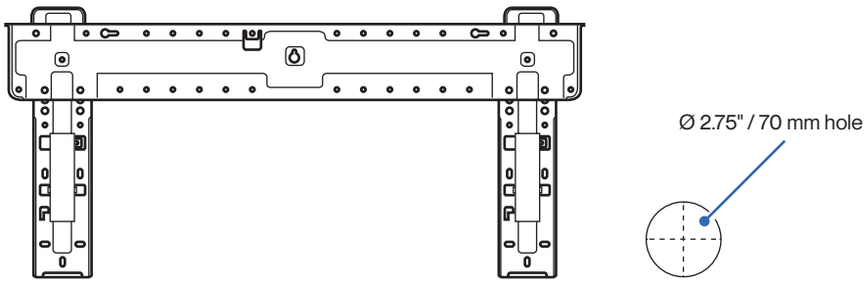
2. Mark the position on the wall.

Example of Wall Hole Position with Piping Directly Behind the Indoor Unit

TL Series Indoor Unit



TP Series Indoor Unit



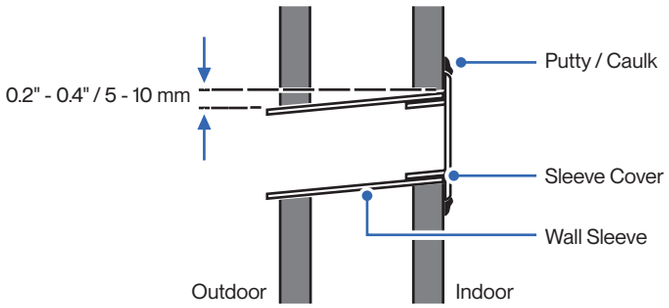
WARNING

- Make sure there is no building structure pillar, stud, electrical wire, or any water pipes in the way of the drill hole. Drilling into electrical wires or water pipes inside the wall may cause electric shock, fire, or water damage.

Indoor Unit Installation (Wall Mount Indoor Unit)

Drill Wall Hole and Insert Wall Sleeve

3. Drill a 2.75" / 70 mm hole from the indoor wall to the outdoor wall. The hole must be slanted downward with a small angle.
4. Insert the wall sleeve and sleeve cover into the wall. Then seal off gaps with putty or caulk.

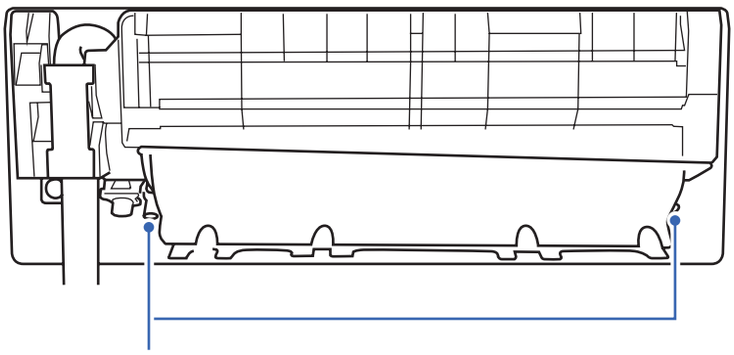


- Always insert the sleeve into the wall hole and seal the surrounding with putty / caulk.
  This will prevent water, insects, or small animals from getting into the house.

Indoor Unit Installation (Wall Mount Indoor Unit)

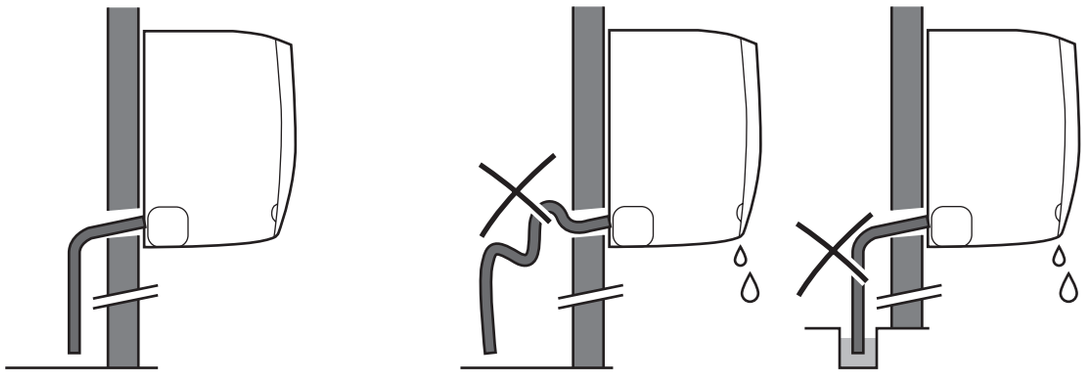
Connect the Indoor Unit Drain Hose

1. Connect the drainage hose to the indoor unit drainage port.
   NOTE: In some models, drainage ports are available on both sides of the indoor unit. You can choose one side to attach the drain hose and insert a rubber plug on the unused port. Always pick the side closer to the wall hole.
2. Make sure the joint is firmly connected and has a good seal.
3. Wrap the joint with Teflon tape to prevent any possible leak.



Drainage Ports

Drain Hose Installation



- Drain hose must be slanted downward and leave a small gap between the ground and the hose.

- Avoid having bends or dents on the drain hose.
- Do not leave the end of the hose into drainage gutter.

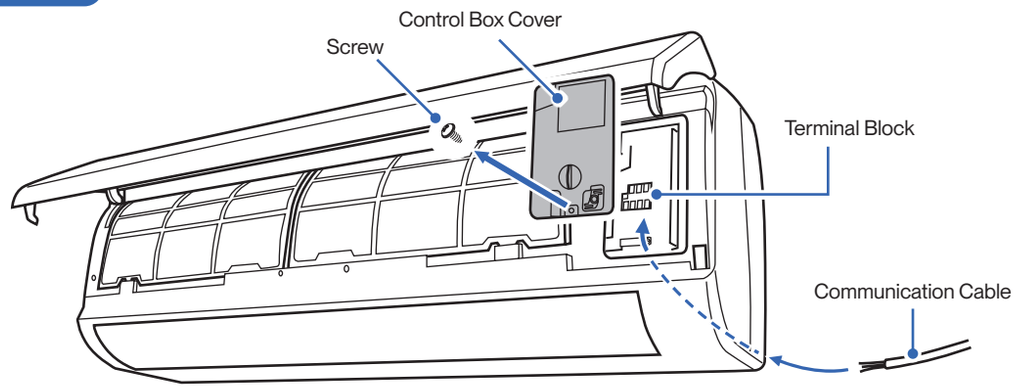
Indoor Unit Installation (Wall Mount Indoor Unit)

Pass Electric Cable Through the Indoor Unit

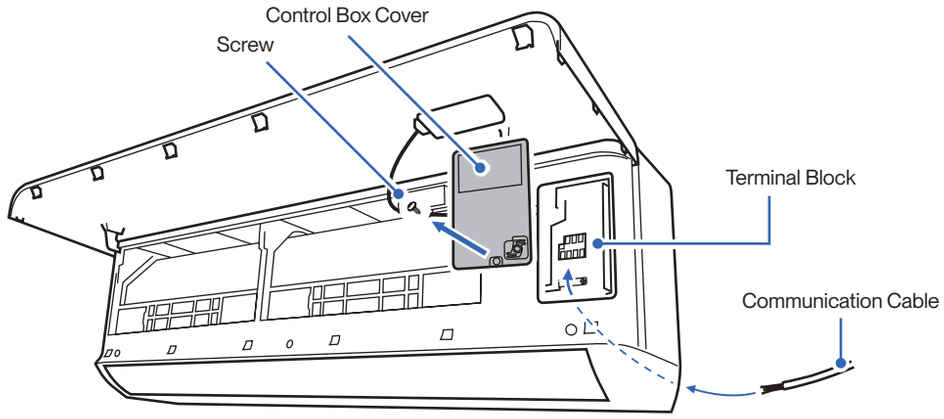
1. Open the front panel of the indoor unit.
2. Remove the control box cover from the control box.
3. Pass the communication cable from the back of the indoor unit to the control box.
4. Leave enough length of the electric wire in the control box for connection in a later step.

Page 49

TL Series Indoor Unit



TP Series Indoor Unit

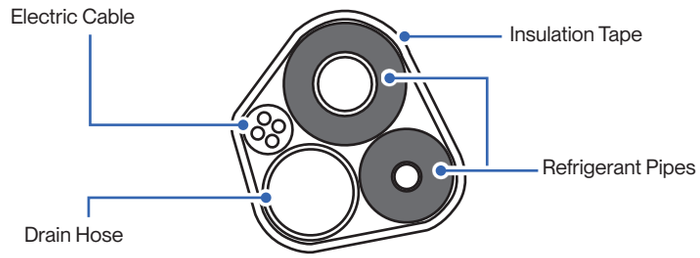


Indoor Unit Installation (Wall Mount Indoor Unit)

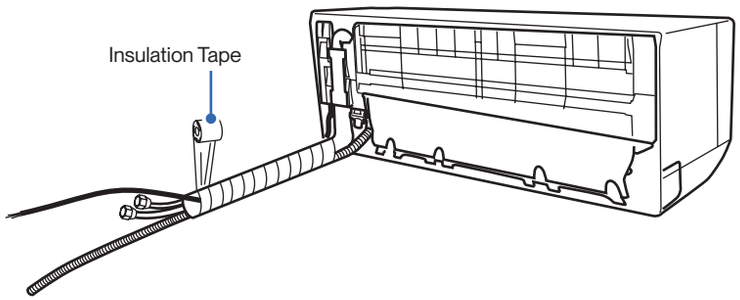
Bundle the Indoor Unit Refrigerant Pipes, Hose, and Cable

Refrigerant Pipes, drain hose, and electric cable must be properly arranged and bundled with insulation tape before passing them through the wall hole.

1. Arrange the refrigerant pipes, drain hose, and electric cable according to the image below.
2. Wrap the bundle with insulation pipe.



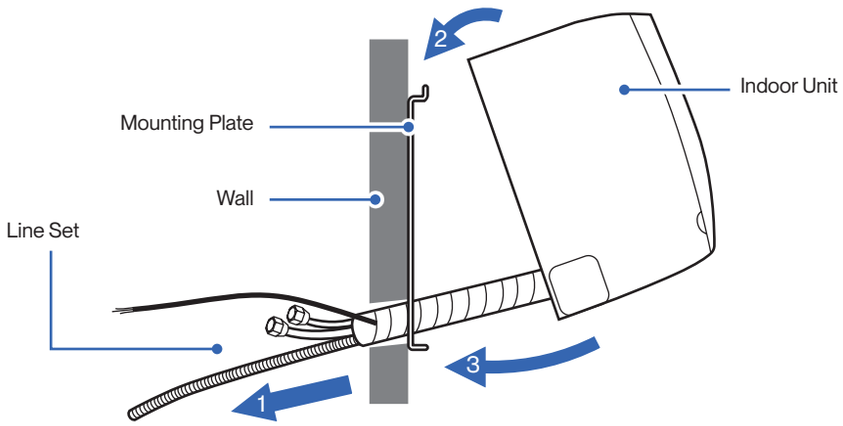
- Drain hose must positioned at the bottom to prevent water leakage.



Indoor Unit Installation (Wall Mount Indoor Unit)

Pass Line Set Through Wall Hole and Mount Indoor Unit

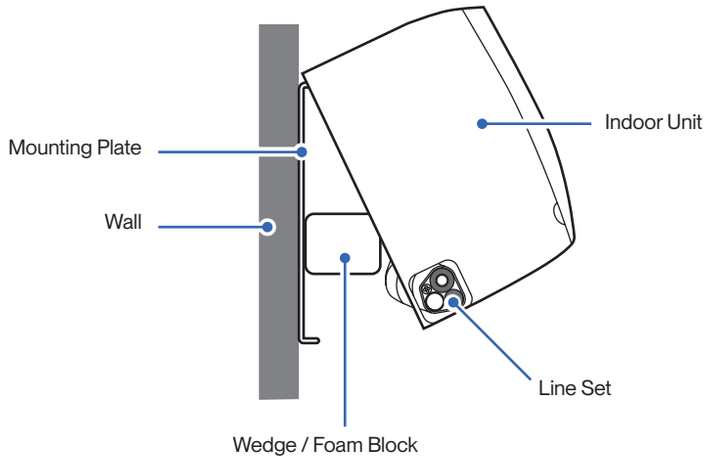
1. Carefully pass the line set bundle through the wall hole.
2. Hook the top of the indoor unit on the mounting plate.
   Push the unit lightly left and right to make sure it is firmly hooked on the mounting plate.
3. Push down the bottom of the indoor unit and snap into the mounting plate.



Pass Line Set Through Wall Hole and Mount Indoor Unit (Left Piping Direction)

If you choose to have the piping direction on the left side of the indoor unit,

1. Carefully pass the drain hose and electric cable through the wall hole.
2. Hook the top of the indoor unit on the mounting plate.
   Push the unit lightly left and right to make sure it is firmly hooked on the mounting plate.
3. Place a wedge or foam block or something slightly soft between the mounting plate and the indoor unit for a easier installation process in later steps.



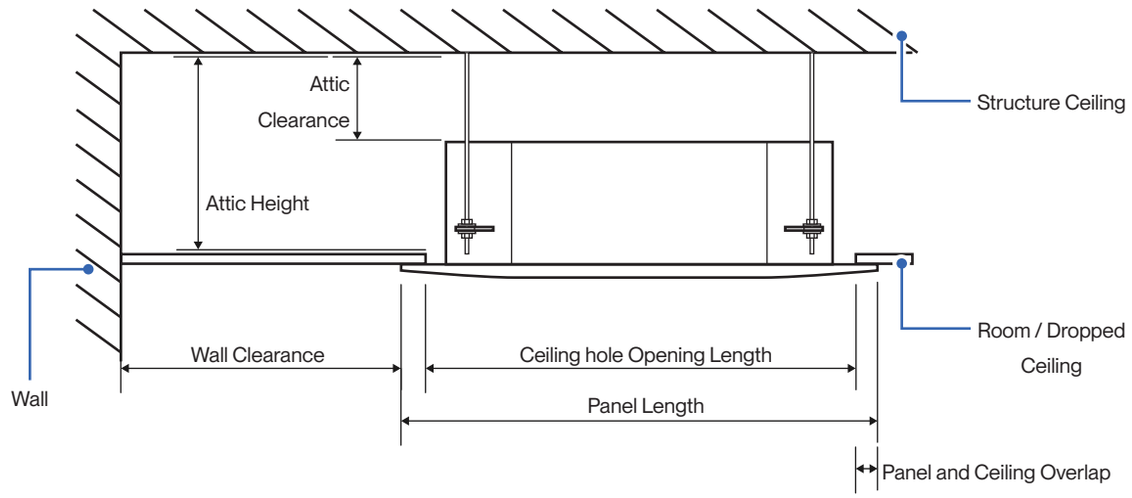
CAUTION

- The indoor unit is not secured in place at this step for left side piping direction installation.
  Handle the unit and line set with caution. It is recommended to have a person looking after the unit and make sure it does not fall during the later installation process.

Indoor Unit Installation

Open Ceiling Hole for Installation

1. Before installation work, make sure the structure ceiling is strong enough to hold the weight of the indoor unit.
2. Plan out the installation location in accordance to the clearance measurement table below.
3. Cut open the ceiling for the installation. Make sure the opening size is smaller than the cassette unit panel.

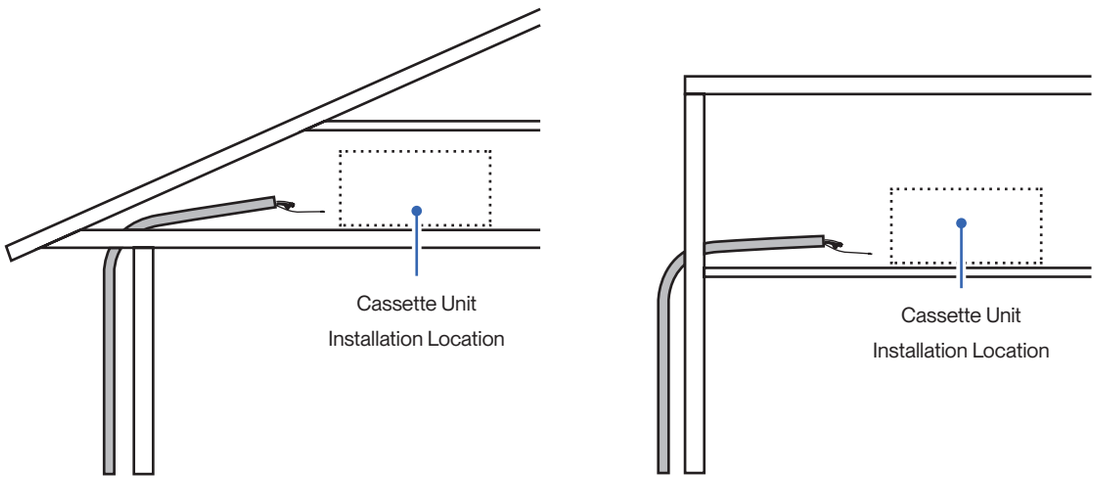


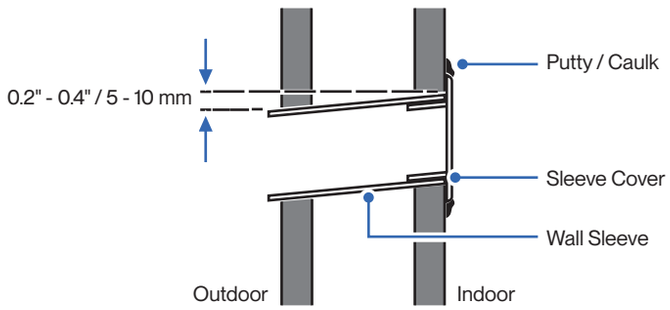
	048-CC-9K2V-IN	048-CC-12K2V-IN	048-CC-18K2V-IN	048-CC-24K2V-IN
Attic Clearance	> 2" / 50mm	> 2" / 50mm	> 2" / 50mm	> 2" / 50mm
Attic Height	> 10.8" / 275mm	> 10.8" / 275mm	> 10.8" / 275mm	> 10.8" / 275mm
Wall Clearance	> 39" / 1000mm	> 39" / 1000mm	> 39" / 1000mm	> 39" / 1000mm
Panel Length	25.59"x 25.59"	25.59"x 25.59"	25.59"x 25.59"	37.40"x 37.40"
	650mm x 650mm	650mm x 650mm	650mm x 650mm	950mm x 950mm
Panel and Ceiling Overlap	~ 1" / 25mm	~ 1" / 25mm	~ 1" / 25mm	~ 1" / 25mm

Indoor Unit Installation (Cassette Type Indoor Unit)

Prepare Refrigerant Lineset, Drain Pipe, and Electrical Cable

1. Route the refrigerant lineset, drain pipe, and electrical cable from the cassette unit installation location to the outdoor unit installation location.
   Detail information on handling refrigerant line set on Page 38 .
   Detail information on drain pipe on Page 35-37 .
2. Make sure the drain pipe is slanted downward to prevent condensation and water from backflowing into the cassette unit.
3. Depending on the building, you can route the lineset toward the outside through an opening on the wall or the soffit.





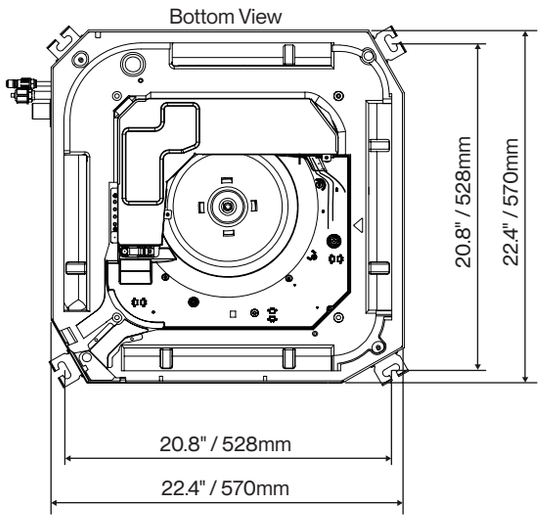
- Always insert the sleeve into the wall hole and seal the surrounding with putty / caulk.
  This will prevent water, insects, or small animals from getting into the house.

Indoor Unit Installation (Cassette Type Indoor Unit)

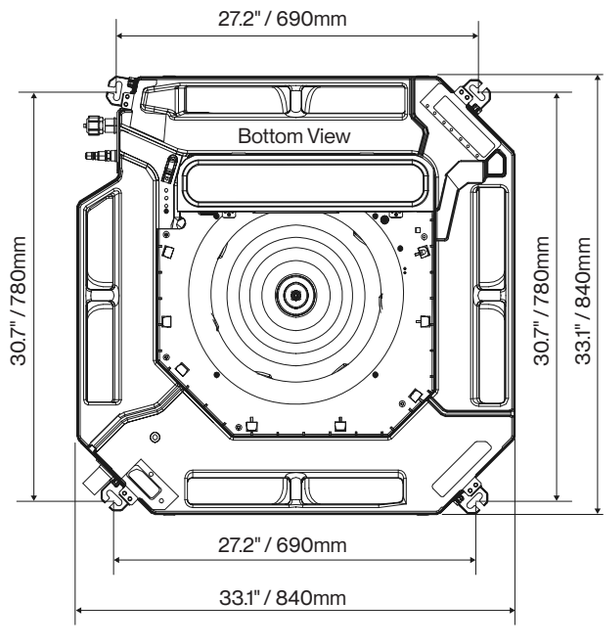
Attaching Threaded Rods for Hanging

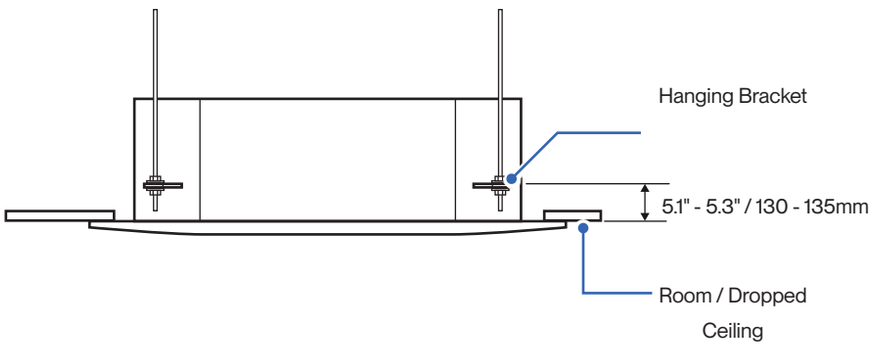
1. Reference the graphics below and mark the threaded rods attaching locations.
   Make sure the cassette refrigerant ports and drain port is facing the pre-routed refrigerant lineset and drain pipe.
2. Drill pilot holes on the marks.
3. Choose and attach the suitable anchor for your structure ceiling.
4. Cut M10 threaded rods into correct length and attach them into the anchors.

048-CC-9K2V-IN
048-CC-12K2V-IN
048-CC-18K2V-IN



048-CC-24K2V-IN

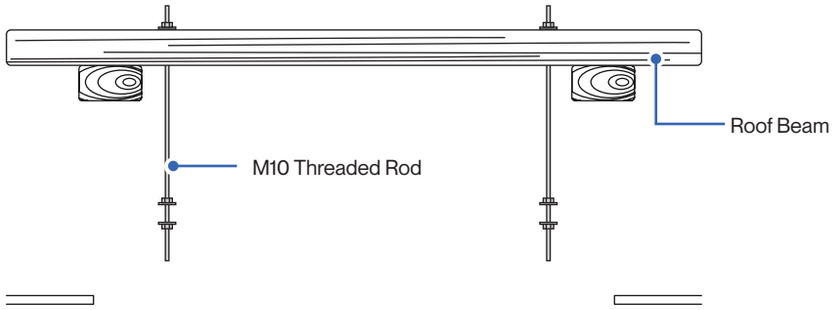




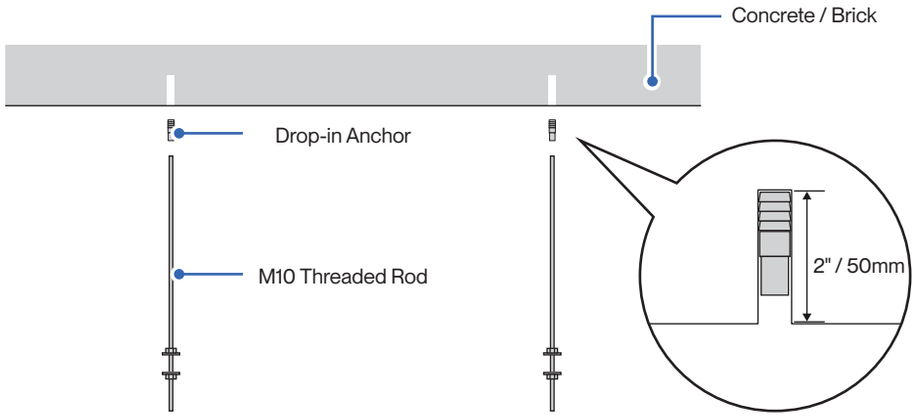
Indoor Unit Installation (Cassette Type Indoor Unit)

Attaching Threaded Rods for Hanging

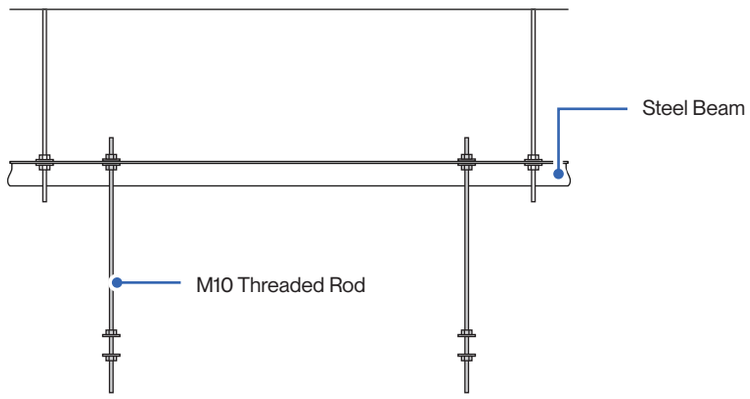
On Wood Beam



On Concrete / Brick



On Steel Beam



- It is recommended to use threaded rod wrench to tighten the threaded rod into the drop in anchor and make sure it can support the weight of the cassette unit and withstand operating vibration.

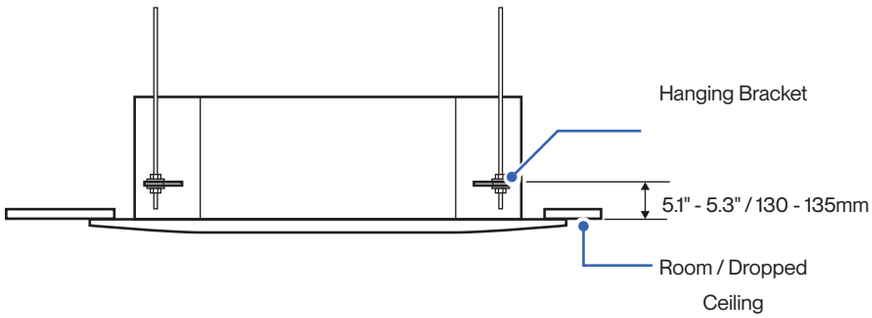
DELLA®

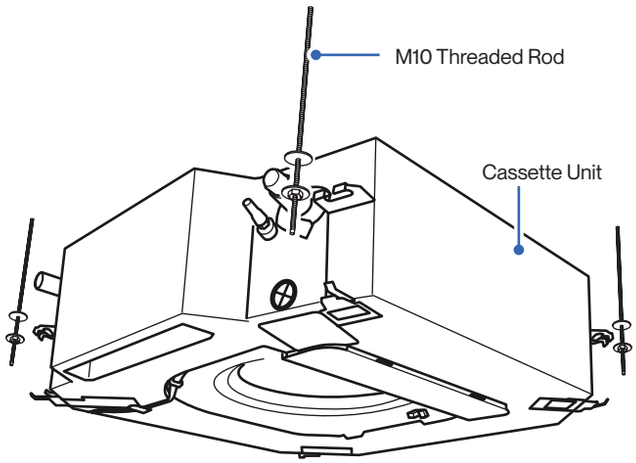
Indoor Unit Installation

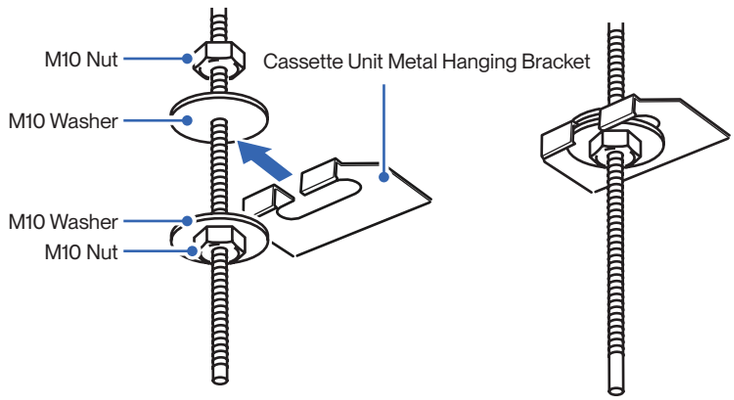
Hanging the Cassette Unit

1. Attach M10 nuts and M10 washers to the threaded rod at the hanging height.
2. Align the cassette unit into the ceiling opening and hang the hanging brackets to the M10 washers.
3. Level the unit all around with a bullseye spirit level and tighten the M10 nuts to secure the unit in place.

- Lift the cassette unit to the ceiling with 2 people, or with the help of a power lifter. Carring the cassette unit alone without assisstant would result in injury.
- A bull's eye level is recommended to be used to level the cassette unit. The cassette unit is equipped with a built-in drain pump and float switch. Failing to level the unit may cause float switch to malfunction and cause water leakage.







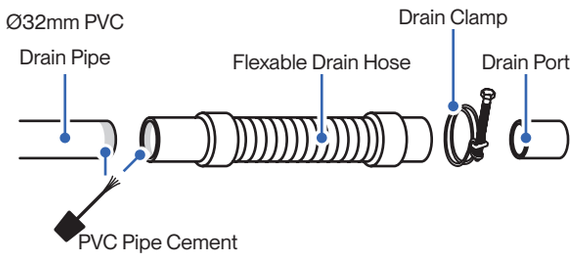
Indoor Unit Installation

Connecting the Drain Pipe to the Cassette Unit

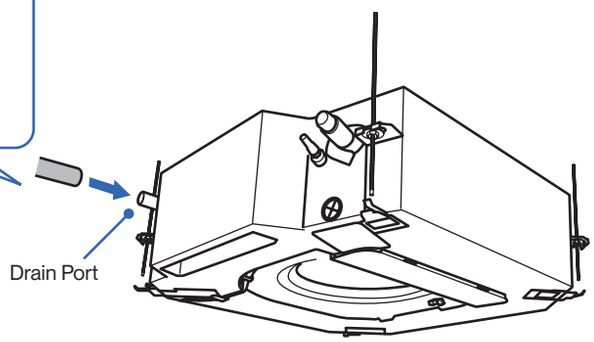
1. Attach drain pipe to the cassette unit.
2. Make sure the connection is tightly secured.
3. Wrap the connection and the drain pipe with insulating foam.

- The drain pipe connection must be wrapped with insualting foam to prevent condensation from building up on the pipe's surface, which may result in water dripping in the ceiling.
- The following should be used for drain pipe installation:

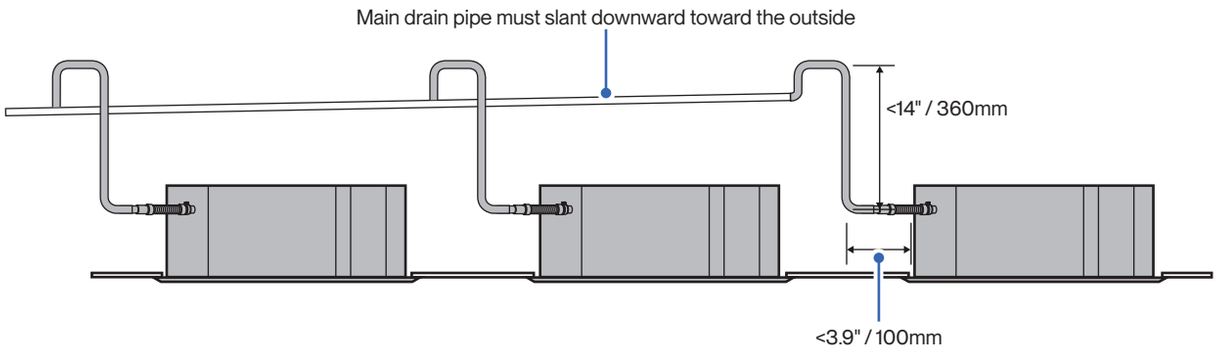
Drainage Pipe Material	Ø32mm Polyvinyl Chloride (PVC) pipe
Heat Insulation Material	10mm think Foamed Polyethylene Insulation Plate



- For the ease of future maintenance and servicing, use a drain clamp to secure the drain hose to the drain port.



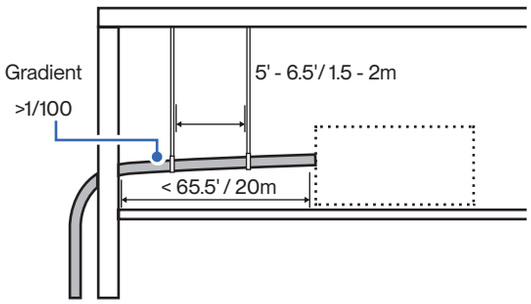
Upward Drainage



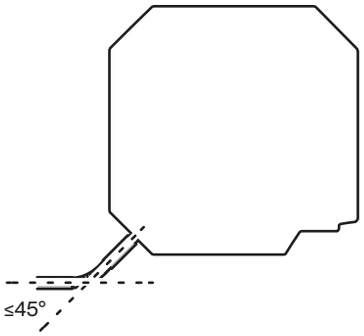
- Cassette unit has a drain pump that support upward drainage.
- Make sure the drain pipe lead upward no higher than 14" / 360mm and back downward to the main drain pipe.

Indoor Unit Installation

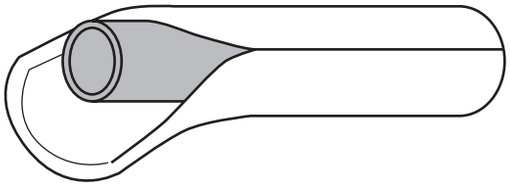
Connecting the Drain Pipe to the Cassette Unit



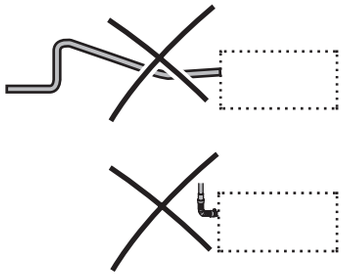
- The total pipe length traveling outside should be kept within 65.5' / 20m.
- When using a long drain pipe, hang the pipe in place every 5' - 6.5' / 1.5 - 2m.
- Dran pipe should slope down at a gradient over 1/100.



- The flexable hose should be kept within 45° from the drain port.



- Wrap the drain hose, drain pipe, and all connections with insulation foam. (10mm think foamed polyethylene insualtion plate)



- Do not slant the drain pipe upward.
- Do not bend the flexable pipe upward.
- Upward drainage installation should be straightly followed on Page 35.

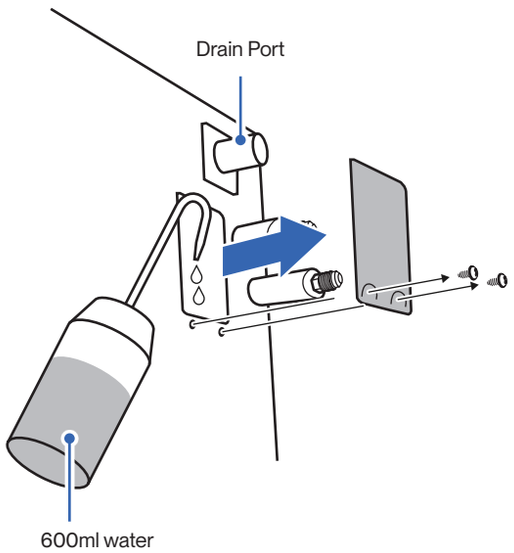
Indoor Unit Installation

Drainage Test

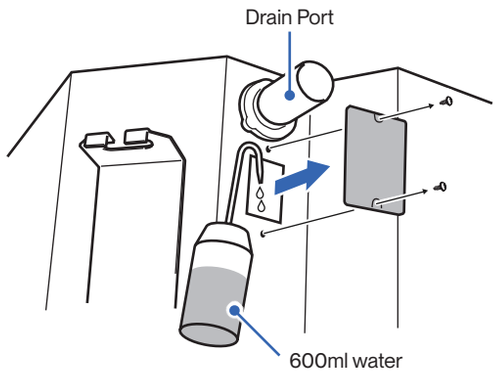
- Drain pipe should be tested after the installation and make sure there is no leak.
- Remove the cover from the cassette unit.
- Slowly stow 600ml of water into the drain channel inside the unit. Avoid touching the drain pump motor.
- Disconnect the water level switch and power 220V AC to the terminal board, and the drain pump will start up by itself.
- After running the drain pump for 2 minutes, reset the water level pin. the drain pump motor will stop after 22 minutes.

- Any leakage along the drain line must be addressed before using the AC.

9K - 18K



24K



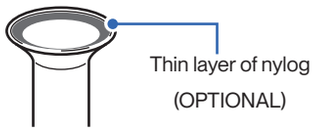
Indoor Unit Installation (Cassette Type Indoor Unit)

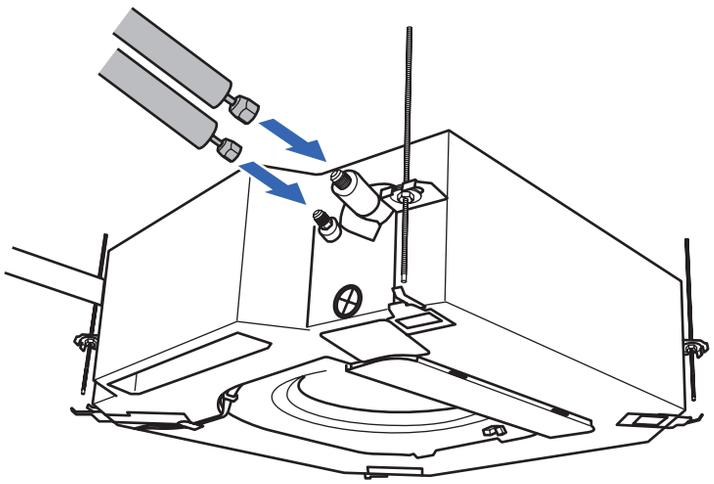
Connecting the Refrigerant Pipe to the Cassette Unit

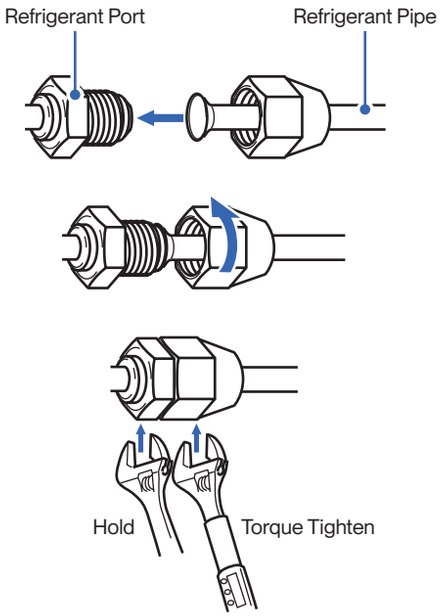
1. Remove the protective caps on the cassette unit's refrigerant ports.
2. Align refrigerant pipes straight to the refrigerant ports, and hand tighten the flaring nuts.
3. Tighten the flaring nuts with torque wrench to the spec.
4. Wrap and cover the connection with insulating foam and tape.

QUICK TIPS

- A thin layer of nylog can be applied to the inside of the flare to provide better seal. (OPTIONAL)
- Make sure no nylog is on the outside of the flare.







Pipe Diameter	1/4"	3/8”	1/2”	5/8”
Torque Parameter	18 - 20 N-M 13.3 - 14.8 lbf-ft 1.8 - 2.0 kgf-m	30 - 35 N-M 22.1 - 25.8 lbf-ft 3.0 - 3.6 kgf-m	45 - 50 N-M 33.2 - 36.9 lbf-ft 4.6 - 5.1 kgf-m	60 - 65 N-M 44.3 - 48.0 lbf-ft 6.1 - 6.6 kgf-m

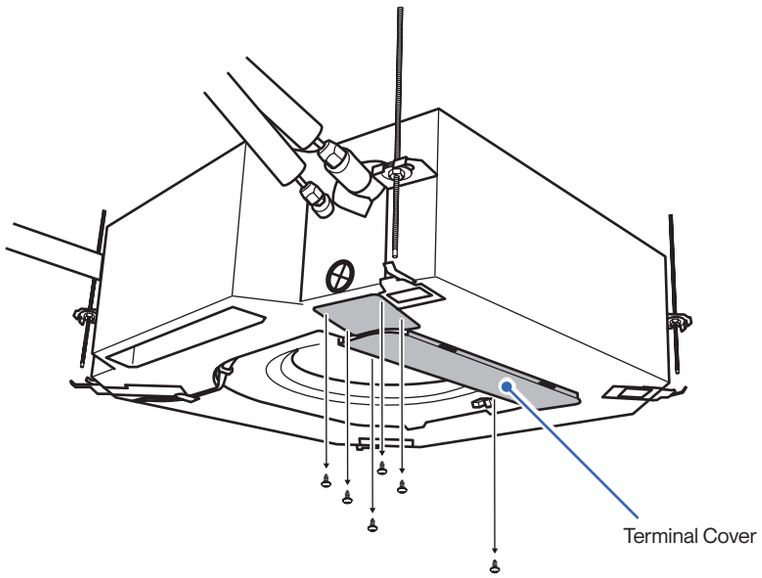
- Connection must be torque tighten to prevent leak. Do not over tighten.
- Refrigerant piping and torque requirement for specific model is on Page 21 .
- Refrigerant pipe and its connection must be insulated to prevent condensation from forming on the surface which would result in a water leak.

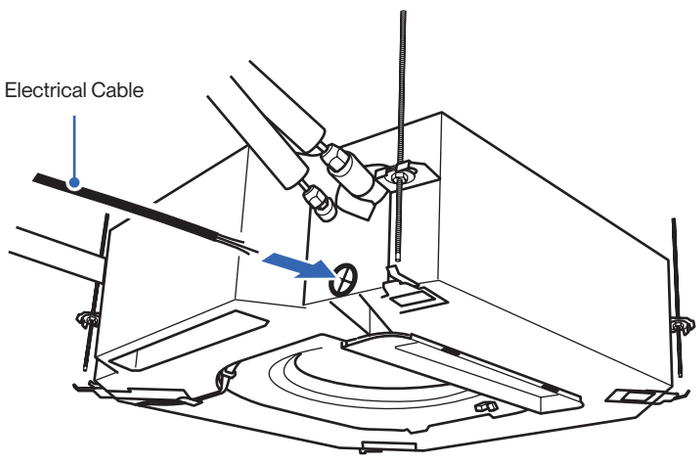
Indoor Unit Installation (Cassette Type Indoor Unit)

Connecting the Electrical Cable to the Cassette Unit

1. Remove the terminal covers from the cassette unit.
2. Insert the electrical cable through the opening on the unit casing into the terminal box.
3. Connect the wires to the corresponding termanal and secure the cable using the cable clamp.

NOTE: Exact electrical diagram can be found on the back of the terminal cover.



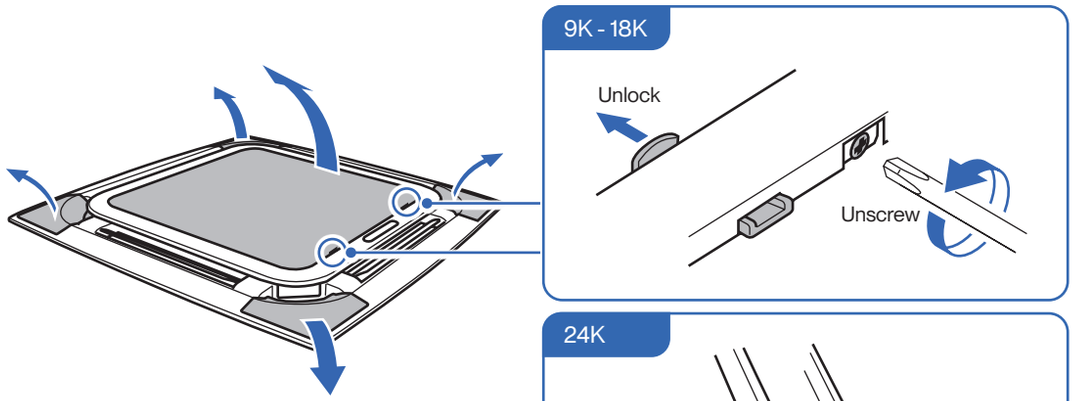


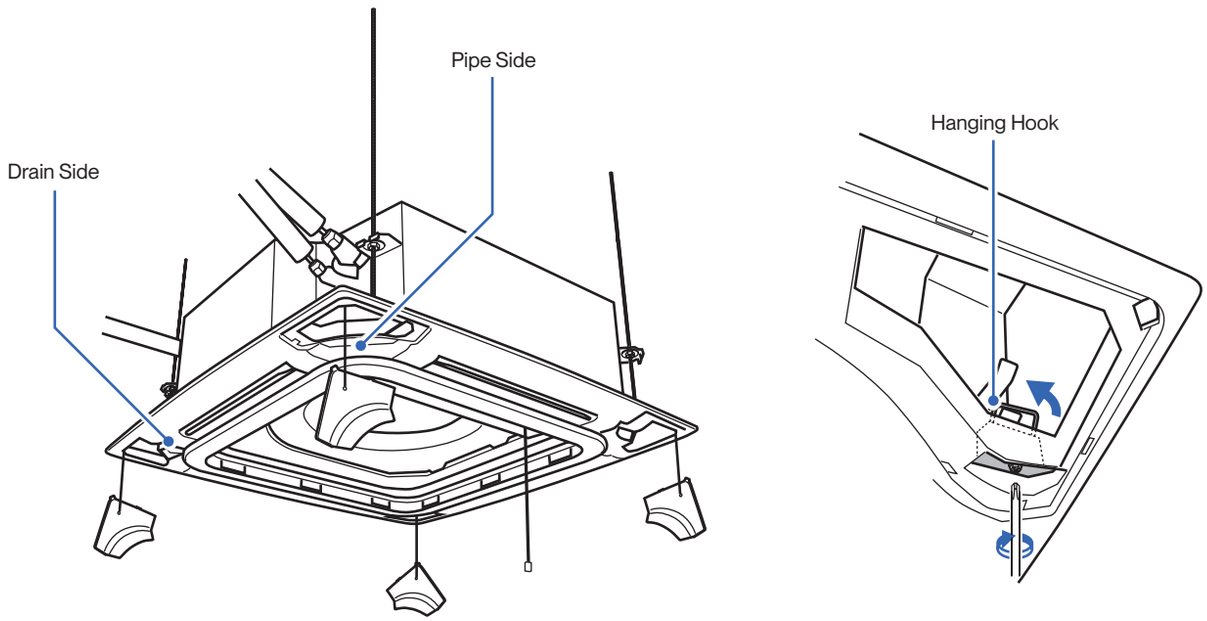
DELLA®

Indoor Unit Installation

Attaching the Front Panel

1. Remove the air return grill and detach the panel corner covers from the panel.
2. Align the panel to the cassette unit. The panel has markings at the corners to help determind the drain corner and refrigerant port corner.
3. Hang the hanging hooks on the panel to the metal taps on the unit, then tighten the screws until the panel is lightly press against the ceiling.





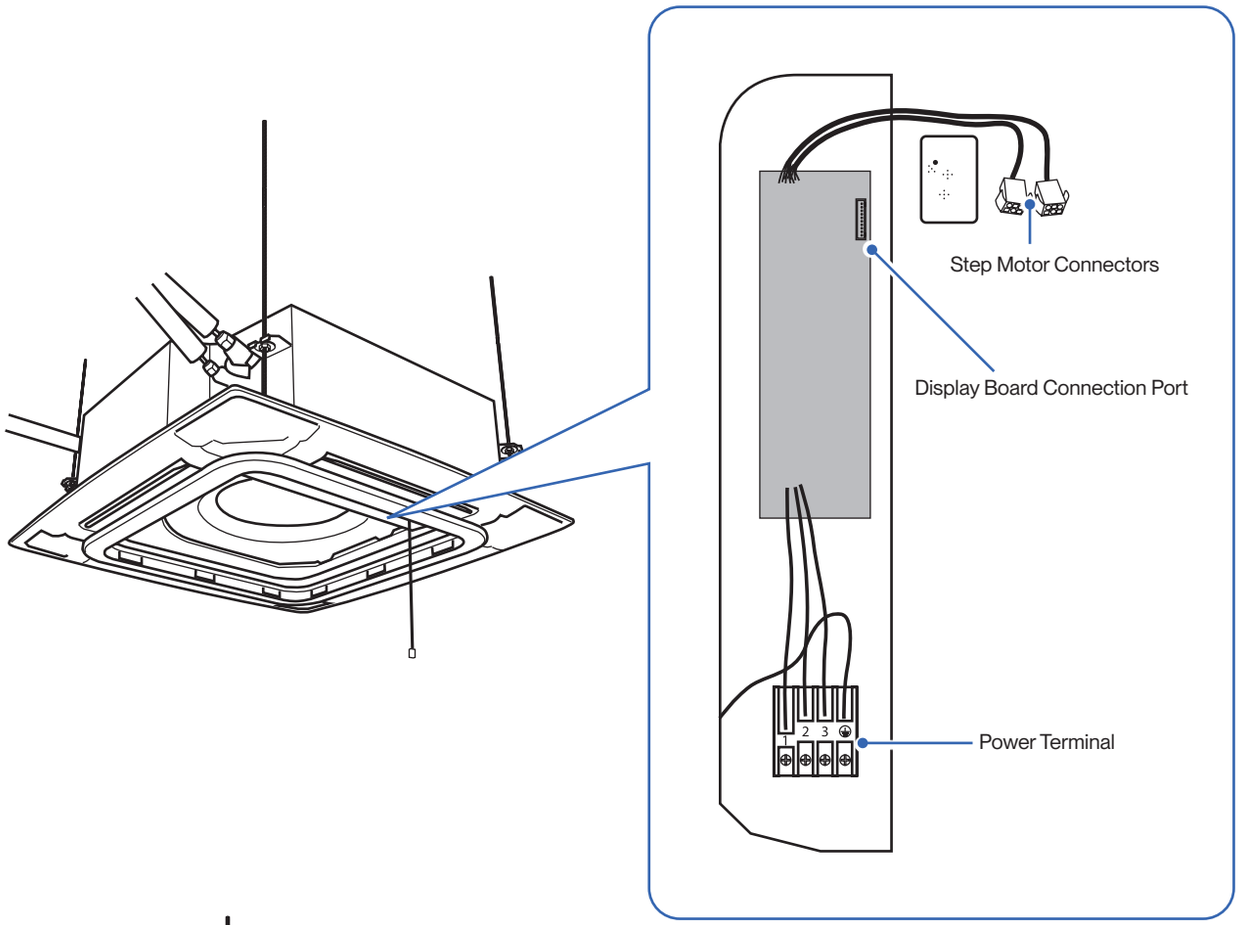
QUICK TIPS

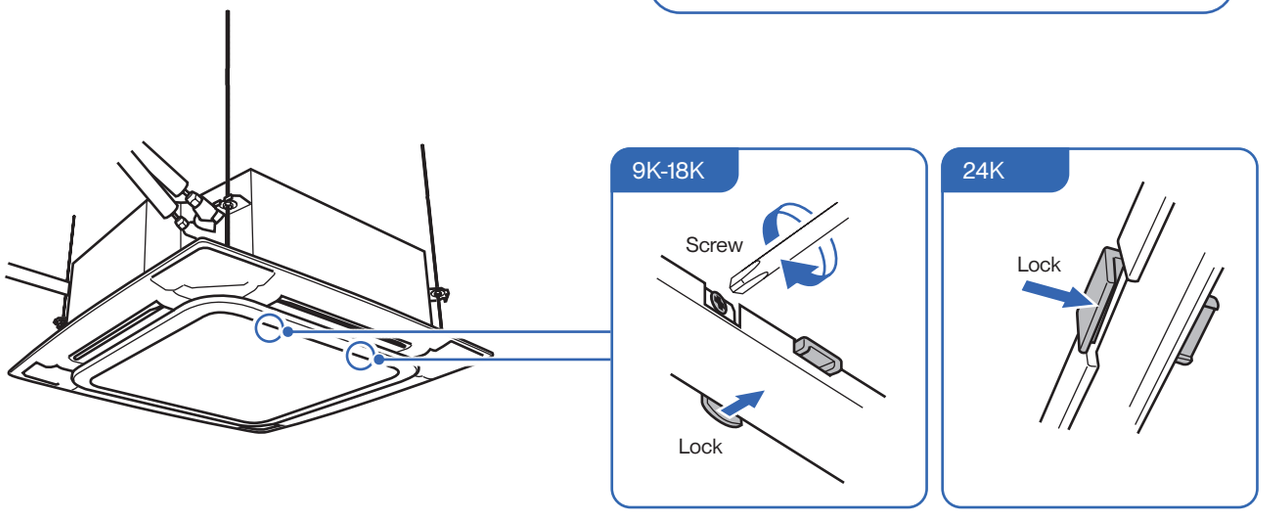
- Markings on the panel indicates the pipe and drain side.
- Arrange the electrical cable from the panel so that it does not get pinched between the panel and the cassette unit.

Indoor Unit Installation

Connecting the Cable from the Panel to The Cassette Unit

1. Connect the cables from the panel to the ports on the cassette unit.
2. Manage the cables using zip ties and arrange them away from movable parts and avoid obstructing the air return.
3. Attach the terminal covers back to its original place.
4. Reattach the air return grill onto the panel.





Outdoor Unit Installation

Secure the Outdoor Unit (Ground Installation)

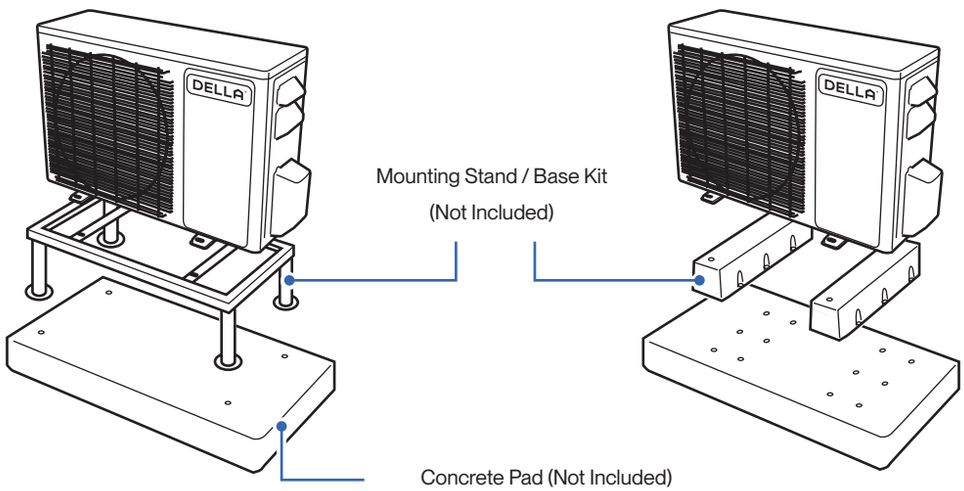
1. Place a concrete pad on the installation location.

   NOTE: You do not need a concrete pad if the ground is concrete.

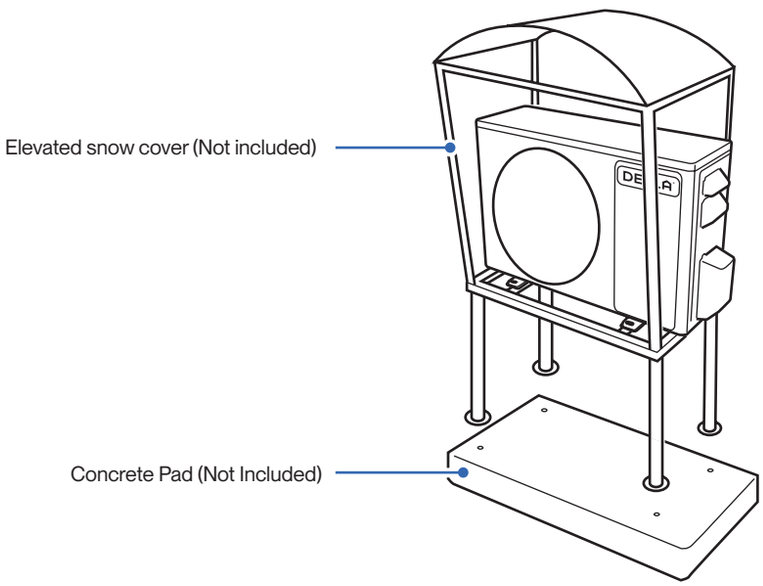
2. Mount the indoor unit on a mounting stand or base kit.

   NOTE: Rubber foot pads can be placed between the outdoor unit and the mounting kit to reduce vibration or noise.

3. Drill holes on the concrete pad or concrete ground.
4. Secure the mounting stand or base kit on the concrete with concrete anchor bolts.



- Outdoor unit should be installed on a elevated mounting stand with snow cover if using in a snowy region.

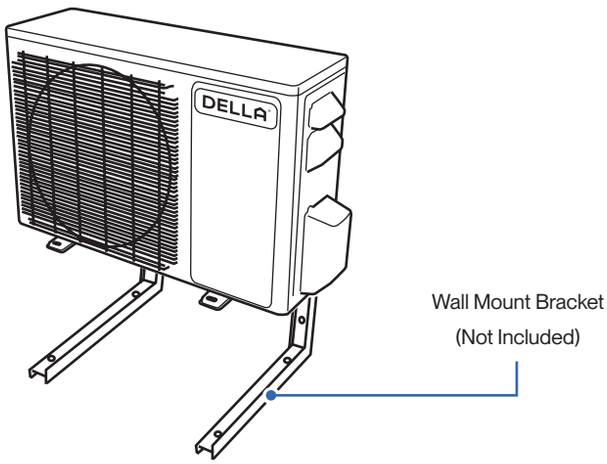


Outdoor Unit Installation

Secure the Outdoor Unit (Wall Installation)

The outdoor unit can be fixed on a wall mounting bracket if there is no ground mounting option.

1. Measure the distance between the outdoor unit's legs.
2. Mount the wall mounting bracket on the wall.
3. Secure the outdoor unit on the wall mounting bracket.



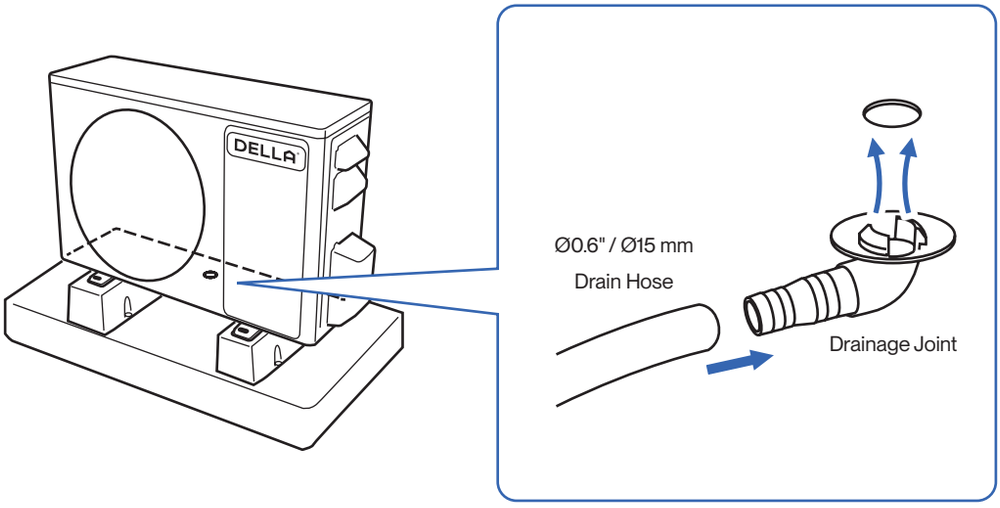
CAUTION

- The wall mounting bracket and the wall must be able to support at least 4 times the weight of the outdoor unit.

Attach Drainage Port and Hose

Outdoor unit drainage helps prevent condensation or frost inside the unit during cold weather.

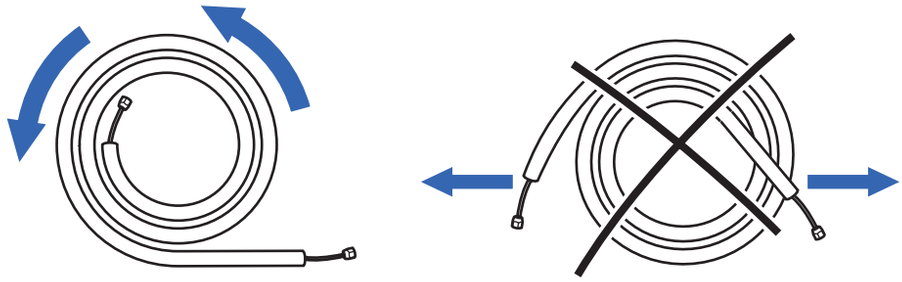
1. Drainage joint installation is recommended for heat pump models.
2. Insert drainage joint into the bottom hole of the outdoor unit.
3. Connect one end of the drain hose to the joint and the other end to your desired drainage point.



Indoor and Outdoor Unit Installation

Preparing the Refrigerant Pipe

1. Unroll the included refrigerant pipe.



- Do not pull the refrigerant pipe to prevent the pipe from kinking or bending.

2. Remove the cover and make sure the ports are clean and smooth.

Imperfect Flaring

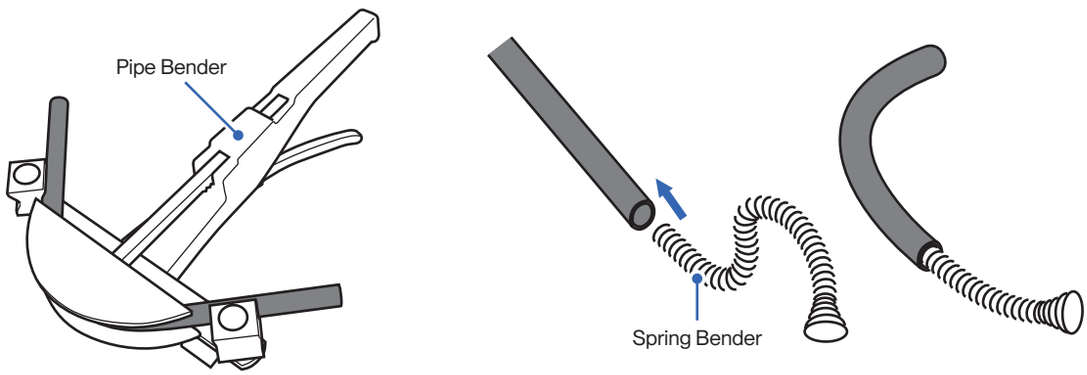
Dirty Flaring

3. In the case of a imperfect flaring or the pipe needs to be shorten for the installation, refrigerant pipe should be cut and flare by qualified technician.

Page 45

QUICK TIPS

- Use a pipe bender or spring bender to shape the refrigerant pipes along wall and corners. Bending the pipe without bending tools would easily kink or damage the pipe, which would cause refrigerant starvation, or leakage in the system.



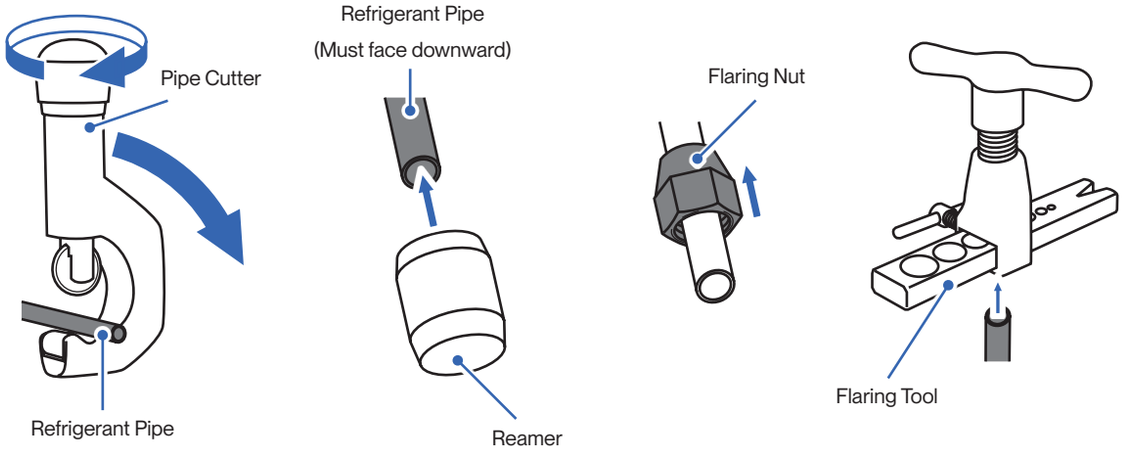
Indoor and Outdoor Unit Installation

Cutting and Flaring Refrigerant Pipe

WARNING

- Any refrigerant pipe alternation should only be done by qualified technician. Incorrect work may cause refrigerant leak, reduce cooling / heating efficiency, damage to the unit. Warranty does not cover any damage(s) caused by incorrect refrigerant pipe alternation.

1. Cut the copper pipe with a pipe cutter.
2. Remove any burrs or rough edges with a reamer with the pipe facing downward.
   NOTE: The opening of the pipe must face toward the ground to prevent chips or dust from entering the pipe.
3. Insert the flare nut to the pipe.
4. Use the flaring tool to flare the copper pipe. The flaring angle must match to that of the refrigerant lines from the unit.



Indoor and Outdoor Unit Installation (Wall Mount Indoor Unit)

Connect the Refrigerant Pipes to the Indoor Unit

- Align the refrigerant pipes to that from the indoor unit, then tighten the nut by hand.
- Use a torque wrench to tighten the nut according to the torque requirement.

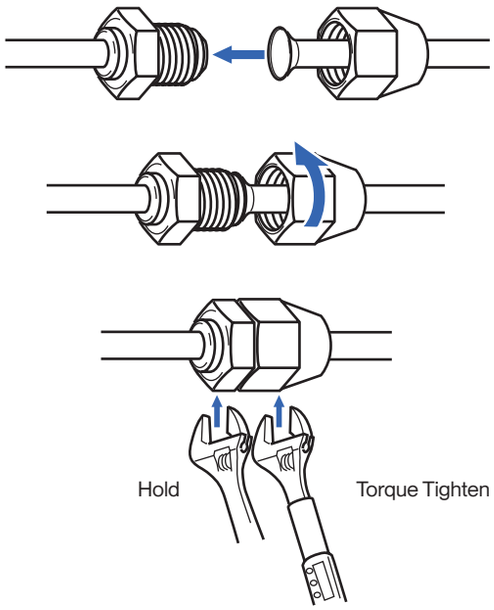
QUICK TIPS

- A thin layer of nylog can be applied to the inside of the flare to provide better seal. (OPTIONAL)
- Make sure no nylog is on the outside of the flare.

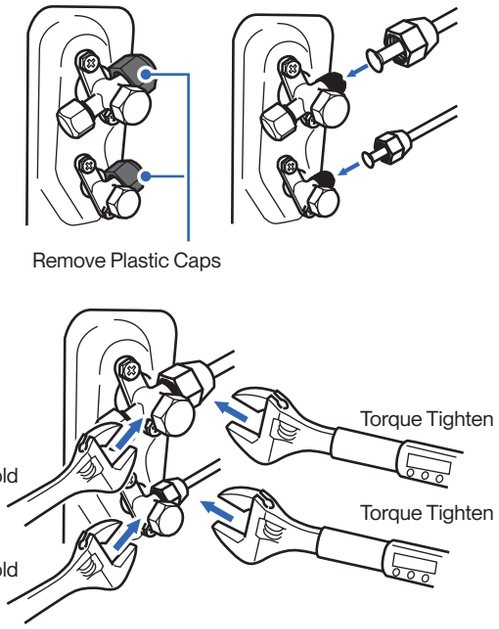
Connect the Refrigerant Pipes to the Outdoor Unit

1. Unscrew the screws on the valve cover, press it down gently and remove the cover from the outdoor unit.
2. Remove plastic caps from the end of the valves.
3. Align the refrigerant pipes to the outdoor unit valve, then tighten the nut by hand.
4. Use a torque wrench to tighten the nut according to the torque requirement.

Indoor Unit Connection



Outdoor Unit Connection



Pipe Diameter	1/4"	3/8”	1/2”	5/8”
Torque Parameter	18 - 20 N-M 13.3 - 14.8 lbf-ft 1.8 - 2.0 kgf-m	30 - 35 N-M 22.1 - 25.8 lbf-ft 3.0 - 3.6 kgf-m	45 - 50 N-M 33.2 - 36.9 lbf-ft 4.6 - 5.1 kgf-m	60 - 65 N-M 44.3 - 48.0 lbf-ft 6.1 - 6.6 kgf-m

- Connection must be torque tighten to prevent leak. Do not over tighten.
- Refrigerant piping and torque requirement for specific model is on Page 21 .

Indoor and Outdoor Unit Installation (Cassette Type Indoor Unit)

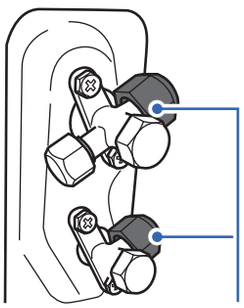
Connect the Refrigerant Pipes to the Outdoor Unit

1. Unscrew the screws on the valve cover, press it down gently and remove the cover from the outdoor unit.
2. Remove plastic caps from the end of the valves.
3. Align the refrigerant pipes to the outdoor unit valve, then tighten the nut by hand.
4. Use a torque wrench to tighten the nut according to the torque requirement.

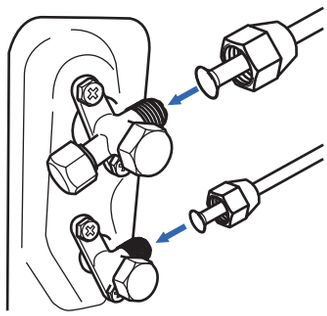
QUICK TIPS

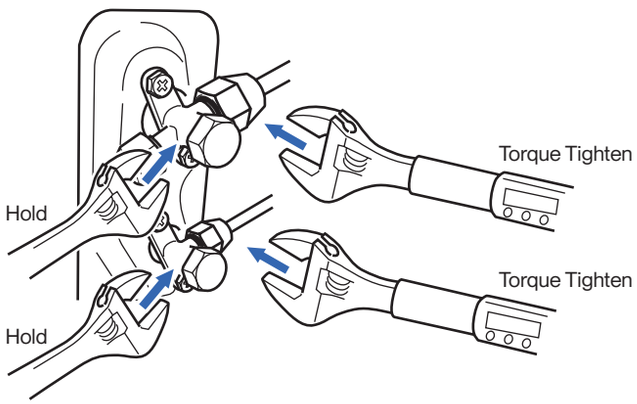
- A thin layer of nylog can be applied to the inside of the flare to provide better seal. (OPTIONAL)
- Make sure no nylog is on the outside of the flare.

Thin layer of nylog
(OPTIONAL)



Remove Plastic Caps





Pipe Diameter	1/4"	3/8”	1/2”	5/8”
Torque Parameter	18 - 20 N-M 13.3 - 14.8 lbf-ft 1.8 - 2.0 kgf-m	30 - 35 N-M 22.1 - 25.8 lbf-ft 3.0 - 3.6 kgf-m	45 - 50 N-M 33.2 - 36.9 lbf-ft 4.6 - 5.1 kgf-m	60 - 65 N-M 44.3 - 48.0 lbf-ft 6.1 - 6.6 kgf-m

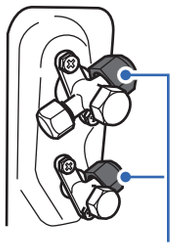
- Connection must be torque tighten to prevent leak. Do not over tighten.
- Refrigerant piping and torque requirement for specific model is on Page 21 .

Indoor and Outdoor Unit Installation

Connect the Refrigerant Pipes to the Outdoor Unit (Using Lineset Converter)

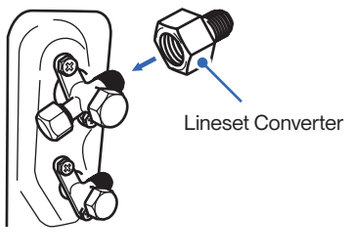
The 23K, 24K and 36K indoor unit might provided with a 1/2" or 5/8"copper pipe on the gas line, and it requires a lineset coverter to properly connect to the outdoor unit.

1. Unscrew the screw on the valve cover, press it down gently and remove the cover from the outdoor unit.
2. Remove plastic caps from the end of the valves.



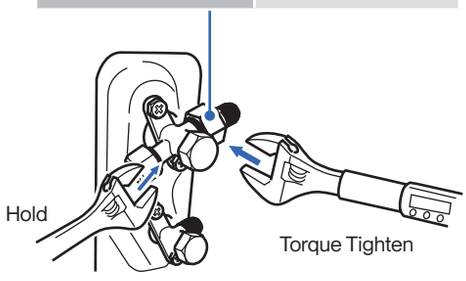
Remove Plastic Caps

3. Align the lineset converter to the outdoor unit valve, then use a torque wrench to tighten the converter according to the torque requirement.

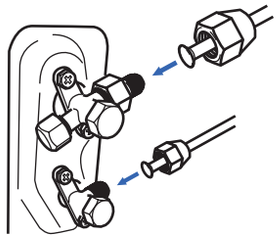


Lineset Converter

Converter Size	3/8”
Torque Parameter	30 - 35 N-M 22.1 - 25.8 lbf-ft 3.0 - 3.6 kgf-m

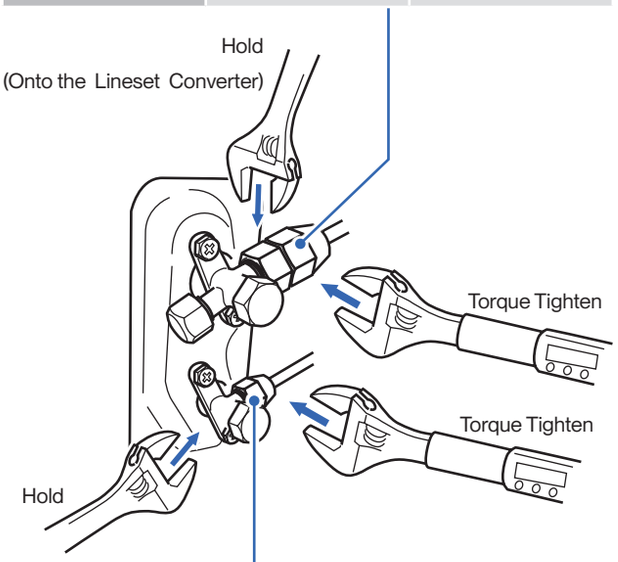


4. Align the liquid line to the outdoor unit valve, and the gas line to the converter, then tighten the nut by hand.



5. Use a torque wrench to tighten the nut according to the torque requirement.

Gas Pipe Diameter	1/2”	5/8”
Torque Parameter	45 - 50 N-M 33.2 - 36.9 lbf-ft 4.6 - 5.1 kgf-m	60 - 65 N-M 44.3 - 48.0 lbf-ft 6.1 - 6.6 kgf-m



Liquid Pipe Diameter	1/4"
Torque Parameter	18 - 20 N-M 13.3 - 14.8 lbf-ft 1.8 - 2.0 kgf-m

Indoor and Outdoor Unit Installation (Wall Mount Indoor Unit)

Connect the Electrical Wire

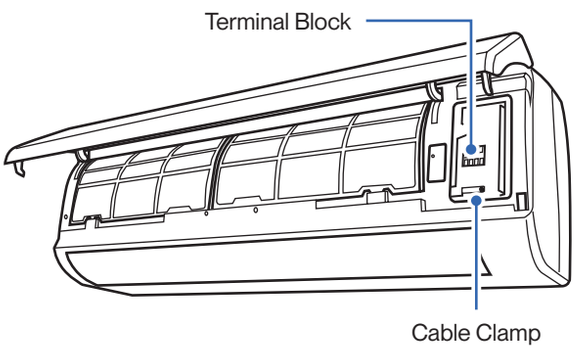
WARNING

- Electrical wiring must be done by a qualified technician or electrician. Failing to connect the wires correctly will cause short circuit, a fire, and property damage.
- Do not use the communication cable as power supply cable.

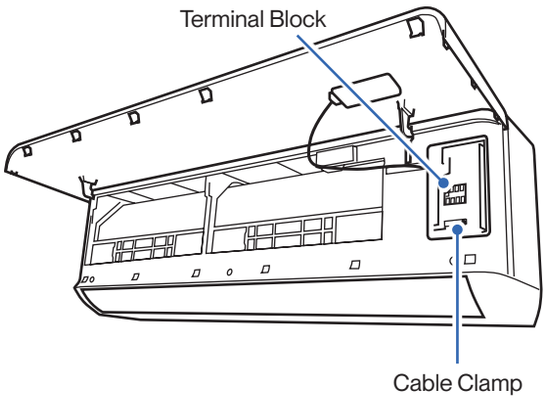
- Cassette Type Indoor Unit wire connection instruction on Page 41, 50

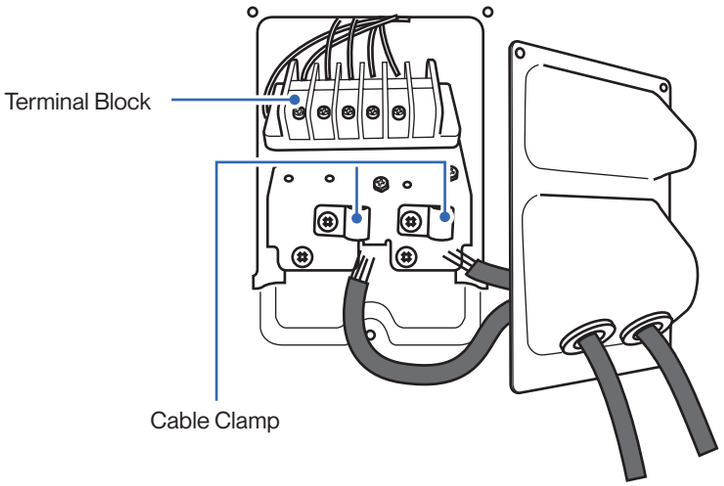
1. Unscrew the cable clamp in the indoor unit.
2. Connect wires to the corresponding terminal and secure the cable using the cable clamp.
3. Reinstall the control box cover and close the indoor unit's front panel.
4. Unscrew the screws from the wiring cover, press the cover downward gently, and remove from the outdoor unit.
5. Unscrew the cable clamp.
6. Insert the communication cable from the indoor unit through the opening on the cover, then connect the wires to the outdoor unit terminal.
7. Insert power supply cable (not included) to the opening on the cover, then connect the wires to the outdoor unit terminal.
8. Turn off any power from the power supply, and connect the wires to the power supply circuit box.
   Exact power supply cable and breaker size requirement on Page 20
9. Reinstall the wiring cover to its original place.

TL Series Indoor Unit



TP Series Indoor Unit





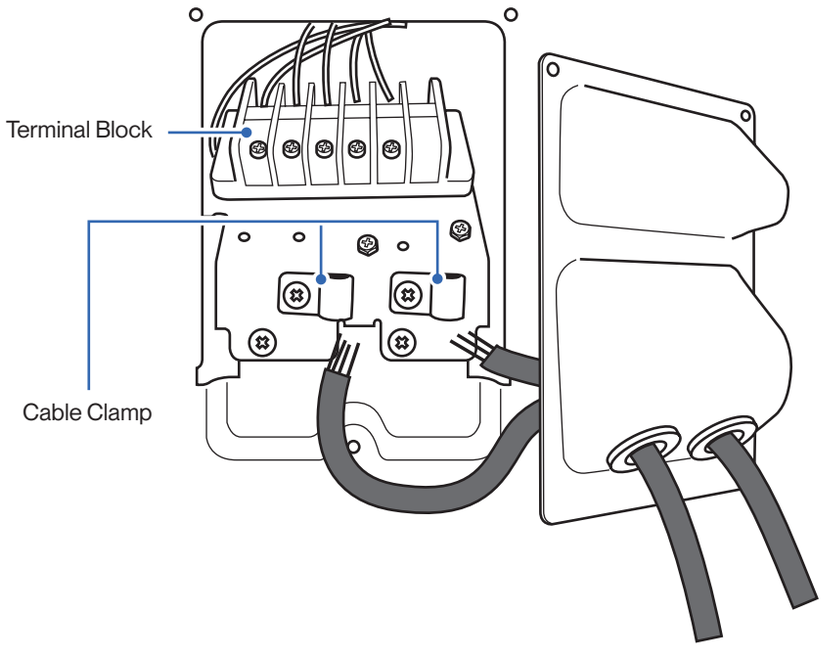
Indoor and Outdoor Unit Installation (Cassette Type Indoor Unit)

Connect the Electrical Wire

WARNING

- Electrical wiring must be done by a qualified technician or electrician. Failing to connect the wires correctly will cause short circuit, a fire, and property damage.
- Do not use the communication cable as power supply cable.

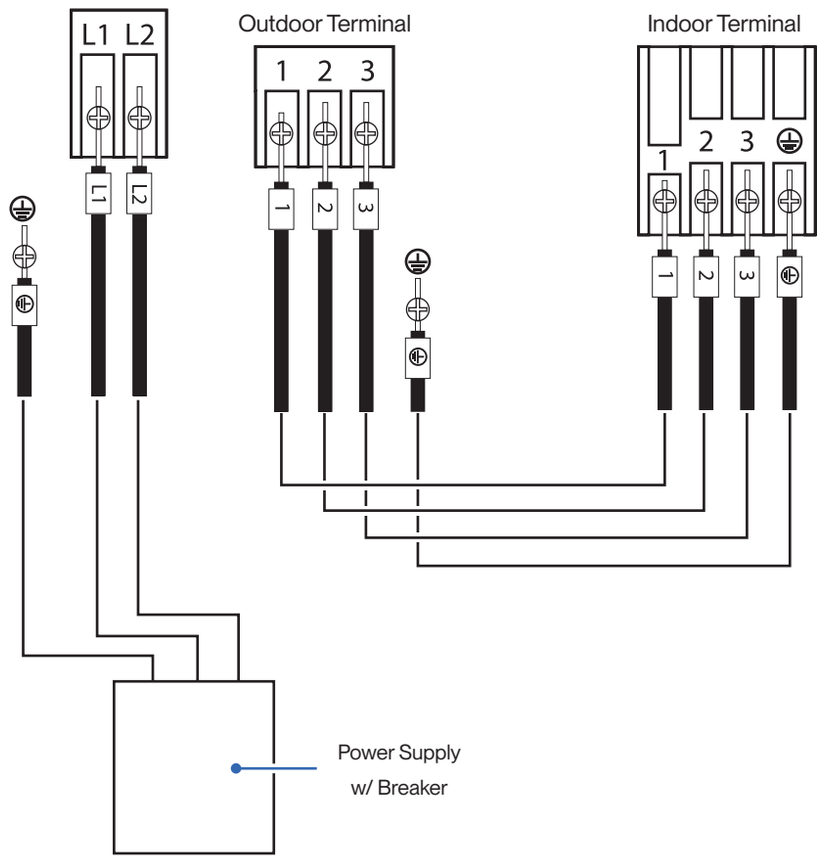
1. Unscrew the screws from the wiring cover, press the cover downward gently, and remove from the outdoor unit.
2. Unscrew the cable clamp.
3. Insert the electrical cable from the indoor unit through the opening on the cover, then connect the wires to the outdoor unit terminal.
4. Insert power supply cable (not included) to the opening on the cover, then connect the wires to the outdoor unit terminal.
5. Turn off any power from the power supply, and connect the wires to the power supply circuit box.
   Exact power supply cable and breaker size requirement on Page 20
6. Reinstall the wiring cover to its original place.



Indoor and Outdoor Unit Installation

Connect the Electrical Wire

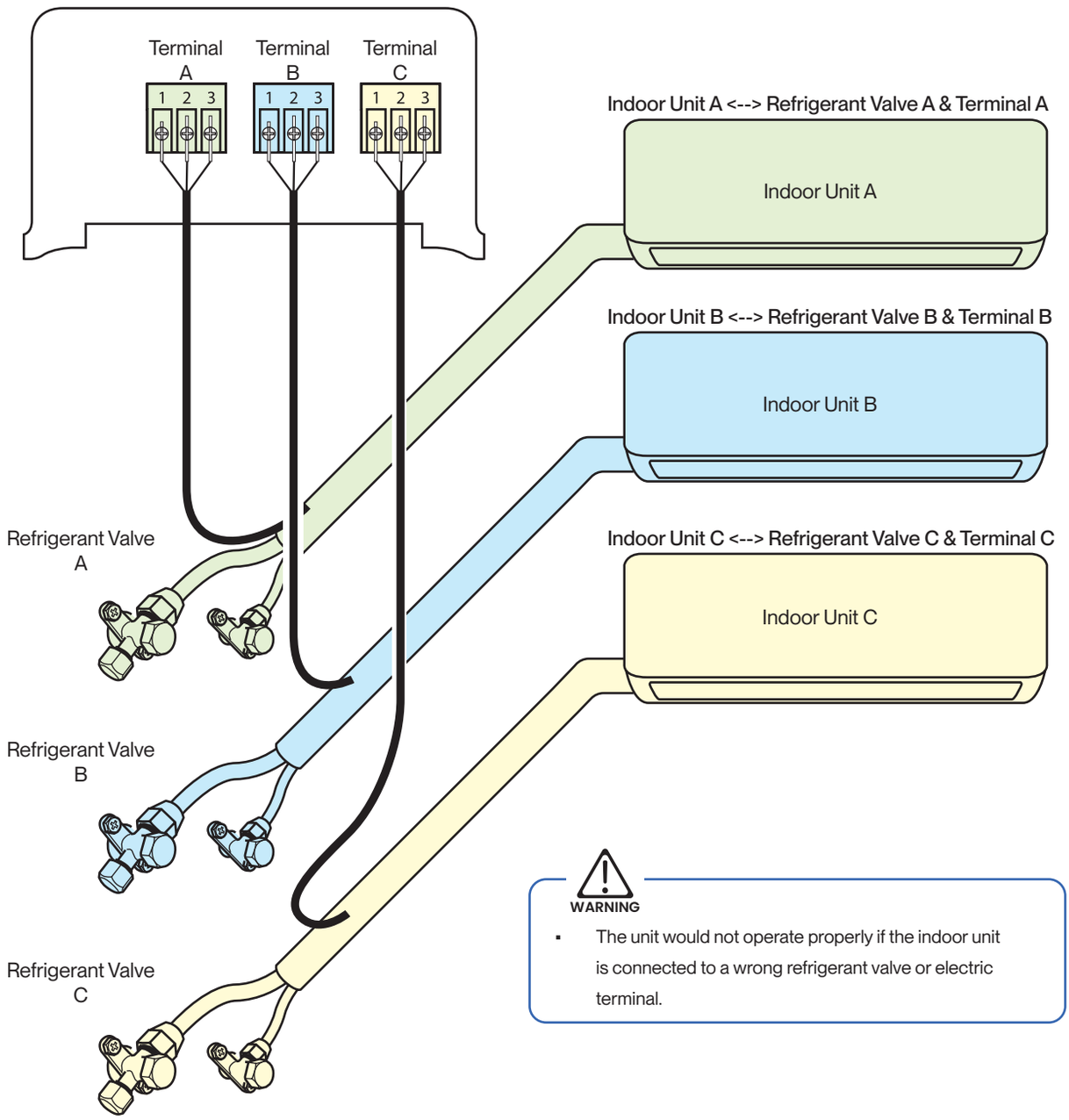
For 220V Unit



Indoor and Outdoor Unit Installation

Refrigerant Pipes and Electrical Cables Connection

- Each indoor units on the multi zone system must be connected to their respective corresponding refrigerant valve and electrical terminal.



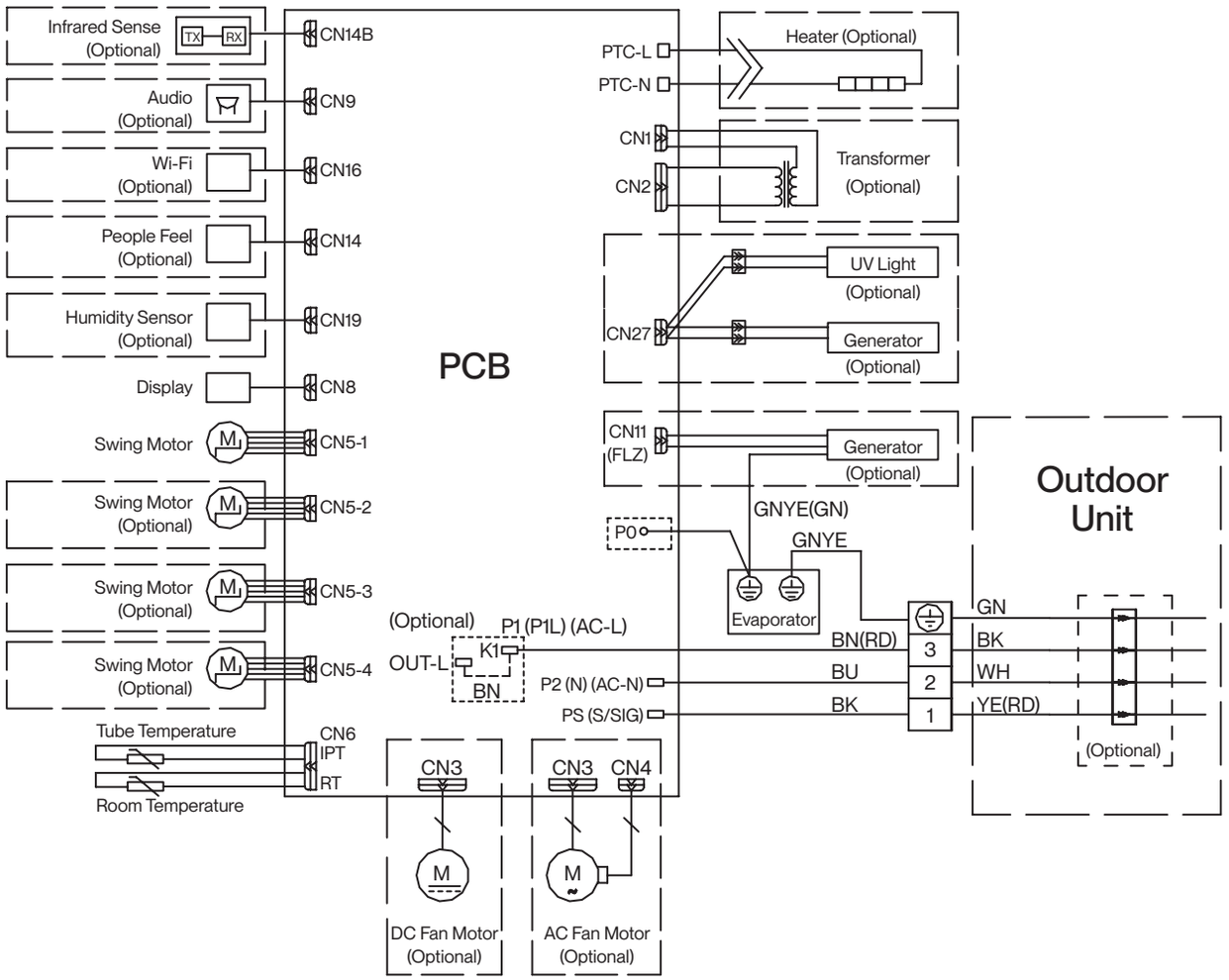
WARNING

- The unit would not operate properly if the indoor unit is connected to a wrong refrigerant valve or electric terminal.

Indoor and Outdoor Unit Installation

Indoor Unit Circuit Diagram (TL series)

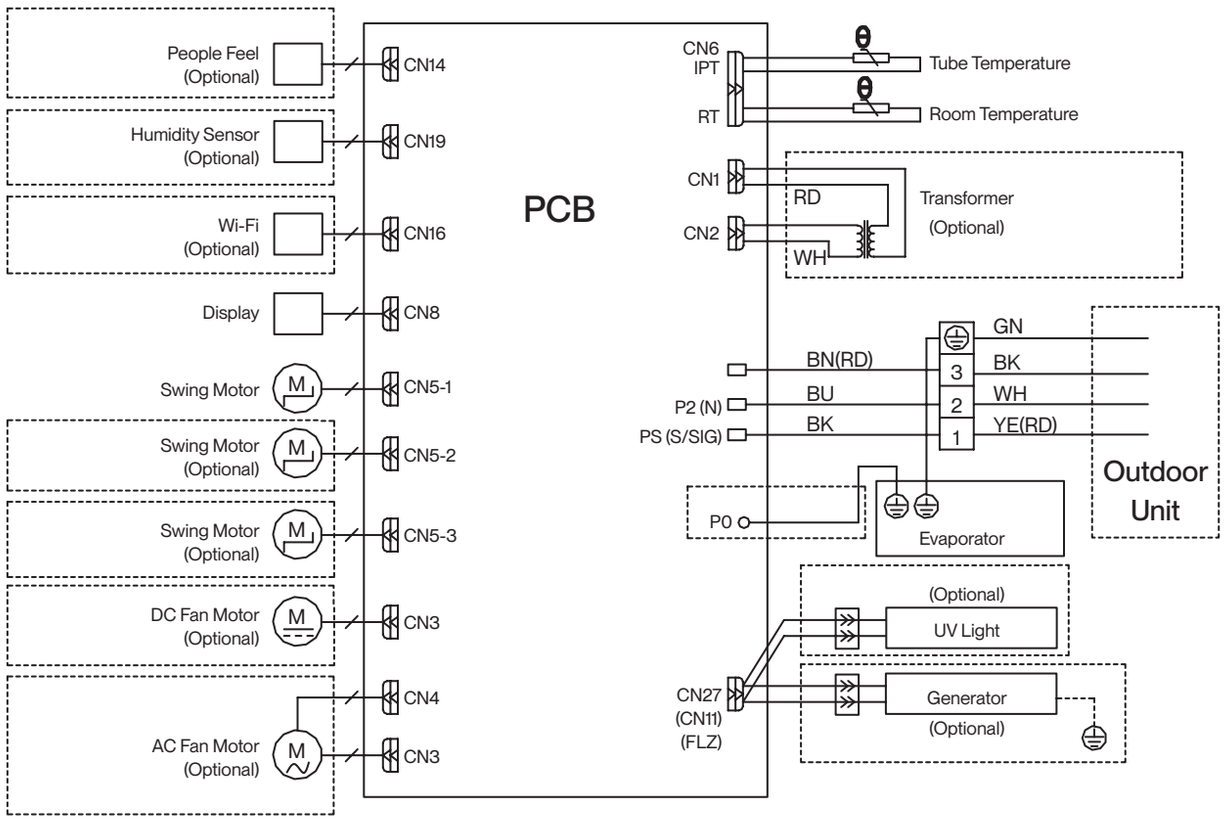
048-TL-9K2VB-20S-IN
048-TL-12K2VB-21S-IN
048-TL-18K2VB-21S-IN



Indoor and Outdoor Unit Installation

Indoor Unit Circuit Diagram (TL series)

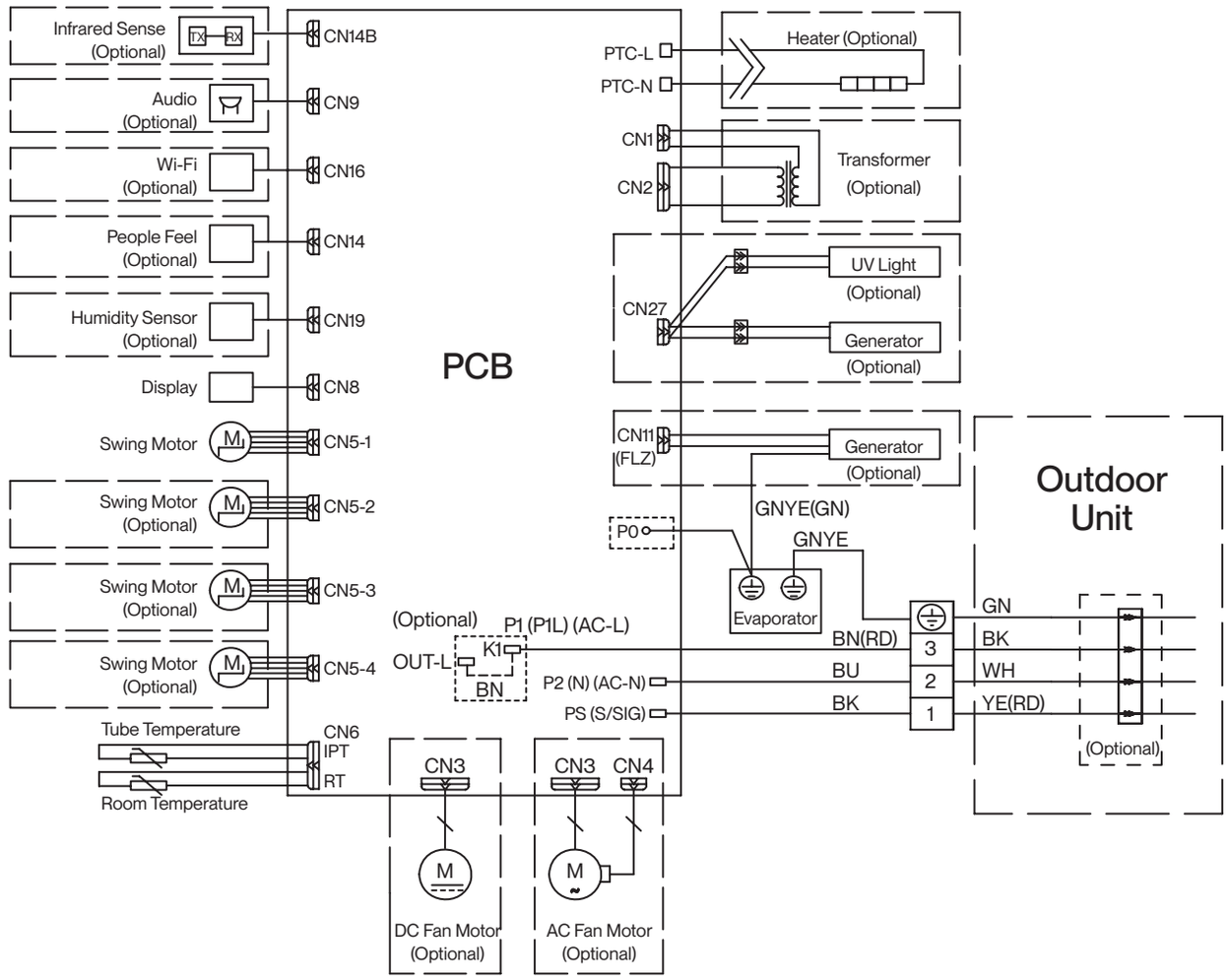
048-TL-24K2VB-21S-IN
048-TL-36K2VB-19S-IN



Indoor and Outdoor Unit Installation

Indoor Unit Circuit Diagram (TP series)

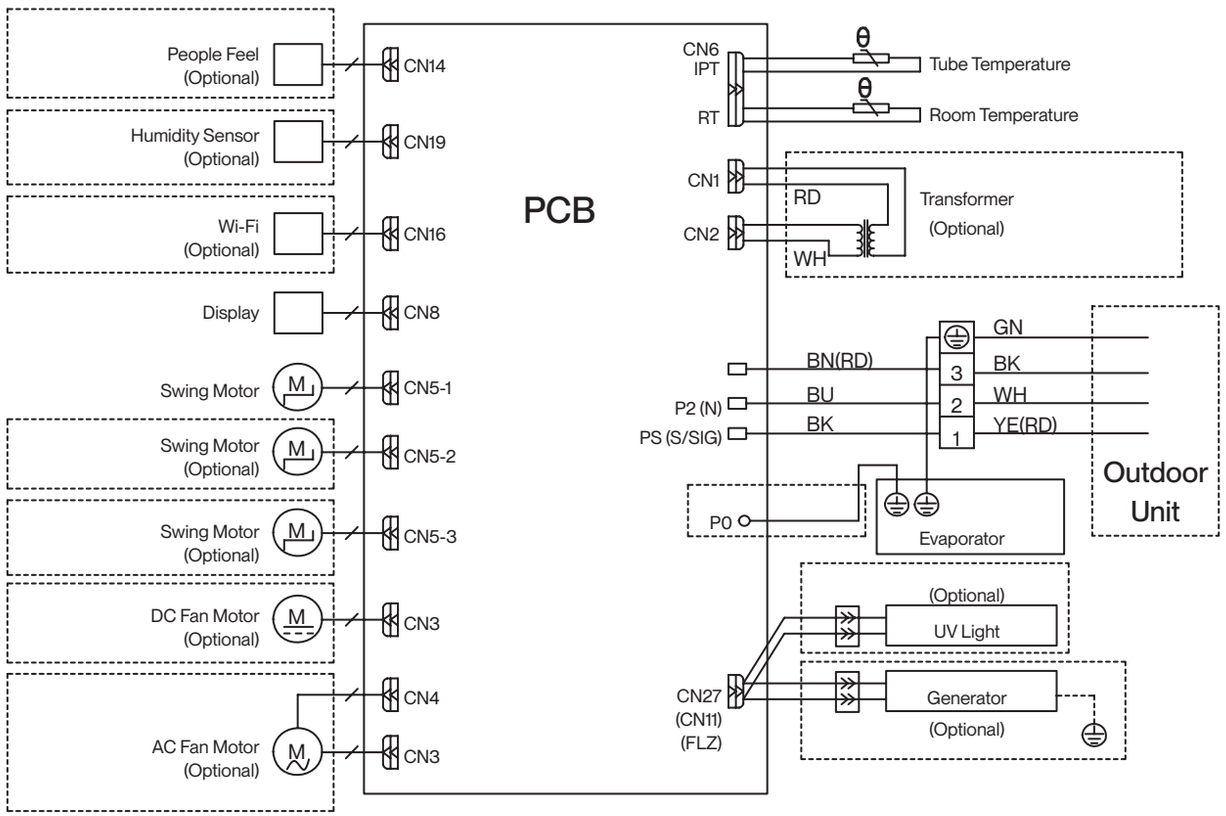
048-TP-12K2V-24S-IN
048-TP-18K2V-23S-IN



Indoor and Outdoor Unit Installation

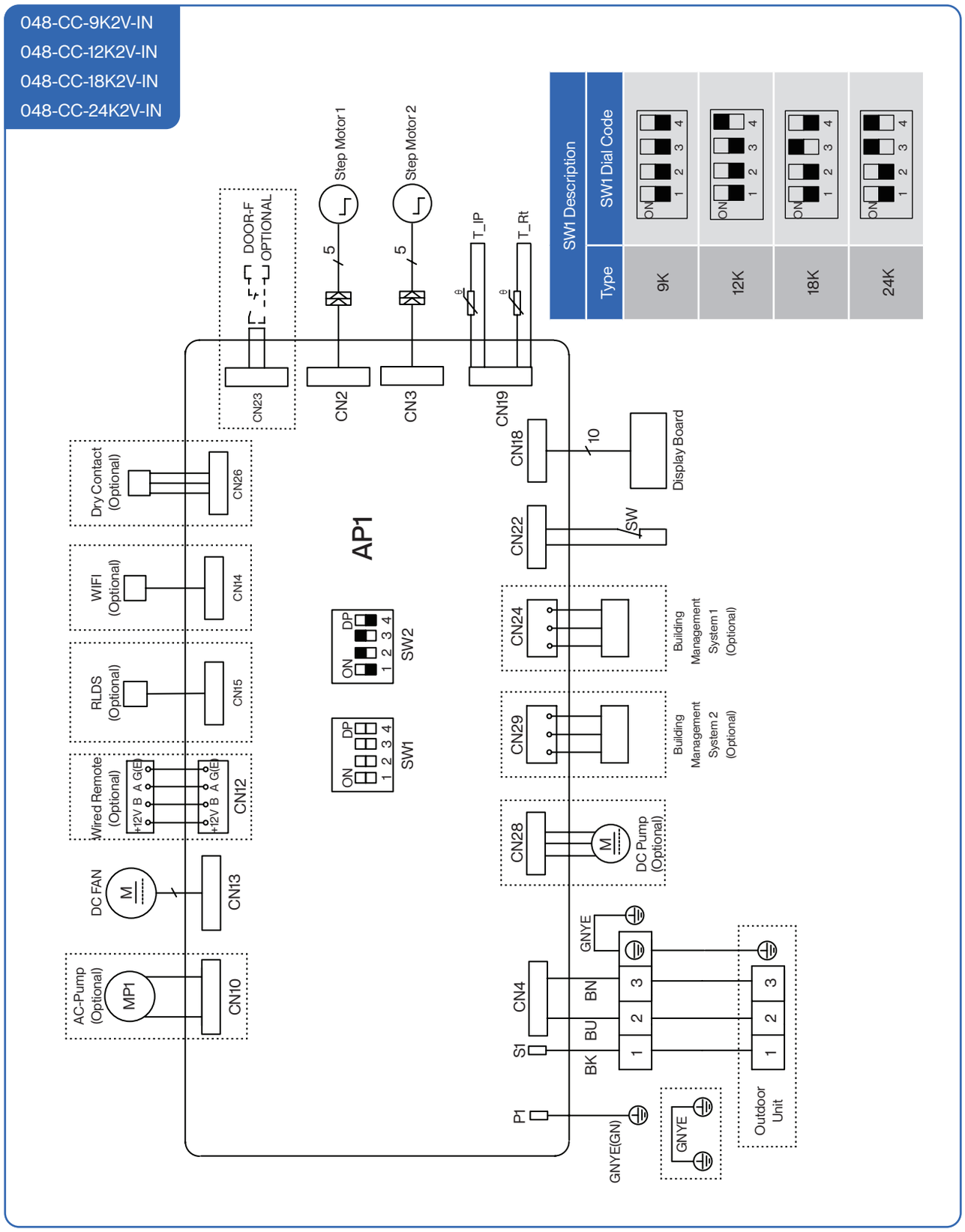
Indoor Unit Circuit Diagram (TP series)

048-TP-9K2V-24S-IN
048-TP-23K2V-23S-IN



Indoor and Outdoor Unit Installation

Indoor Unit Circuit Diagram (Cassette Type)



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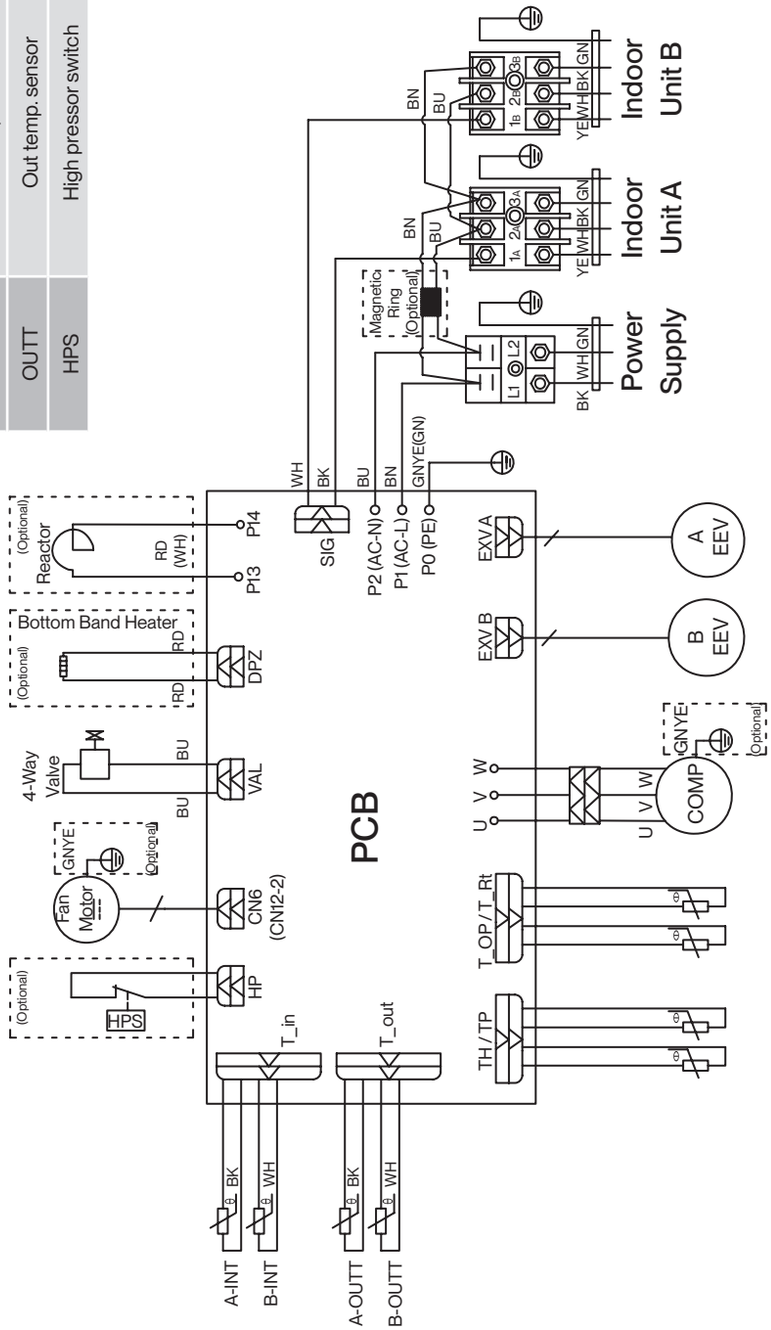
Indoor and Outdoor Unit Installation

Outdoor Unit Circuit Diagram

048-TLP-MODU-1D2

Abbreviation	
OHT	Outdoor suction temp. sensor
OPT	Outdoor pipe temp. sensor
ORT	Outdoor temp. sensor
OET	Outdoor exhaust temp. sensor
INT	In temp. sensor
OUTT	Out temp. sensor
HPS	High pressor switch

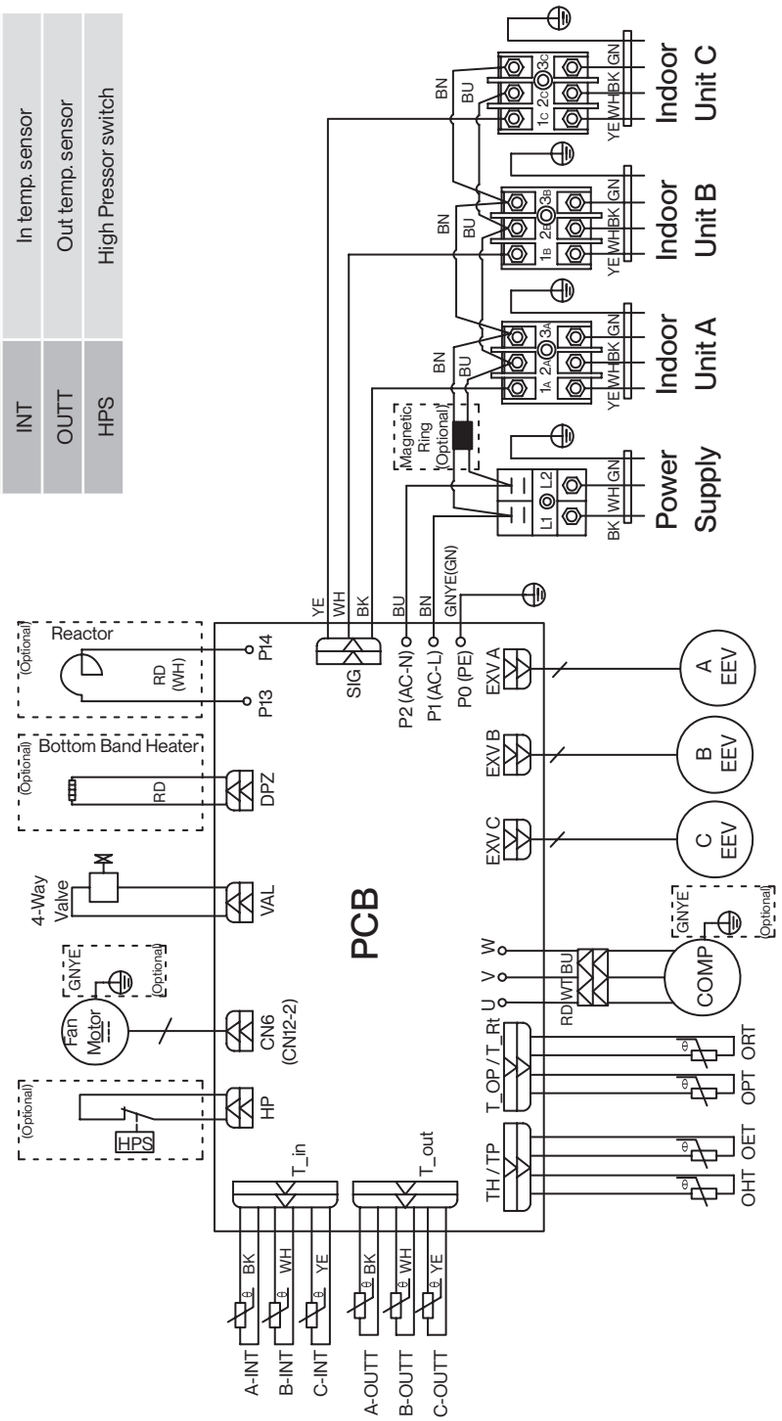


Indoor and Outdoor Unit Installation

Outdoor Unit Circuit Diagram

048-TLP-MODU-1D3

Abbreviation	
OHT	Outdoor suction temp. sensor
OPT	Outdoor pipe temp. sensor
ORT	Outdoor temp. sensor
OET	Outdoor exhaust temp. sensor
INT	In temp. sensor
OUTT	Out temp. sensor
HPS	High Pressor switch

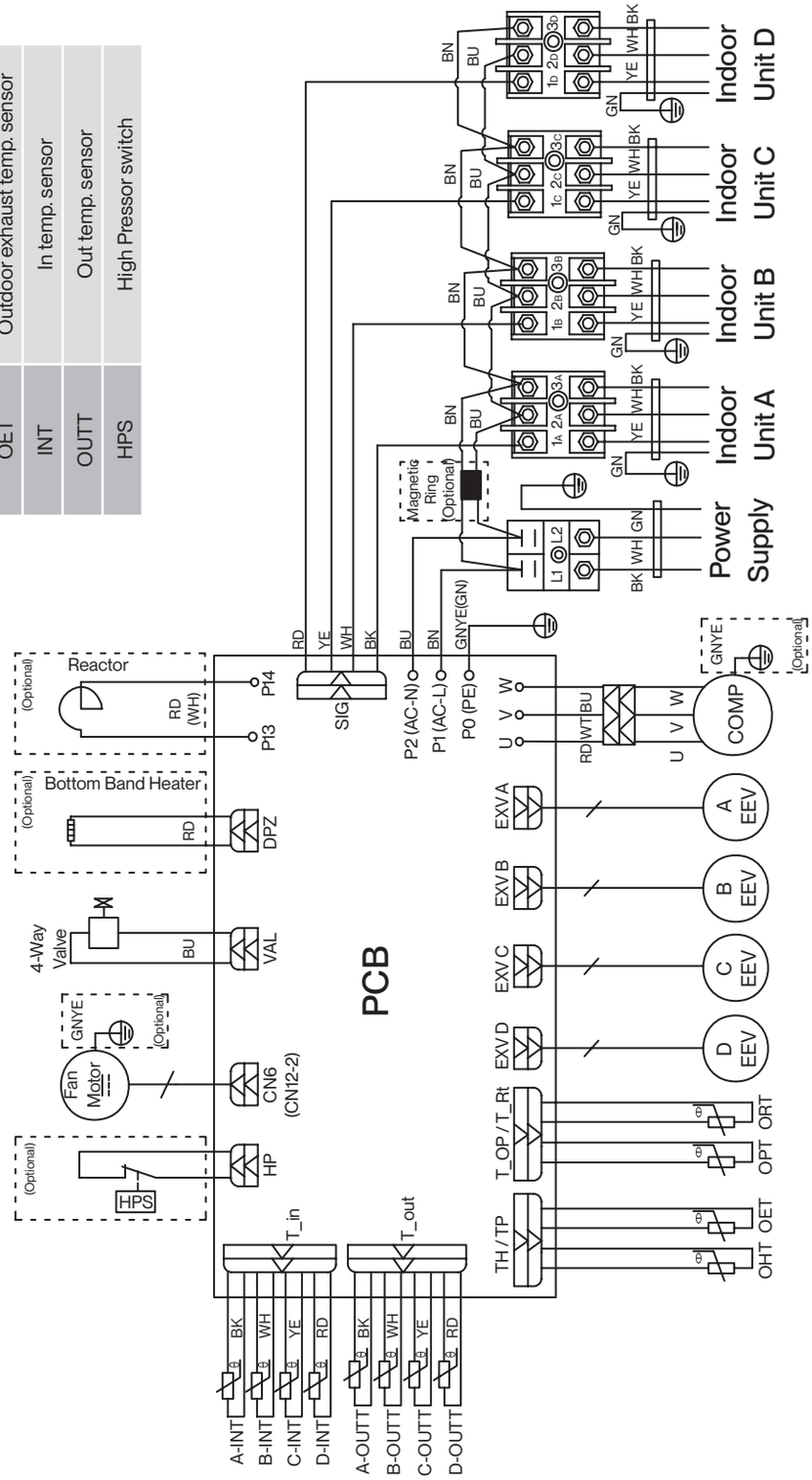


Indoor and Outdoor Unit Installation

Outdoor Unit Circuit Diagram

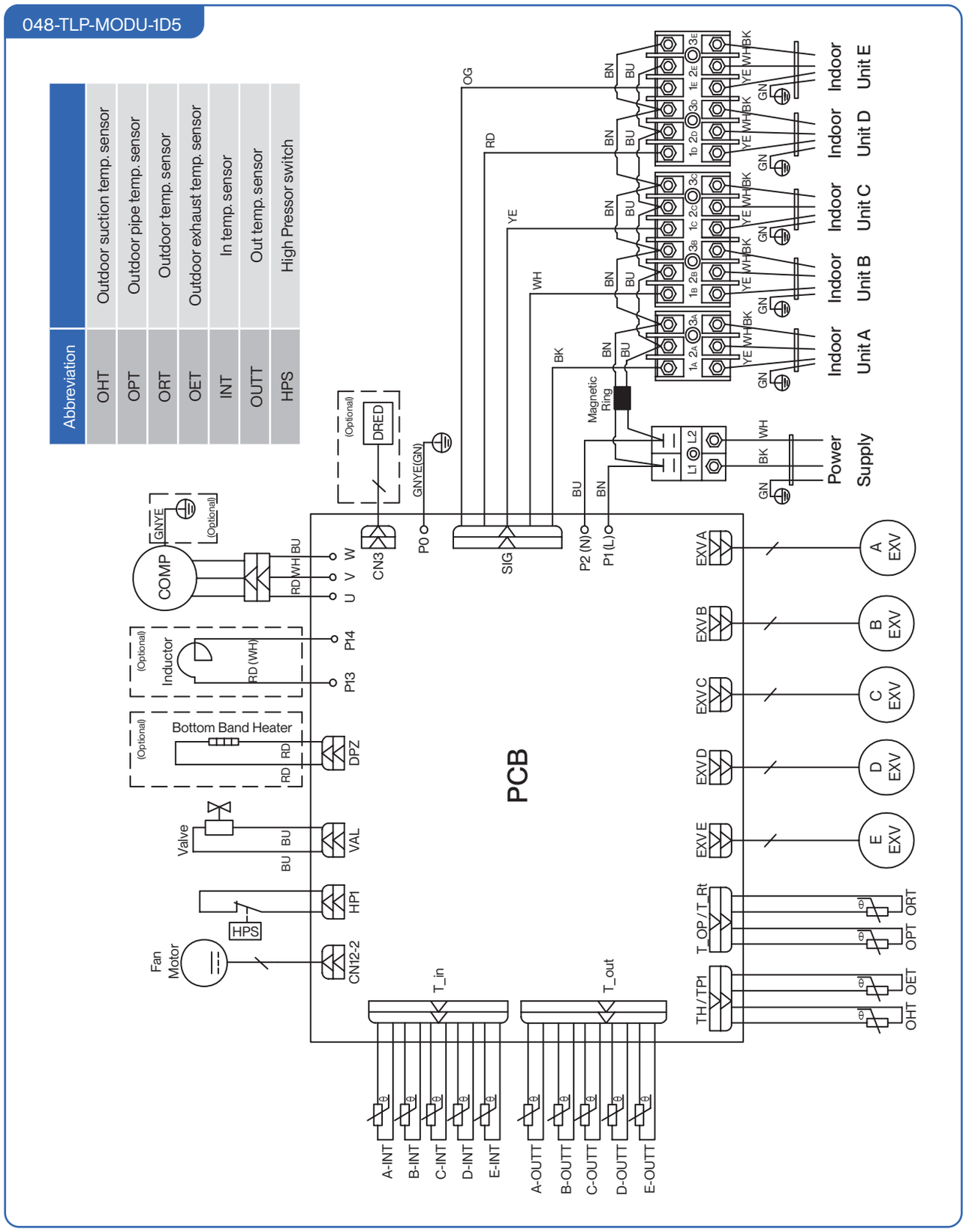
048-TLP-MODU-1D4

Abbreviation	
OHT	Outdoor suction temp. sensor
OPT	Outdoor pipe temp. sensor
ORT	Outdoor temp. sensor
OET	Outdoor exhaust temp. sensor
INT	In temp. sensor
OUTT	Out temp. sensor
HPS	High Pressor switch



Indoor and Outdoor Unit Installation

Outdoor Unit Circuit Diagram



Indoor and Outdoor Unit Installation (2 Zones System)

Vacuum Pumping, Leak Test (Using Micron Gauge) *RECOMMENDED, and Adjust Refrigernat Level

1. Remove the protective caps from the service port, low-pressure valve (Lo·R), and high-pressure valve (Hi·R).
2. Connect the vacuum hose with a push pin to the service port.
3. Connect a the vacuum pump to the other end of the charging hose and the micron gauge in between the service port and the pump.
4. Open the valve adapter on the charging set, then turn on the vacuum pump to vacuum the system.
5. Let the vacuum pump run until the micron gauge indicate the value of 500 micron or lower.
6. Close the valve adapter on the charging set and turn off the vacuum pump.
7. Leave the system connected with the micron gauge for 5 minutes, then make sure the gauge indication does not exceed 500 micron.
   NOTE: In the case of a leak, and the micron level increases above 500 micron, reconnect all the connection joints on the refrigerant line, and redo the vacuum pumping.

- You must leave the micron gauge and vacuum pump connected for a short period after vacuuming the system and check for a successful deep vacuum in order to make sure there is no leak and no contaminants inside the refrigerant lineset.

8. Disconnect the vacuum hose and the micron gauge from the service port.
9. The air conditioner comes with enough refrigerant for the standard length pipe set, add refrigerant charge if you use a lengthened refrigerant line.
   Page 21
10. Turn on the air conditioner and confirm it can power on properly, and then turn it off.
11. Fully open the low pressure valve (Lo·R) and high pressure valve (Hi·R)
12. Put the protective caps back on the service, low-pressure valve, and high-pressure valve.
13. Tighten the caps.
14. Reinstall the valve cover on the outdoor unit.

- Only add refrigerant if you use a lengthened refrigerant line. There is no need to adjust or recover any amount refrigerant if you use a standard or shortened refrigerant line.
- Do not open the refrigerant valve before vacuum pumping.
- Stop and disconnect the vacuum pump from the system before opening the refrigerant valve.
- Each indoor unit connected to the multizone outdoor unit must vacuumed respectively.

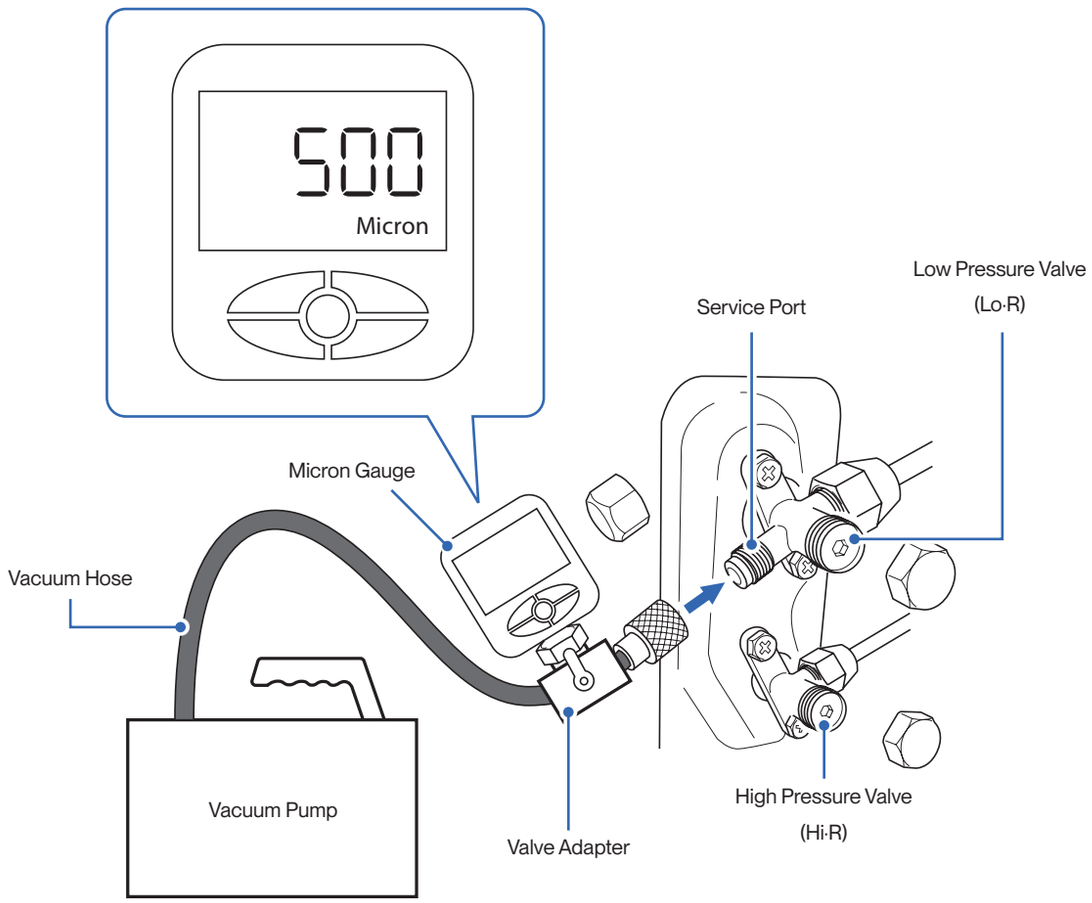
Additional Refrigerant

- Additional Refrigerant Amount (ounce)
  [0.11 × (Total install length (ft) - Supported zones no. x 25)] oz
- Additional Refrigerant Amount (gram)
  [10 × (Total install length (m) - Supported zones no. x 7.5)] g

- Example 1:
  A total of 60ft of pipe line is installed for a 2 zones system,
  [0.11 x (60 - 2 x 25)] oz
  = [0.11 x (60 - 50)] oz
  = 1.1 oz of additional refrigerant
- Example 2:
  A total of 40ft of pipe line is installed for a 2 zones system,
  [0.11 x (40 - 2 x 25)] oz
  = [0.11 x (40 - 50)] oz
  = -1.1 oz
  = NO addidtional refrigerant needed when getting NEGATIVE value.

Indoor and Outdoor Unit Installation

Micron Gauge Connection

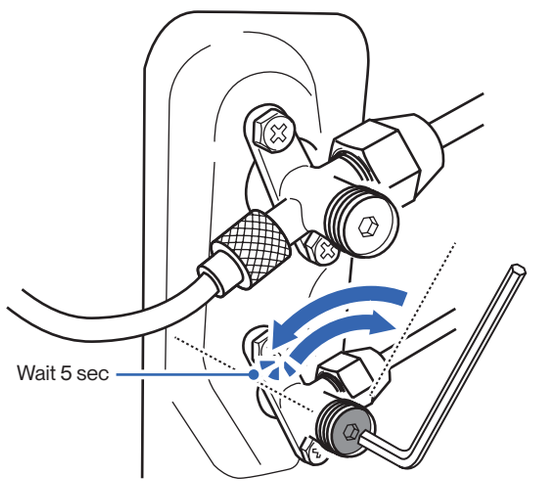


Indoor and Outdoor Unit Installation (2 Zones System)

Vacuum Pumping, Leak Test (Using Manifold Gauge), and Adjust Refrigernat Level

- Analog manifold gauge is less accurate and measure vacuum at a lower resolution than a digital micron gauge. DELLA recommend using micron gauge for vacuum pumping mentioned on Page 62

1. Remove the protective caps from the service port, low-pressure valve (Lo·R), and high-pressure valve (Hi·R).
2. Connect the pressure hose with a push pin from the manifold gauge to the service port.
3. Connect the charging hose from the manifold gauge to the vacuum pump.
4. OPEN the low-pressure valve (Lo·M) and CLOSE the high pressure valve (Hi·M) on the manifold gauge.
5. Turn on the vacuum pump to vacuum the system.
6. Let the vacuum pump run for at least 15 minutes and make sure the gauge indicates −0.1 Mpa (−76 cmHg).
   NOTE: Depending on your refrigerant line set length and vacuum pump power, it might takes longer time.
7. Close the pressure valve (Lo·M) and turn off the vacuum pump.
8. Leave the system connected with the manifold gauge for 5 minutes, then make sure the gauge indication does not exceed 0.005 Mpa.
   NOTE: In the case of a leak, and the pressure value increases, reconnect all the connection joints on the refrigerant line, and redo the vacuum pumping.
9. Open the high-pressure valve (Hi·R) for 1/4 turn, then close the valve after 5 seconds.



10. Check all connection joints with refrigerant leak detector or liquid leak detector.
11. To determind if you need additional refrigerant in your system, Please cheak the spec sheet on Page 21.
12. Turn on the air conditioner and confirm it can power on properly, and then turn it off.
13. Disconnect the pressure hose from the service port, then fully open the low pressure valve (Lo·R) and high pressure valve (Hi·R).
14. Put the protective caps back on the service, low-pressure valve, and high-pressure valve then tighten the caps.
15. Reinstall the valve cover on the outdoor unit.

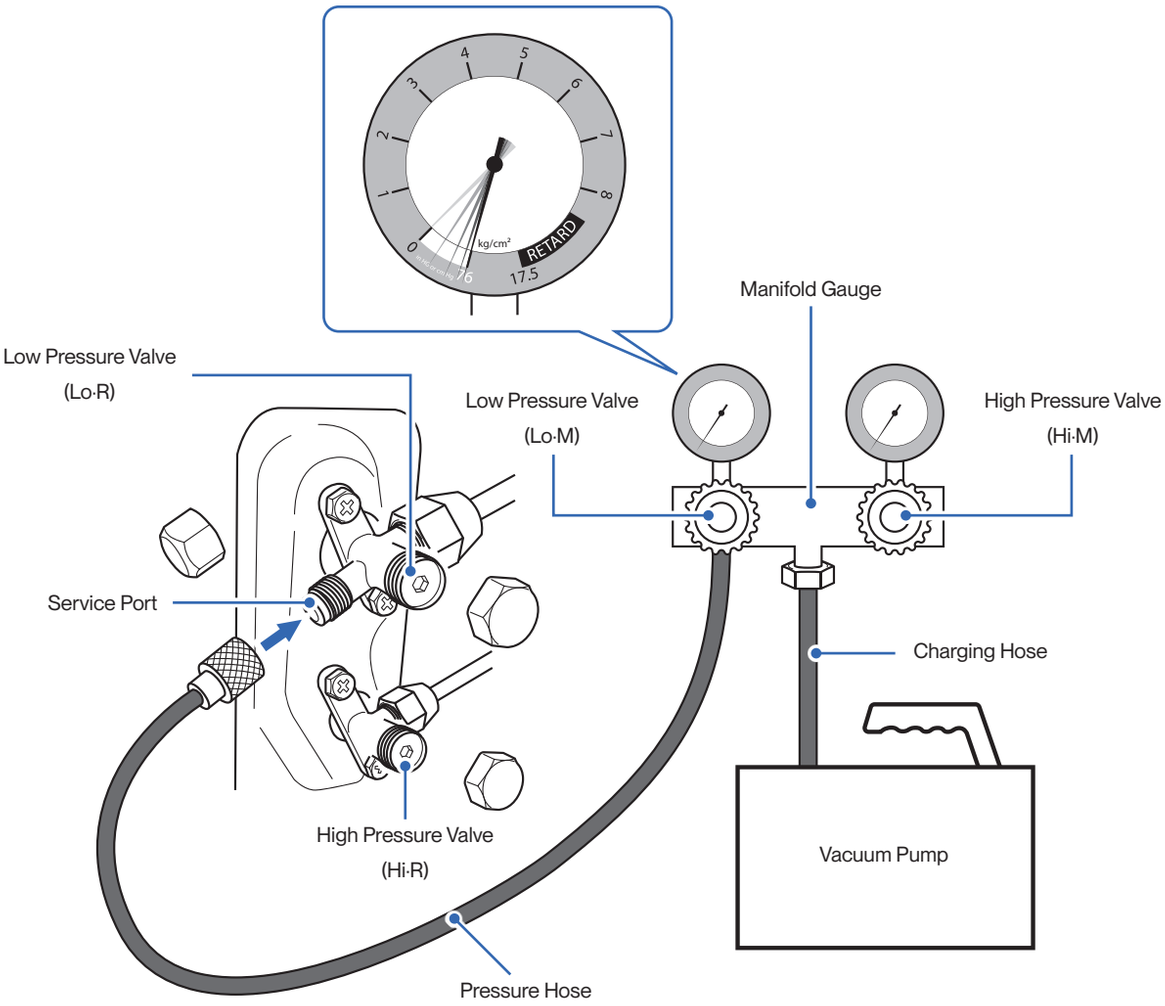
- Only add refrigerant if you use a lengthened refrigerant line. There is no need to adjust or recover any amount refrigerant if you use a standard or shortened refrigerant line.
- Do not open the refrigerant valve before vacuum pumping.
- Stop and disconnect the vacuum pump from the system before opening the refrigerant valve.
- Each indoor unit connected to the multizone outdoor unit must vacuumed respectively.

Additional Refrigerant

- Additional Refrigerant Amount (ounce)
  [0.11 × (Total install length (ft) - Supported zones no. x 25)] oz
- Additional Refrigerant Amount (gram)
  [10 × (Total install length (m) - Supported zones no. x 7.5)] g
- Example 1:
  A total of 60ft of pipe line is installed for a 2 zones system,
  [0.11 x (60 - 2 x 25)] oz
  = [0.11 x (60 - 50)] oz
  = 1.1 oz of additional refrigerant
- Example 2:
  A total of 40ft of pipe line is installed for a 2 zones system,
  [0.11 x (40 - 2 x 25)] oz
  = [0.11 x (40 - 50)] oz
  = -1.1 oz
  = NO addidtional refrigerant needed when getting NEGATIVE value.

Indoor and Outdoor Unit Installation

Manifold Gauge Connection



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Indoor and Outdoor Unit Installation (3-5 Zones System)

Vacuum Pumping, Leak Test (Using Micron Gauge) *RECOMMENDED, and Adjust Refrigernat Level

- Before vacuum pumping, make sure all refrigerant pipings are connected.
- It is recommended to perform a nitrogen leak check on all refrigerant joints.
- Check if all wiring is connected.

1. Remove the protective cap from the master valve service port and from all the low-pressure valves.
2. Connect the pressure hose and micron gauge to a valve adapter.
3. Connect the valve adapter to the master valve service port.
4. Connect the other end of the pressure hose to the vacuum pump.
5. Open the valves on the low pressure valves.

- Only open the low pressure valves, DO NOT open the high pressure valves.

6. Open the valve adapter on the vacuum hose, then turn on the vacuum pump to vacuum the system.
7. Let the vacuum pump run until the micron gauge indicate the value of 350 micron.
8. Close the valve adapter on the vacuum hose and turn off the vacuum pump.
9. Leave the system connected with the micron gauge for 10 - 15 minutes, then make sure the gauge indication does not exceed 500 micron.
   NOTE: In the case of a leak, and the micron level increases above 500 micron, reconnect all the connection joints on the refrigerant line, and redo the vacuum pumping.

- You must leave the micron gauge and vacuum pump connected for a short period after vacuuming the system and check for a successful deep vacuum in order to make sure there is no leak and no contaminants inside the refrigerant lineset.

10. Disconnect the valve adapter from the master valve service port.
11. Fully open the master valve and all the high pressure valve.
12. Put the protective caps back on all the valves and tighten the protective caps.
13. Reinstall the cover on the outdoor unit.
14. To determind if you need additional refrigerant in your system, Please cheak the spec sheet on Page 21.

- Only add refrigerant if you use a lengthened refrigerant line. There is no need to adjust or recover any amount refrigerant if you use a standard or shortened refrigerant line.
- Do not open the refrigerant valve before vacuum pumping.
- Stop and disconnect the vacuum pump from the system before opening the refrigerant valve.

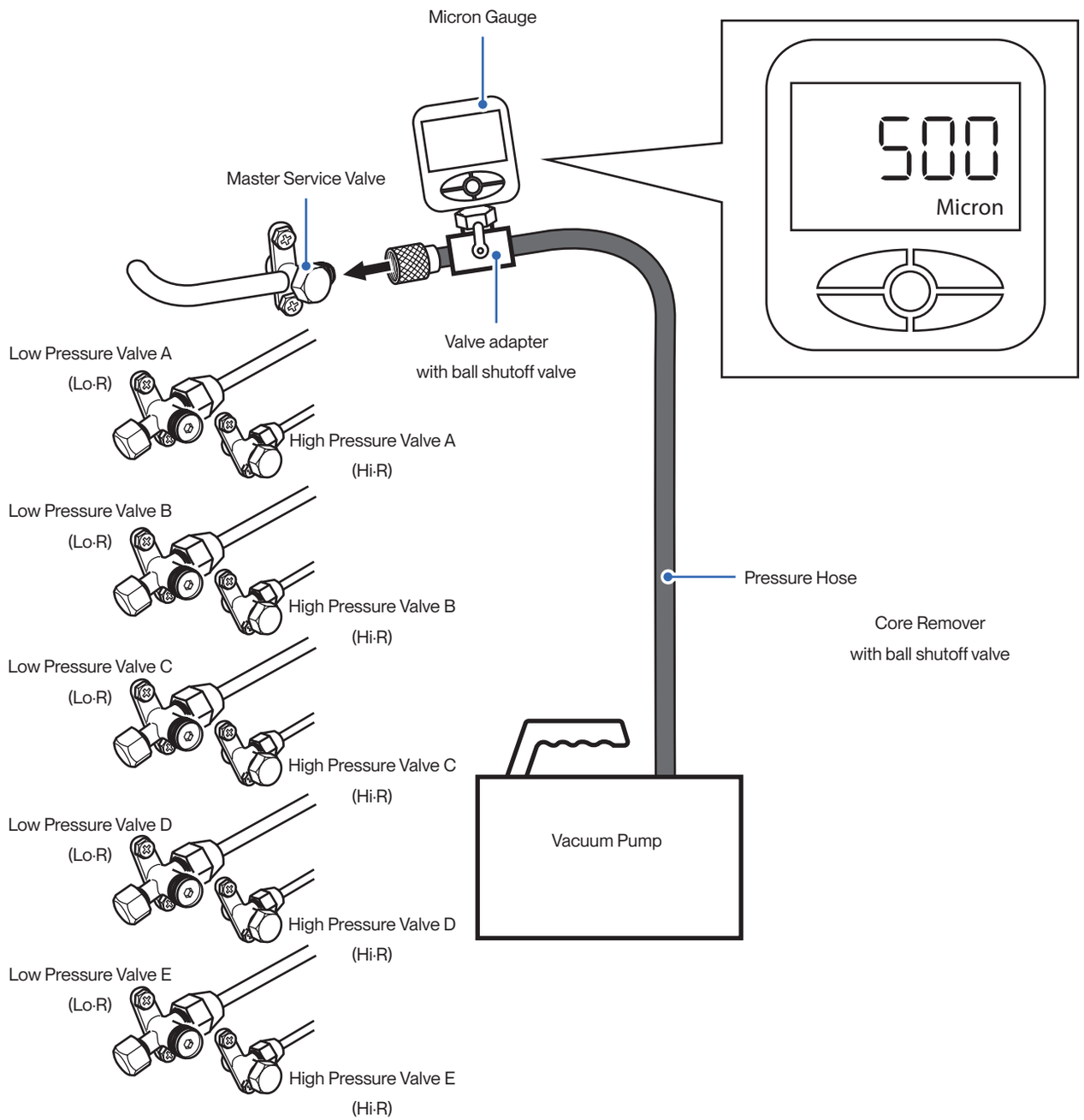
Additional Refrigerant

- Additional Refrigerant Amount (ounce)
  [0.11 × (Total install length (ft) - Supported zones no. x 25)] oz
- Additional Refrigerant Amount (gram)
  [10 × (Total install length (m) - Supported zones no. x 7.5)] g

- Example 1:
  A total of 150ft of pipe line is installed for a 5 zones system,
  [0.11 x (150 - 5 x 25)] oz
  = [0.11 x (150 - 125)] oz
  = 2.75 oz of additional refrigerant
- Example 2:
  A total of 60ft of pipe line is installed for a 3 zones system,
  [0.11 x (60 - 3 x 25)] oz
  = [0.11 x (60 - 75)] oz
  = -1.65 oz
  = NO addidtional refrigerant needed when getting NEGATIVE value.

Indoor and Outdoor Unit Installation (3-5 Zones System)

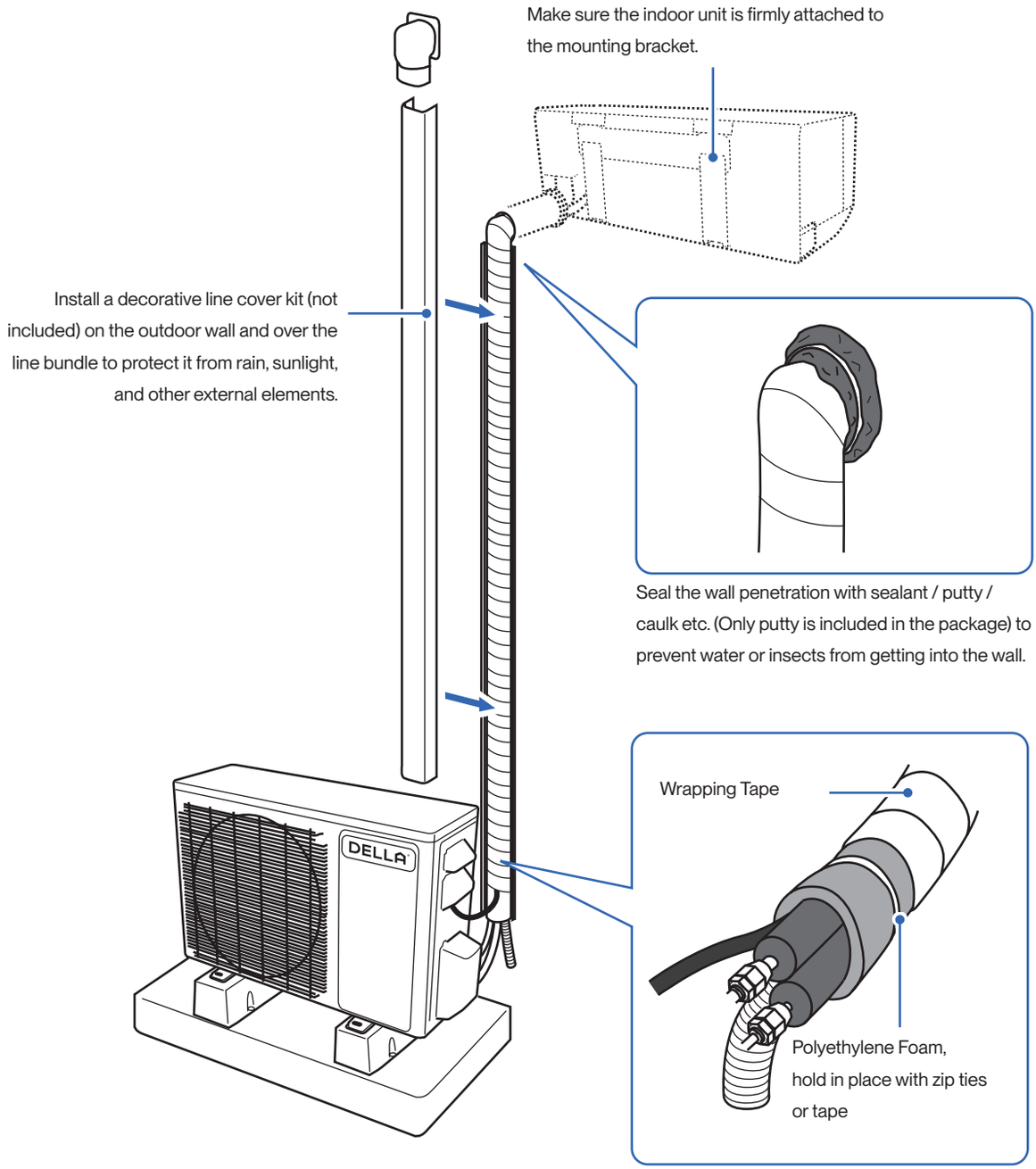
Micron Gauge Connection



Finishing

Line Set Insulation, Bundling, and Finishing Touch

Refrigerant Pipes, drain hose, and electric cable must be properly arranged and bundled with insulation tape to maximize the unit's efficiency and prevent condensation or water leak.



QUICK TIPS

- When wrapping and bundling the line set, avoid over tightening to prevent the insulating materials from over compression.
- Make sure all connection joints are properly insulated.

Finishing

Check List

Go through the following list and check your installation.

☑ the check box for each confirmation.

Check List	Status
Are the indoor and outdoor unit kept at least the minimum distance away from the closest wall and obstacle?	☐
Is the indoor mounting plate secured?	☐
Are all the panels on the unit secured and would not fall out?	☐
Is the drain hose properly attached?	☐
Are the refrigerant pipes securely connected and no refrigerant leakage?	☐
Are the refrigerant pipes and electrical cables from each indoor unit connected to their corresponding ports? (e.g. Indoor unit A connecting to refrigerant valve A and electrical termainal A on the outdoor unit)	☐
Are all pipes, hoses, and cable bundled and wrapped with insulation tape?	☐
Is the system properly vacuumed?	☐
Is all the wall opening sealed off?	☐
Are the refrigerant valves fully opened?	☐
Do the power supply and voltage match the unit rating? (Check before connecting to power supply)	☐
Is the electrical wiring in the unit connected and secured?	☐
Are the units properly grounded?	☐
Is the power breaker, fuse, or protection device installed?	☐
Can the remote control send control commands to the air conditioner?	☐

- Any failures, accidents, or damages caused by improper installation are not covered by the warranty.

Finishing

Test Run

After the installation, test run the mini split system and take sure it performs and works properly without water leak or abnormal noise.

1. Turn on the power supply.
2. Turn on the air conditioner using the remote control.
3. Test the unit at the lowest temperature in COOL mode.
4. Test the unit at the highest temperature in HEAT mode.
5. Test each mode for at least 8 minutes.
   - Measure the air temperature at the air outlet.
   - Check if water drains properly from the drainage hose.
   - Check if the louver and deflectors move properly.
6. If everything is operating normally, return to normal setting and turn off the air conditioner.
7. Inform the user to read the operation instruction before use, and demonstrate to the user how to use the air conditioner, the necessary knowledge of service and maintenance, and a reminder of accessories storage.

- Wait for at least 2 hours before turning on the air conditioner after installation. Make sure the air conditioner is powered during the wait time and let the system to balance the refrigerant pressure and calibrate sensors.

QUICK TIPS

- If the ambient temperature exceed the normal operation range, lift the front panel and use the emergency button to run COOL and HEAT modes.

QUICK TIPS

Contact us if you encounter any problems during or after the installation.

support.dellahome.com

800-863-4143
6:00 a.m. - 4:00 p.m. PST
Monday - Friday

24/7 Live Chat

www.dellahome.com
support@dellahome.com
800-863-4143
6:00 a.m. – 4:00 p.m. PST Monday – Friday