LG
Life's Good

MULTI V™

Convertible Surface Mounted and Ceiling Suspended Indoor Units

Installation Manual

Convertible Surface Mounted Indoor Unit
Ceiling Mounted

Convertible Surface Mounted Indoor Unit
Wall Mounted

Ceiling Suspended Indoor Unit

Do not throw away or destroy this manual.

Please read carefully and store in a safe place for future reference.

The instructions below must be followed to prevent product malfunction, property damage, injury or death to the user or other people. Incorrect operation due to ignoring any instructions will cause harm or damage. The level of seriousness is classified by the symbols described below.

"⚠**WARNING**" *This symbol indicates that the action or lack thereof could possibly cause death or personal injury.*

"⚠**CAUTION**" *This symbol indicates that the action or lack thereof could possibly cause property damage.*

"⚠ ***Note:*** " *This symbol indicates that the action or lack thereof could possibly cause equipment malfunction or failure.*

"  " *This symbol indicates that the following action should not be performed.*

A list of safety precautions begins on page 4.

MULTI V™

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IMPORTANT!

- Please read this manual completely before installing the product.
- As an installer or service provider, it is your job to install or service the system to operate safetly and efficiently. Improper installation, adjustment, alteration, service, or maintenance is dangerous to personnel and/or property and can void the warranty.
- Follow the instructions in this manual to prevent product malfunction, property damage, injury or death to the user or other people. Incorrect operation due to ignoring any instructions will cause harm or damage.
- The level of seriousness is classified by the symbols described below.

"⚠WARNING" *This symbol indicates that the action or lack thereof could possibly cause death or personal injury.*

"⚠CAUTION" *This symbol indicates that the action or lack thereof could possibly cause property damage.*

"⚠ ***Note:*** " *This symbol indicates that the action or lack thereof could possibly cause equipment malfunction or failure.*

" " *This symbol indicates that the following action should not be performed.*

ROUGH-IN

⚠WARNING

All electric work must be performed by a licensed electrician and conform to local building codes or, in the absence of local codes, with the National Electrical Code (NEC) NFPA 70/ ANSI C1-1993 or current edition, and the instructions given in this manual.
If the electrical work is not performed properly, it may result in fire, electric shock, physical injury or death.

Do not install, remove, or re-install the unit by yourself (customer).
There is risk of fire, electric shock, physical injury or death.

Ask the dealer or an authorized technician to install the unit.
Improper installation by the user may result in water leaks, fire, electric shock, physical injury or death.

For re-installation of the installed unit, always contact the dealer or an authorized service provider.
There is risk of fire, electric shock, physical injury or death.

Be very careful when transporting the unit.
Indoor unit weight and size preclude one person carrying the unit. Use two or more people to transport the unit without the assistance of mechanical transport equipment. There is a risk of personal injury.

Do not handle indoor units without the use of gloves and protective clothing. The unit may have sharp edges.
There is a risk of personal injury.

Dispose the packing materials safely.
Destroy the structure of plastic packaging and boxes to prevent children from playing with them. There is a risk of injury, suffocation and/or death to humans, animals and wildlife.

Do not install the unit on an unstable structure.
It may result in the failure of the structure, property damage, equipment damage, and/or personal injury or death.

R410A refrigerant creates toxic gases when burned. Do not store or use flammable products near the unit.
There is risk of product failure, fire, and physical injury or death.

Replace all control box and panel covers after completing work.
Failure to do so may result in dust or water infiltration, causing fire, electric shock, and physical injury or death.

Always wear safety glasses and work gloves when installing the unit. A rapid release of R410A refrigerant may cause frostbite.

Properly insulate all cold surfaces when installing this product.
Uninsulated cold surfaces may generate condensate that may drip and cause water damage to wall and floors.

This product is engineered to be used for comfort cooling / heating. It is not to be used in applications that require precision cooling or heating such as data centers, food preservation, wine coolers, refrigeration and / or freezer applications.
There is risk of property damage.

ROUGH-IN, CONTINUED

⚠CAUTION

Provide field-installed electrical isolation devices to protect sensitive equipment sharing a power source with this product. Provide sufficient protection against the effects of electromagnetic fields (EMF) and electrical noise.
Inverter equipment, private power generators, high-frequency medical equipment, or radio communication equipment may cause the air conditioner to malfunction.

Provide sufficient electrical system protection against lighting strikes.
The risk is loss of warranty, product damage, and / or complete loss of this product.

⚠ *Note:*

Airflow restriction devices such as filters shall not exceed the rated maximum static pressure limits of the indoor unit fan assembly.
Doing so will cause product malfunction.

When installing refrigerant piping, consider pipe expansion and use flare connections when connecting.
Improper pipe installation may lead to pipe fatigue, failure, and a rapid release of refrigerant, frostbite, suffocation, physical injury, and or death.

Do not install this product outdoors or where it will be directly exposed to coastal conditions.
Air from the ocean may cause the evaporator fins to corrode, which could cause product malfunction, improper operation, and shorten the expected useful life of the product.

Verify the piping system has been properly evacuated (<500 ppm), and the system's refrigerant charge is correct before commissioning and after any repair is made.
Improper system evacuation and/or an improper refrigerant charge may cause product malfunction.

Do not install this product in a location that is noise sensitive. Provide additional acoustical treatment as needed.
The risk is occupants may be discomforted.

POWER WIRING

⚠WARNING

The information contained in this manual is intended for use by a qualified, experienced service technician who is familiar with safety procedures and equipped with the proper tools and test instruments.
Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury or death.

Do not use a field-provided communications cable between the indoor unit and wired zone controllers. Use only LG provided communications cable. Do not shorten, modify, or lengthen the LG provided communications power cable.
The product will malfunction.

This equipment uses high voltage electricity. Only a qualified, experienced electrician should wire this system. Never assume that the electrical power has been disconnected. Verify with a meter.
Failure to properly respect electricity, use industry best grounding practices, follow suggested wiring instructions, local, and NEC codes can lead to electrical shock, physical injury, seizures, and death.

Properly secure power wires and communications cables at connectors to eliminate wire strain.
Inadequate connections may generate heat or cause a fire and result in physical injury or death.

Use a properly sized circuit protective device. Using an undersized protective device will lead to equipment malfunction. Installing an oversized protective device may cause burns, fire, and death.
There is risk of fire, electric shock, explosion, physical injury or death.

Verify all power, ground, and communications wires and cables are properly terminated before applying power to the product. Securely tighten all wire terminations.
Improper and/or loose wire and communications cable terminations may cause product malfunction, fire, physical injury or death.

Turn power off at the unit disconnect before servicing.
Electrical shock can cause physical injury or death.

INTRODUCTION

Multi V™ Convertible Surface Mounted and Ceiling Suspended Indoor Units

This manual describes how to install the Multi V™ Convertible Surface Mounted and Ceiling Suspended Indoor Units (IDU). The convertible surface mounted IDU can be installed on a wall or on the ceiling. The ceiling suspended IDU is intended for ceiling installation only. This manual covers IDUs listed in Table 1.

Table 1: IDU Model Numbers and Capacities

Unit	Model Number	Capacity
Multi V™ Convertible	ARNU093VEA2	9,600 Btu/h
Multi V™ Convertible	ARNU123VEA2	12,300 Btu/h
Multi V™ Ceiling Suspended	ARNU183VJA2	19,100 Btu/h
Multi V™ Ceiling Suspended	ARNU243VJA2	24,200 Btu/h

These units are part of an LG Variable Refrigerant Flow (VRF) Heating, Ventilation, and Air Conditioning (HVAC) system. All of these units operate on 208–230 V, 60 Hz, 1-phase power.

⚠CAUTION

Install these unit(s) in the location(s) specified by your architectural blueprints, HVAC system layout drawings, or other appropriate documents. Perform the installation according to the procedures in this manual. Improper installation may result in injury to or death of personnel, equipment malfunction or property damage.

⚠ Note:

Additional information on these units is available in the Multi V™ Indoor Unit Engineering Manual available at http://www.lg-vrf.com.

Convertible IDU – Ceiling Mounted

Ceiling Suspended IDU

Convertible IDU – Floor Mounted

Indoor Units Nomenclature

Family
ARN = Multi V Indoor Unit
(Refrigerant R410A)

Type
U = DC Inverter Heat Pump

Nominal Capacity
(Nominal cooling capacity in Btu/h)
05 = 5,000
07 = 7,000
09 = 9,000
12 = 12,000
15 = 15,000
18 = 18,000
24 = 24,000

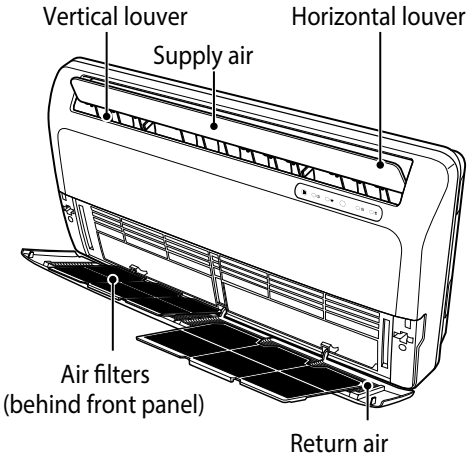
Electrical Ratings
3 = 208–230V/60Hz/1Ph

Model
B1 = Ducted (low static, convertible)
B2 = Ducted (low static, convertible)
B3 = Ducted (low static, bottom return)
B4 = Ducted (low static, bottom return)
B8 = Ducted (high static)
BG = Ducted (high static)
BH = Ducted (high static)
BR = Ducted (high static)
CE = Floor Standing (small frame)
CF = Floor Standing (large frame)
NJ = Vertical / Horizontal Air Handling Unit
NK = Vertical / Horizontal Air Handling Unit
S5 = Standard Wall Mounted
S8 = Wall Mounted/Mirror
SEL = Standard Wall Mounted
SER = Wall Mounted/Mirror
TJ = 1-Way Ceiling Cassette
TL = 2-Way Ceiling Cassette
TM = 4-Way Ceiling Cassette (3' x 3')
TN = 4-Way Ceiling Cassette (3' x 3')
TP = 4-Way Ceiling Cassette (3' x 3')
TQ = 4-Way Ceiling Cassette (2' x 2')
TR = 4-Way Ceiling Cassette (2' x 2')
VE = Convertible Surface Mounted
VJ = Ceiling Suspended

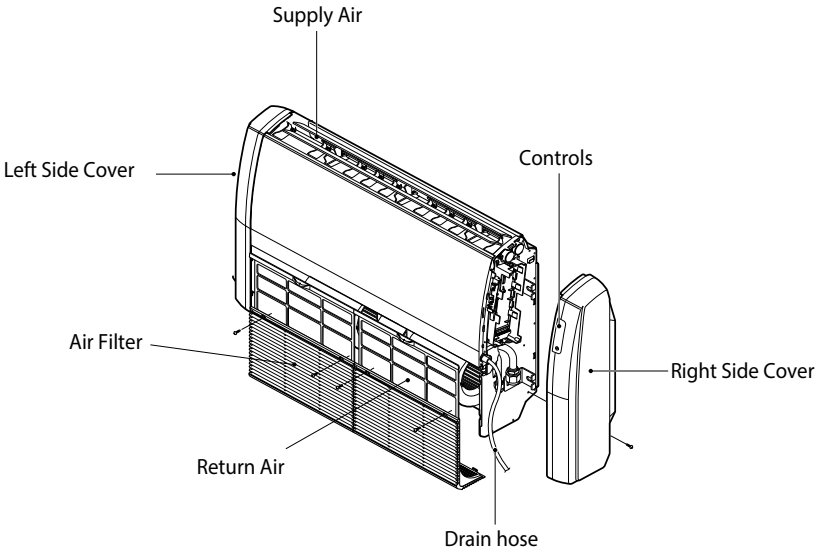
Feature
A = Basic
C = Plasma Filter
G = Low Static
L = Neo Plasma
R = Mirror and Neo Plasma
U = Uncased

Generation
2 = Second
A = Second, Revision A

Convertible Surface Mounted Indoor Unit – VE Chassis



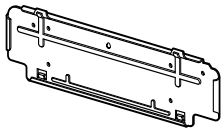
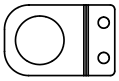
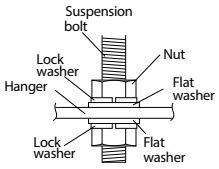
Ceiling Suspended Indoor Unit – VJ Chassis



INSTALLATION PARTS

Table 2 lists installation parts. Be sure all field-provided parts meet appropriate local and national codes. Quantities are per each unit installed. O=required; X=not used; A/R=as required

Table 2: Installation Parts

Part	Qty	Field Supplied?	Convertible Wall Mounted	Convertible Ceiling Mounted	Ceiling Suspended
Installation instructions (this manual)	1	No	O	O	O
Installation plate 	1	No	O	X	X
Type A screw with plastic anchor 	4	No	O	X	X
Conduit mounting plate 	1	No	O	O	O
Type B screw 	2	No	O	O	O
Wall controller and controller cable (accessory – purchased separately)	1	No	Optional	O	O
Copper pipe: Gas side 3/8” and 1/2,” Liquid side: 1/4”	A/R	Yes	O	O	O
Insulation materials	A/R	Yes	O	O	O
Additional drain pipe	A/R	Yes	O	O	O
Hanging bolt (3/8” or M10) Nut (3/8” or M10) Lockwasher (3/8” or M10) Flat Washer (3/8” or M10) Hanging bolt ceiling anchors 	4 12 4 12 4	Yes Yes Yes Yes Yes	X X X X X	O O O O O	O O O O O
Communications cable, IDU to ODU: 18 AWG, 2 conductor, stranded and shielded (minimum)	A/R	Yes	O	O	O

INSTALLATION TOOLS

Table 3 lists installation tools. O=required; X=not used; A/R=as required

Table 3: Installation Tools

Tools	Qty	Field Supplied?	Wall Mounted Convertible	Ceiling Mounted Convertible	Ceiling Suspended
Level	1	Yes	O	O	O
Screw driver	1	Yes	O	O	O
Electric drill	1	Yes	O	O	O
Hole core drill bit (size A/R)	1	Yes	O	O	O
Flaring tool set	1	Yes	O	O	O
Torque wrenches	A/R	Yes	O	O	O
Wrench, adjustable	1	Yes	O	O	O
Sleeve, pipe, drain and copper (pipe materials)	A/R	Yes	O	O	O
Bushing, sleeve for wall penetration	A/R	Yes	O	O	O
Caulk or sealer for wall penetration	A/R	Yes	O	O	O
Vinyl tape	A/R	Yes	O	O	O
Pipe supports	A/R	Yes	O	O	O
Tube cutter	A/R	Yes	O	O	O

ROUGHING IN

Unpack the Indoor Unit / Inspect for Freight Damage

⚠ CAUTION

Do not move or lift the boxed or unboxed unit alone. Use at least two people to lift the unit.
The unit is heavy. Lifting it alone can result in severe injury.

⚠ Note:
After opening, if the unit is damaged, repack the unit as it was shipped to you. RETAIN ALL PACKING MATERIALS. In general, freight damage claims will be denied if the original packing materials are not retained for the claims adjustor to inspect. Contact your supervisor for instructions to file a freight claim and order a replacement unit.

⚠ Note:
DO NOT lift the unit by the refrigerant piping or the drain pan pipe stub. Use the hanger brackets or the unit case only to lift the unit. Damage to the piping components may occur.

1. Before opening, check the unit model number on the box. Verify it is the correct capacity, unit type, and voltage. Refer to the Nomenclature chart on page 7.
2. Move the box to a convenient location near the installation site before removing the shipping and protective materials.
3. Place the box on a solid surface.
4. Cut the white reinforced nylon straps.
5. Open the top of the box and fold back all four flaps.
6. Remove the protective cardboard / Styrofoam® top sheet and place to the side
7. The cover panels are not attached to the box. Lift the cardboard carton by the flaps and place it to the side.
8. Remove the plastic moisture barrier.
9. Check the unit nameplate data and model number. Verify the unit voltage, and capacities are correct before proceeding.
10. Locate and retain the included installation parts.
11. Locate and retain the installation manual.
12. Check the supply and return air grilles for obstructions.
13. Lift the unit and inspect for freight damage. If damage is found, repack the unit as it was received in the original container. Contact your supervisor for instructions to file a freight claim and order a replacement unit.

ROUGHING IN

Overview

Location Selection

Refer to Figure 1 for clearance dimensions for the ceiling suspended unit. Refer to Figure 2 for clearance dimensions for the convertible unit, both ceiling mounted and wall mounted.

⚠ Note:

The ceiling suspended unit and the ceiling mounted convertible unit have different clearance dimensions.

Choose a location that conforms to the following:

- The structure will support the weight of the unit and accessories.
- The mounting location is strong and solid enough to prevent vibrations.
- Allows the unit to easily be hung in a level position.
- Provides clearance around the unit considering refrigerant piping, condensate line installation, control panel, and major component maintenance access.
- Is free from electrical noise caused by nearby generators and high voltage wiring.
- Is away from airborne sources of grease, steam, excessive heat, flammable substances, salt, and/or acidic vapors.
- Ambient airborne particulate is at nominal levels.
- Select a location with no obstacles in front of the unit and where the condensation drain pipe can be conveniently routed away.
- For the convertible unit, ensure there is a space of more than 7 7/8” between walls and the left and right sides. Also ensure there is a space of more than 2” between the bottom of the unit and the wall or floor. If installing on a wall, position the unit as low on the wall as possible, but more than 2” above the floor.
- For the ceiling suspended unit, ensure there is a space of more than 27 9/16” between walls and the left and right sides. Also ensure there is a space of more than 11 3/16” between the rear of the unit and the wall.
- Do not install the unit near a source of heat or steam, in a doorway, or near high-frequency generators.
- Do not install where sulfurous acid gas or corrosive gas is generated.
- Do not install where cooking oil or iron powder are generated or where flammable gas is generated, flows, stored, or vented.

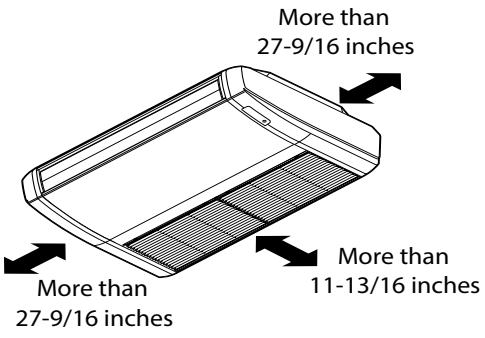


Figure 1: Ceiling Suspended Unit Clearance Dimensions.

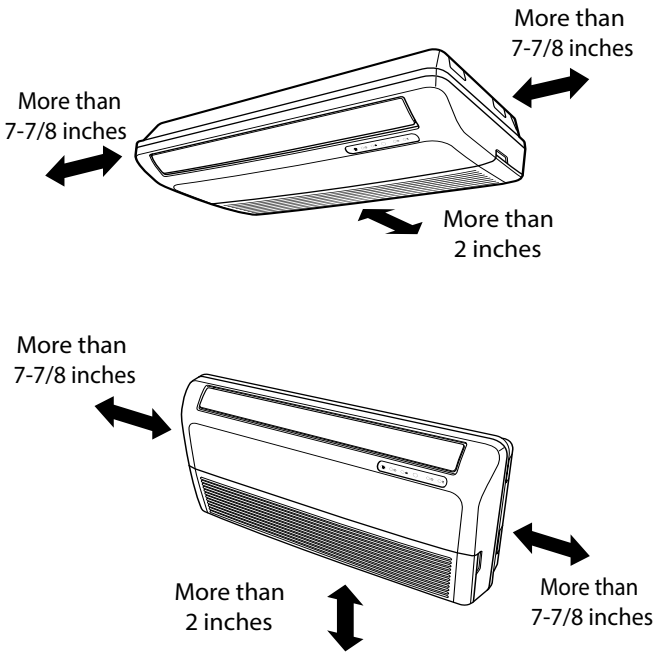


Figure 2: Convertible Surface Mounted Unit Clearance Dimensions.

Preparing for Installation

1. Refer to Figure 3. Remove the five screws securing the front cover to the chassis.
2. Release the three clips securing the front cover to the chassis.
3. Pull front panel upward and remove panel from chassis.
4. Pull the side covers upward to connect the piping..
5. Remove the piping knock-out from the side cover. Be sure to smooth the edges where the knock-out is removed.
6. Remove the rubber stopper from the desired drain side.
7. Connect the drain pipe to the unit's drain stub. Be sure the connection is watertight.

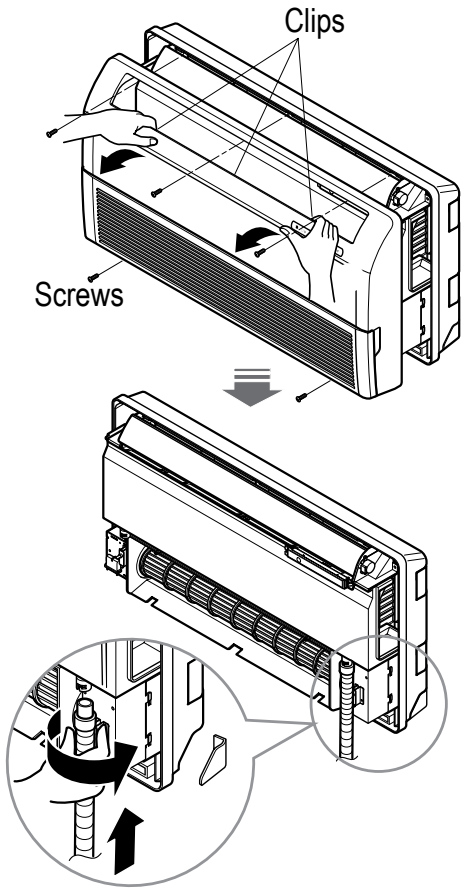


Figure 3: Preparing for Installation

Wall Mounting the Convertible Unit

⚠ ***Note:***

Use caution when selecting the mounting location. Determine where existing wiring and/or piping are routed through the wall and avoid these areas when mounting the plate and drilling access holes in the wall.

1. Be sure the mounting location is strong enough to prevent vibration.
2. Position the mounting plate at the installation location on the wall. Be sure to allow for the spacing as shown in Figure 4.
3. Use the level to be sure the mounting plate is level.
4. Mount the installation plate on the wall with six Type A screws as shown in Figure 5. If installing on a concrete wall, use field-supplied concrete anchor bolts.

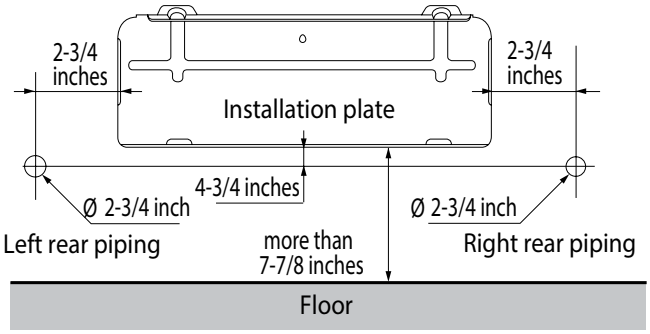


Figure 4: Mounting Plate Location

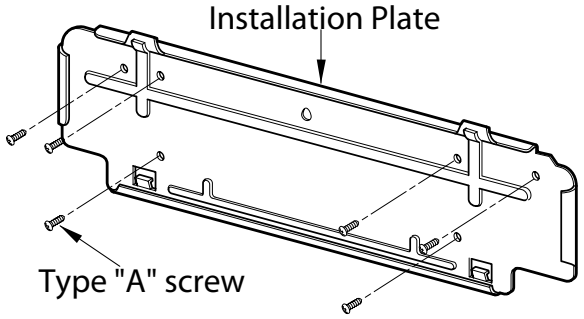


Figure 5: Secure Mounting Plate

ROUGHING IN

Convertible Indoor Unit

Ceiling Mounting the Convertible Unit

⚠WARNING

Firmly tighten the nuts and bolts to prevent the unit from falling.

⚠ Note:

Use caution when selecting the mounting location. Determine where existing wiring and/or piping are routed through the ceiling and avoid these areas when mounting the unit and drilling access holes.

1. Be sure the mounting location is strong enough to prevent vibration.
2. Refer to Figure 6. Measure and mark the positions of the hanging bolts and the piping hole.
3. Drill holes in the ceiling for the four ceiling anchor bolts.
4. Insert the nuts and washer onto the hanging bolts to lock the bolts on the ceiling.
5. Firmly mount the hanging bolts to the anchor nuts.
6. Refer to Figure 7. Secure the unit hangers on the hanging bolts with nuts, washers and lock washers.
7. Before final tightening of the nuts, determine at what angle the unit will be positioned. Refer to Figure 8 for examples of correct and incorrect positioning. The unit must be positioned so that condensation will flow from the unit through the drain pipe.
8. Adjust the nuts to position the unit as desired. Tighten the nuts to prevent the unit shifting position.

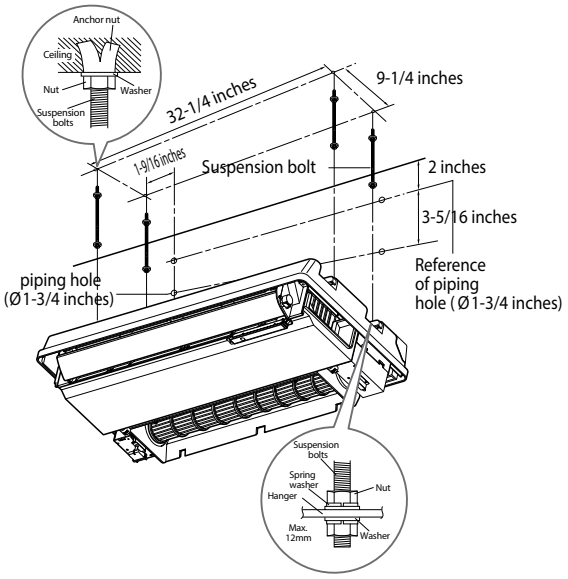


Figure 6: Convertible Unit Ceiling Mounting

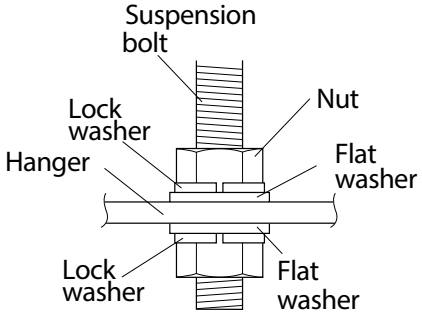


Figure 7: Detail of Securing Hanging Bolts

Prepare Refrigerant Pipes for Installation

1. Press on the upper side of the pipe clamp.
2. Slowly unfold the pipes downward as shown in Figure 9. Do not move the pipes outward as shown in Figure 10.
3. Carefully bend the pipes to the left side of the chassis. Refrigerant pipes will be connected in a later step.

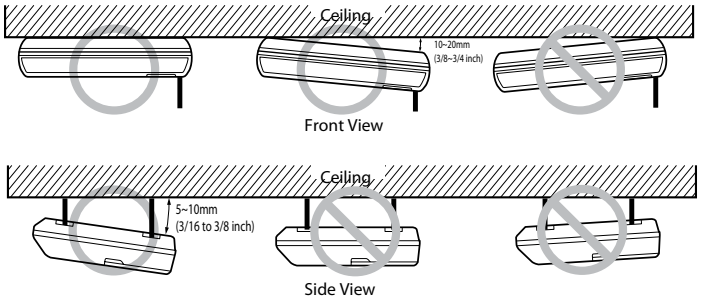


Figure 8: Positioning the Ceiling Mounted Unit

Mounting the Ceiling Suspended Unit

⚠WARNING

Firmly tighten the nuts and bolts to prevent the unit from falling.

⚠ Note:

Use caution when selecting the mounting location. Determine where existing wiring and/or piping are routed through the ceiling and avoid these areas when mounting the unit and drilling access holes.

1. Be sure the mounting location is strong enough to prevent vibration.
2. Refer to Figure 11. Measure and mark the positions of the hanging bolts and the piping hole.
3. Drill holes in the ceiling for the four ceiling anchor bolts.
4. Insert the nuts and washer onto the hanging bolts to lock the bolts on the ceiling.
5. Firmly mount the hanging bolts to the anchor nuts.
6. Refer to Figure 7. Secure the unit hangers on the hanging bolts with nuts, washers and lock washers.
7. Before final tightening of the nuts, determine at what angle the unit will be positioned. Refer to Figure 8 for examples of correct and incorrect positioning. The unit must be positioned so that condensation will flow from the unit through the drain pipe.
8. Adjust the nuts to position the unit as desired. Tighten the nuts to prevent the unit shifting position.

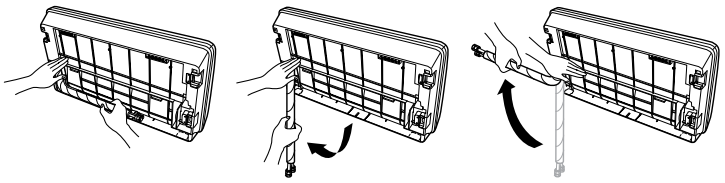


Figure 9: Correct Pipe Movement

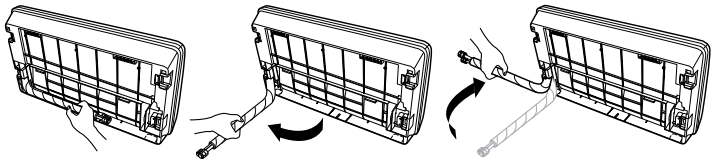


Figure 10: Incorrect Pipe Movement

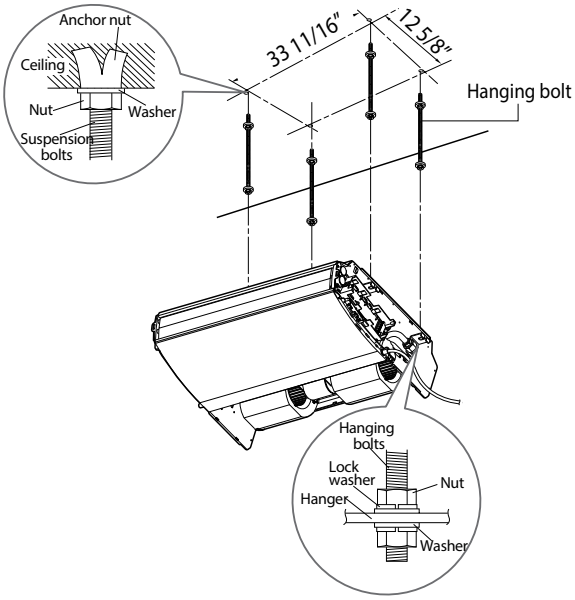


Figure 11: Ceiling Suspended Unit Mounting

Routing the Drain Pipe

⚠ Note:

Improper drain pipe connection and/or routing can cause unit malfunction/damage and water damage to property.

Both the convertible and the ceiling suspended units use the gravity drain method for removing condensation. If a pump is required, it must be field provided and installed.

1. Refer to Figure 12. Use a hole core drill to make a hole in the wall for the refrigerant and drain piping. Be sure to avoid pipes, wiring, and other obstructions in the wall.
2. Route the drain pipe through the hole.
3. Ensure drain pipe is in a safe position. It will be routed to its final position in a later step.

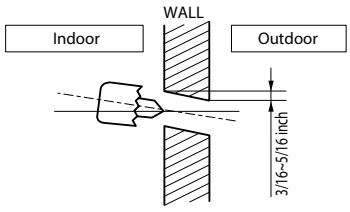


Figure 12: Drill Drain Pipe Hole

Roughing-In Wall-Mounted Zone Controllers

⚠ *Note:*

- *Depending on controller model, zone controller handy boxes **may need to be metric**. Check with your LG applied representative to verify which type of handy box is needed for the zone controller in question.*
- *Use only LG-supplied communications cable. Using field-supplied cable may result in communications problems between the zone controller and the indoor unit.*
- *If additional cable length is needed, order an LG Wired Remote Group Control Extension Cable (30 feet) (Model No. PZCWRC1).*
- *DO NOT cut the quick-connect plugs off or adjust the length of the cable.*
- *Keep the communications cable away from high voltage wires and electromagnetic field (EMF) producing equipment.*
- *Do not route power wiring and communications cables in the same conduit.*
- *Maintain the minimum distance required between the communications cable and power wiring. The minimum required space between the two is dependent on the voltage of the power wiring. Refer to the appropriate Multi V™ Outdoor Unit Engineering Manual for minimum distance specifications.*

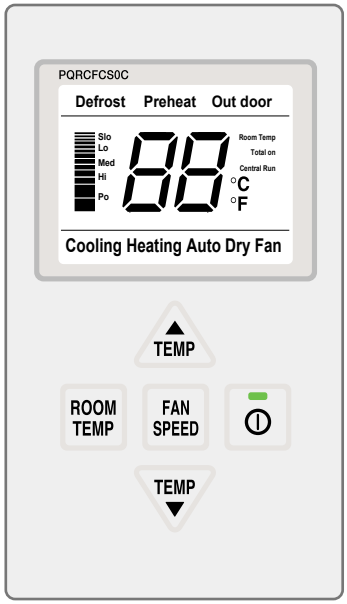


Figure 13: Typical Zone Controller

1. Figure 13 shows a typical zone controller. Your controller may be different. Choose a good location. Proper indoor unit operation depends on the location of the room sensor. A good location will protect the zone controller from direct sunlight and external local sources of water vapor, and heated or cooled air. If no mounting height was specified by the building designer, place the handy box approximately 55 inches above the finished floor.
2. Pull LG communications cable between the zone controller handy box and the indoor unit. A 30 foot cable comes with the wall-mounted zone controller.
3. Store a minimal amount of cable in the handy box. Coil and store any remaining cable near the indoor unit control panel.
4. If the cable between the zone controller and the indoor unit is too long, do not cut the cable and shorten. Coil any spare communications cable, tie-wrap it, and leave it next to the indoor unit location.
5. Zone controller rough-in is complete.

Refrigerant Safety

ASHRAE Standards 15-2010 and 34-2010 offer guidelines that address refrigerant safety and the maximum allowable concentration of refrigerant in an occupied space. Refrigerant will dissipate into the atmosphere, but a certain volume of air is required for this to occur safely. For R410A refrigerant, the maximum allowable concentration of refrigerant is twenty-six (26) lbs. per 1,000 cubic feet of an occupied space. Buildings with twenty-four (24) hour occupancy allow half of that concentration.[1]

ASHRAE Standards 15 and 34 assume that if a system develops a leak, its entire refrigerant charge will dump into the area where the leak occurs. To meet ASHRAE Standards 15 and 34, calculate the refrigerant concentration that may occur in the smallest room volume on the system, and compare the results to the maximum allowable concentration number.[1] Also consult state and local codes in regards to refrigerant safety.

1 Information about ASHRAE Standard 15-2010 / 34-2010 and addenda current as of the date of this publication

⚠ WARNING

Verify the maximum refrigerant concentration level in the space where the indoor unit will be mounted meets the concentration limit for the application.

Refrigerant Pipe Specifications

Use drawn or annealed tempered air conditioning and refrigeration (ACR) copper tubing that meets ASTM B-280 standards. Table 4 lists pipe sizes for the convertible and ceiling suspended units. Choose tube wall thickness to meet local code, UL, and approved for an operating pressure of 551 psig. When bending soft copper tubing, use the largest radius bends practical to reduce the equivalent length of installed pipe. Be sure no traps or sags are present when rolling out soft copper tubing.

Table 4: Pipe Specifications

Unit	Model Number	Pipe Sizes (in, OD)		
		Liquid Line	Vapor Line	Condensate Drain
Multi V™ Convertible	ARNU093VEA2	1/4 Flare	1/2 Flare	5/8
Multi V™ Convertible	ARNU123VEA2	1/4 Flare	1/2 Flare	5/8
Multi V™ Ceiling Suspended	ARNU183VJA2	1/4 Flare	1/2 Flare	5/8
Multi V™ Ceiling Suspended	ARNU243VJA2	3/8 Flare	5/8 Flare	5/8

Refrigerant Pipe Supports

A properly installed pipe system has sufficient support so that pipes do not sag during the life of the system (Figure 14). As necessary, place supports closer for segments where potential sagging could occur. Maximum spacing of pipe supports shall meet local codes.

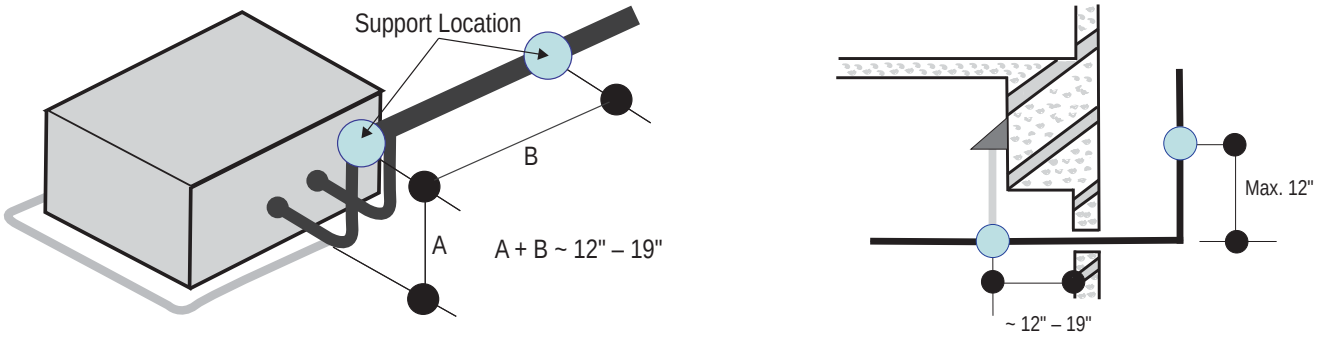


Figure 14: Refrigerant Pipe Support Locations

REFRIGERANT PIPE CONNECTIONS

Flare Connections

Indoor units come with flare type connections on refrigerant pipes. It is the installer's option to use the flare fittings provided or braze the indoor unit to the refrigerant piping system (Figure 15).

Flare Fittings

- All unit flare fittings are 45° and rated for high pressure refrigerant R410A.
- Properly form all flare fittings using best practices.

⚠ ***Note:***

Important!

Do not use any other type of oil (including traditional POE refrigeration oil) as a lubricant. Failure to follow this procedure may lead to restrictions in the refrigeration components.

- Place a drop of PVE oil on the fitting threads before tightening.
- Do not over-tighten flare nuts. Excessive tightening will cause fittings to crack.

Brazed Connections

Indoor units come with flare type connections. It is the installer's option to use the flare fittings provided or braze the indoor unit to the refrigerant piping system. Follow the procedure below for brazing.

⚠ ***Note:***

All joints are brazed in the field. Multi V outdoor unit refrigeration system components contain very small capillary tubes, small orifices, electronic expansion valves, oil separators, and heat exchangers that can easily become blocked. Proper system operation depends on the installer using best practices and utmost care while assembling the piping system.

When brazing, ALWAYS follow these guidelines:

- Keep pipe supplies capped, clean, and store in a dry location.
- Use a tubing cutter to cut the pipe; do not use a saw. De-burr and clean all cuts before assembly. Blow clean the pipe with dry nitrogen prior to assembly.
- Do not use flux, soft solder, or anti-oxidant agents. Use a 15% silver phosphorous copper brazing alloy to produce good flow and avoid overheating.
- While brazing, protect refrigerant shut-off valves (optional, field provided), electronic expansion valves, unit case, insulation, and control components from excessive heat by using a wet rag or a heat barrier spray product.
- While brazing, always use a dry nitrogen purge operating at a minimum pressure of three (3) psig and maintain a steady flow.
- Use adapters to assemble different sizes of pipe.
- Use an LG accessory piping kit or purchase pipes locally.

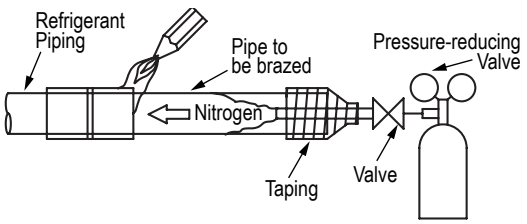


Figure 15: Typical Refrigerant Pipe Brazing

⚠ ***Note:***

While making condensate pipe connections, be careful not to exert lateral force on the drain nipple. Internal damage may occur.

Condensate Pipe Connection

The ceiling suspended and convertible indoor units use the gravity drain method for removal of condensation. All units ship with a flexible drain pipe kit. Note the following when connecting the condensate pipe to the indoor unit.

- Indoor units DO NOT come with condensate pumps, check valves, or a backflow prevention device. If these items are needed, they are to be field supplied.
- All horizontal segments of condensate pipe should be sloped a minimum of 1/4 inch per foot away from the indoor unit.
- Verify the unit is installed at a slight angle down toward the gravity drain connection.
- Remove the rubber plug prior to connecting the condensate line to the indoor unit.
- Use materials acceptable by local code.

1. Locate the condensate pipe extension and determine how you will route it to its drainage area.
2. Route the pipe, leaving enough pipe near the indoor unit to form the condensate trap and to connect to the indoor unit's condensate pipe.
3. Connect the indoor unit's condensate pipe to the drain pipe extension. Use appropriate materials to make the connection watertight. Be sure the condensate pipe slopes downward (Figure 16) after leaving the indoor unit.
4. Form the condensate pipe into a trap as shown in and use appropriate attaching materials to ensure the pipe remains in this shape.
5. Ensure the condensate drain pipe is not configured as shown in Figure 17..

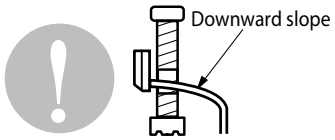


Figure 16: Condensate Pipe Downward Slope

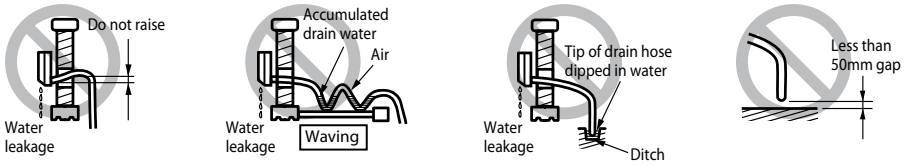


Figure 17: Incorrect Condensate Pipe Installation

Check Condensate Pipe Drainage

Perform this procedure to verify the drain pipe will remove condensation from the unit as intended (Figure 18).

1. Remove the air filters from the indoor unit
2. Position the air direction louvers by hand to allow access to the evaporator coil.
3. For a wall-mounted converible unit, carefully pour a glass of water on the evaporator coil.
4. For a ceiling-mounted convertible unit or a ceiling suspended unit, carefully pour or spray water on the coil.
5. Ensure the water flows through the drain hose of the indoor unit without any leakage and goes out the drain exit.
6. Ensure the drain hose points downward from the unit for easy drain flow.
7. If necessary, reposition drain hose to allow proper flow.

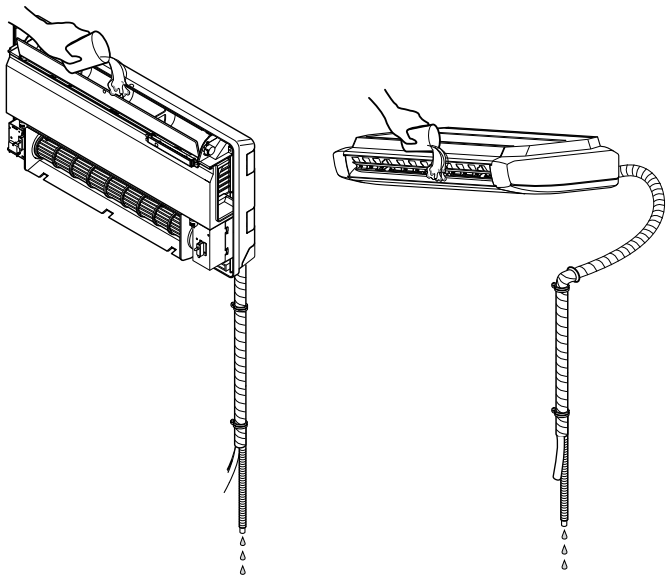


Figure 18: Verify Proper Condensate Drainage

Install Refrigerant Pipe Insulation

Figure 19 shows typical pipe insulation. Insulate all field provided refrigerant pipes and cold surfaces according to these guidelines:

- Insulate all cold surfaces sufficiently to prevent moisture from forming on the surface. All pipes must be insulated and each pipe must be wrapped separately.
- Use field-provided 1/2" thick (or more) closed cell insulation. The thickness may need to be increased based on ambient conditions and local codes.
- All refrigerant a condensate piping including field-provided isolation ball valves and flexible pipe connection kits provided by LG should be wrapped.
- All insulation joints should be glued with no air gaps between insulation segments and between insulation segments and the unit case. Insulation material shall fit snugly against the refrigeration pipe with no air space between the pipe surface and the surrounding insulation. See Figure 19.
- All pipe passing through pipe hangers, inside conduit, and/or sleeves must not be compressed. Protect insulation inside hangers and supports with a second layer.

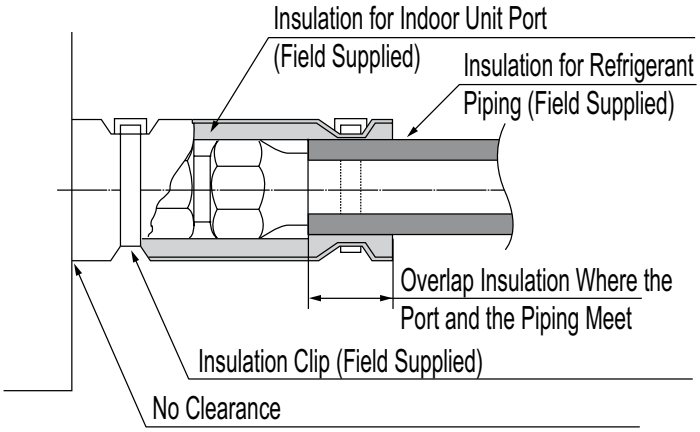


Figure 19: Typical Pipe Insulation

POWER WIRING

Table 5 lists electrical data. Both the convertible and the ceiling suspended IDUs require clean 208-230 V, 60 Hz, 1-phase power. Maximum acceptable voltage fluctuation range is 187–253V. Do not use the same power source for the IDU and the ODU.

⚠ WARNING

Keep line voltage power away from the communications terminals 3(A) and 4(B) (Figure 20). Line voltage power applied to the communications terminals will damage the indoor unit control board, requiring replacement.

⚠ *Note:*

Size all field provided electrical components per National Electric Code (NEC) and local code. Always use copper wire. Refer to the LG Multi V™ Outdoor Unit Engineering Manual for detailed information.

Table 5: Electrical Data.

Unit Model Number	Voltage Range (Vac)	Rated Amps (A)	Input Power Supply	Minimum Circuit Ampacity (A)	Maximum Overcurrent Protection (A)
Convertible Surface Mounted Units					
ARNU093VEA2	187–253	0.15	208–230V, 60 Hz, 1-phase	0.22	15
ARNU123VEA2	187–253	0.15	208–230V, 60 Hz, 1-phase	0.22	15
Ceiling Suspended Indoor Units					
ARNU183VJA2	187–253	0.6	208–230V, 60 Hz, 1-phase	0.43	15
ARNU243VJA2	187–253	0.6	208–230V, 60 Hz, 1-phase	0.43	15

⚠ WARNING

- *High voltages capable of causing death or severe injury are used in this equipment. Do not touch live circuits. Ensure power is not applied to input power cable when installing power connections. Use a meter to verify if power is connected or not. If power is connected, disconnect power before performing this procedure. Do not work on this equipment alone. Know how to obtain emergency assistance.*
- *Use the designated wire and firmly attach the connections; secure the wire to prevent strain on the terminal block connections. If connections are not firmly attached, it may generate heat and cause a fire.*
- *Some sites may require installation of an earth leakage circuit breaker. If an earth leakage circuit breaker is not installed, it may cause an electric shock, physical injury or death.*
- *Always install breakers and fuses with the correct capacities. If fuses or copper wires with too large capacity are installed, it may cause a fire or unit malfunction.*
- *Do not connect any ground wire to the refrigerant pipes.*

Power Wiring Instructions

1. Provide clean 208–230 V, 60 Hz, 1-phase power to the unit. Maximum acceptable voltage fluctuation range is 187–253V. Do not use the same power source as the outdoor unit. Ensure the power is not connected to the power input cable before performing this procedure.
2. If necessary, remove the front cover (convertible) or side panel (ceiling suspended) for access to the unit's internal control box.
3. Remove the control box cover to access the power and communications terminal block.
4. Remove the clear plastic safety cover from the power and communications terminal block.
5. Remove a knock-out plug from the control box. Do not use the same knock-out occupied by communications and zone controller cables.
6. Field-provide a plastic or rubber grommet in the knock-out hole to prevent wire chaffing.
7. If using conduit, connect the conduit to the control box using field provided fittings and industry best practice procedures.
8. Provide enough slack wire at each indoor unit to connect to the terminal block without tension on the wire. Route the wire inside the control box paying special attention to keep the wire away from communications cables by a minimum of two inches.
9. Secure the wire to the inside surface of the control box using a field provided nylon wire clamp.
10. Refer to Figure 20 for details of the terminal block wiring. Strip approximately half of an inch of insulation from each of the power wire conductors. Tightly crimp a spade connector to the Hot, Neutral and Ground Wires. Insert each spade connector under the appropriate terminal block screw and tighten.
11. Securely tighten the terminal screws to prevent the conductors from coming loose.

Outdoor / Indoor Unit Communications Cable Installation Guidelines

⚠ WARNING

Violating any of these power and communications wiring guidelines or instructions will likely cause communications errors and unit malfunction.

The polarity of the communications cable connections is important. When connecting the communications cable conductors at each Multi V™ system component (Figure 20), be careful the conductor connected the to the IDU(A) terminal on the outdoor unit is connected to the 3(A) terminals at each indoor unit. The conductor connected to the IDU(B) terminal on the outdoor unit must be connected to the 4(B) terminals at each indoor unit. Cross connecting between the A and B terminals will cause a communications error and the system will not operate corrrectly.

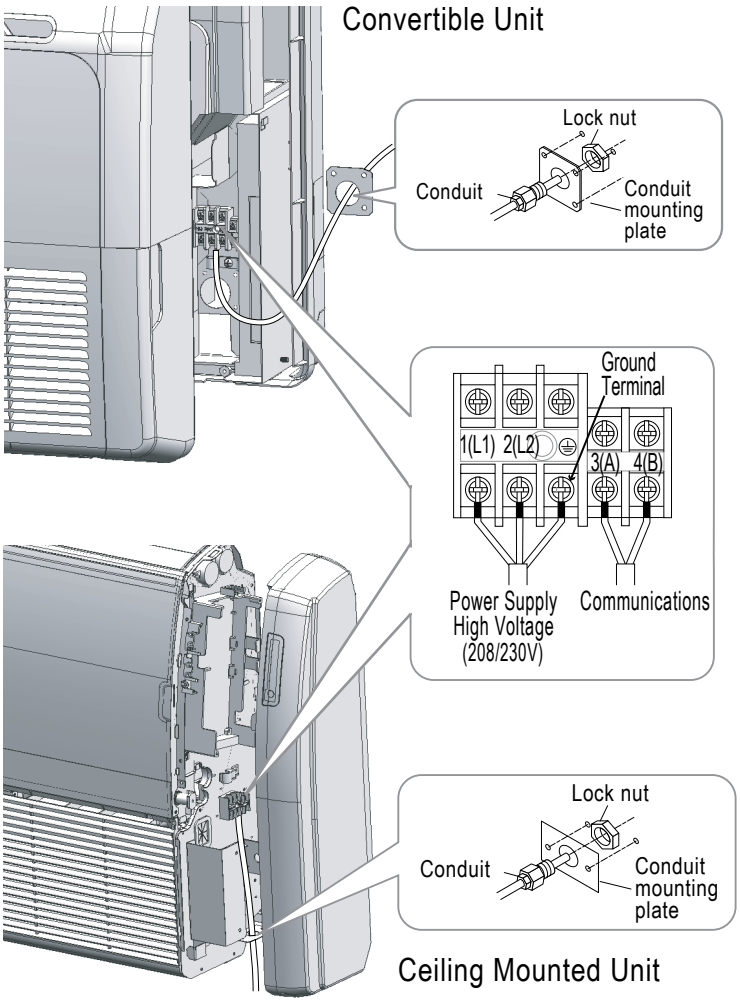


Figure 20: Input Power and Communications Connections

⚠ *Note:*

The minimum distance required between power wires and the communications cable is voltage/amperage dependent and in cases where either are relatively high the minimum distance may be more than two (2) inches. Refer to the LG Multi V™ Outdoor Unit Engineering Manual for detailed information.

Keep communications cables away from line voltage wiring, lighting ballasts, and other devices emitting electromotive force (EMF) energy. Maintain a minimum of two inches between line voltage wires and communications or zone controller cables.

Field provide a minimum of 18-2 AWG, stranded and shielded, PVC or vinyl jacket communications wiring between the indoor units, heat recovery boxes (if applicable), and outdoor units.

The outdoor / indoor unit communications cable must be run between components in a daisy chain configuration.

The communications cable must connect to the indoor components at screw terminals 3(A) and 4(B), and to the ODU at screw terminals IDU B and IDU A. Always connect A terminals to A terminals and B terminals to B terminals.

Ground the shield of each communications cable at the ODU end ONLY.

Don'ts

- Never use wire caps/nuts on the communications cable conductors (caps/nuts are acceptable to connect cable shields).
- Never splice communications cables.
- Star and Wye communications cable configurations are not acceptable.
- Never connect zone controllers or other central control products such as AC Smart, PDI, or LG building management system gateway products to the communications cable between the indoor unit and the outdoor unit.

Communication Cable Connection

⚠ WARNING

High voltages capable of causing severe injury or death are used in this equipment. Do not touch live circuits. Ensure power is not applied when connecting communications cables. Use a meter to verify if power is connected or not. If power is connected, disconnect power before performing this procedure. Do not work on this equipment alone. Know how to obtain emergency assistance.

⚠ *Note:*

- *When connecting the communications cables between indoor unit(s), heat recovery box(es), and the outdoor unit, all components must be connected in a daisy chain configuration. Star or Wye configurations are not supported. It does not matter what physical path the wire takes.*
- *Do not cut or splice communications cable. Communications cable must be two conductor, stranded and shielded with a minimum size of 18 AWG.*
- *Ground the communications cable at the outdoor unit end ONLY. Do not ground the cable to the refrigerant pipes.*

1. If you have not already done so, read the Outdoor / Indoor Unit Communications Installation Guidelines.
2. If necessary, remove the front panel (convertible) or side panel (ceiling suspended) to gain access to the control box.
3. Remove the cover of the control box.
4. Remove a knock-out plug from the control box. Do not use the same knock-out as the power input cable.
5. Field-provide a plastic or rubber grommet in the knock-out opening to prevent wire chaffing.
6. If using conduit, connect the conduit to the control box using field provided fittings and industry best practice procedures.
7. Route the communications cable through the knock-out opening or through the conduit to the inside of the control box.
8. Provide at least 3–4 inches of slack cable at the indoor unit.
9. Strip approximately 1/2” of insulation from each communications cable conductor. Be sure not to damage the cable shield.
10. Remove the plastic safety shield from the IDU terminal block.
11. Insert the conductors under the terminal screws as shown in Figure 19. Be sure to connect the 3A terminal on the IDU to the IDU A terminal on the ODU, and the 4B terminal on the IDU to the IDU B terminal on the ODU. Do not cross connect these conductors.
12. If the communications cable is to be daisy chained to another IDU, connect the communications cable for that IDU as well. Connect the shields of the two cables together with a field-provided wire nut/cap as shown in Figure 21. Ensure the shields are isolated from the chassis and terminals of the IDU.
13. Securely tighten the terminal screws to prevent the conductors from coming loose from the terminal block.
14. Reinstall the plastic safety shield on the terminal block.
15. Secure the communications cable to the inside surface of the control box using a field provided nylon wire clamp.
16. Reinstall the cover of the control box.
17. Secure the communications cable in appropriate locations outside the indoor unit to prevent damage to the cable or injury to maintenance personnel.
18. Reinstall the front panel (convertible) or side panel (ceiling suspended) of the unit.
19. If you are connecting more than one IDU, route the daisy-chained communications cable to the next IDU. If you are connecting directly to the ODU, route the cable to the ODU. Be sure to allow at least 2” spacing between the communications cable and power cables.

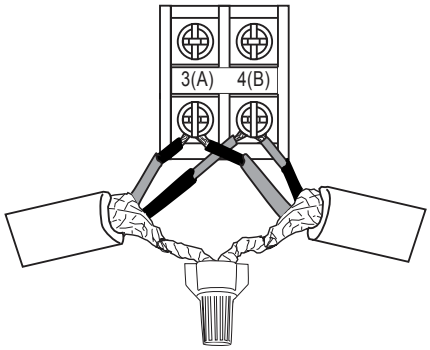


Figure 21: Communications Cable Connection at IDU

Zone Controller Cable Installation

⚠ WARNING

High voltages capable of causing death or severe injury are used in this equipment. Do not touch live circuits. Ensure input power is not applied when performing this procedure. Use a meter to verify power is not connected. Do not work on this equipment alone. Know how to obtain emergency assistance.

⚠ *Note:*

- *Communications cables between wall mounted zone controllers and the indoor unit must be provided by LG*
- *Do not cut, shorten, or splice zone controller communications cables*
- *Do not use wire nuts/caps.*
- *Do not use field provided wire between zone controller and indoor units*

Zone Controller Cable Connection Instructions

1. Verify power is not connected to the unit
2. Refer to Figure 22. Each zone controller is supplied with 30 feet of communications cable with a male or female plug-end. Route the cable between the zone controller location and the indoor unit. If the distance between the zone controller and indoor unit exceeds 30 feet, purchase an LG zone controller communications extension cable (32 feet, Model No. PZCWRCG3). This extension cable has a female connector on one end and a male connector on the other.

⚠ *Note:*

The minimum distance required between power wires and the zone controller cables is voltage/amperage dependent. Refer to the LG Multi V™ Outdoor Unit Engineering Manual for detailed information.

3. Keep zone controller cables away from line voltage wiring, lighting ballasts, and other devices emitting EMF energy. Maintain a minimum of 2 inches between line voltage wires and communications or zone controller cables.
4. If necessary, remove the front cover (convertible) or side cover (ceiling suspended) of the indoor unit to access the control box.
5. Choose and remove a knock-out plug from the control box. Do not use the same knock-out as the input power cable. Field-provide a plastic or rubber grommet in the knock out opening to prevent wire chaffing.

⚠ *Note:*

Connect the MALE connector of the communications cable at the indoor unit.

6. If using conduit, make sure the conduit diameter is sufficient to accommodate the connectors of the LG zone controller communications cable. Connect the conduit to the control box using field provided fittings and industry best practice procedures.
7. Pull the communications cable through the conduit and/or knockout opening. Provide 3–4 inches of slack cable at the indoor unit.
8. If conduit is not needed, secure the zone controller communications cable in appropriate locations between

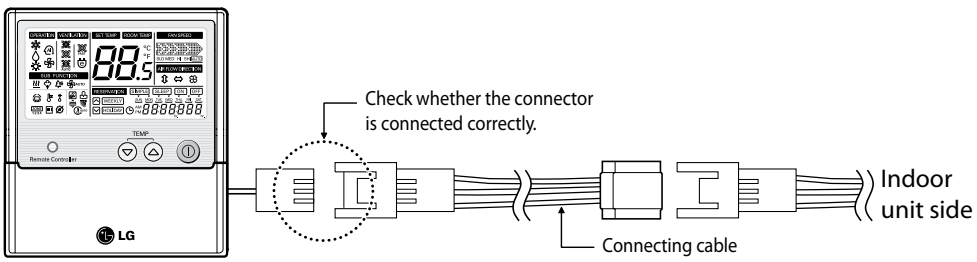


Figure 22: Zone Controller Cable Installation

Zone Controller Cable Installation

the indoor unit and the zone controller to prevent damage to the cable or injury to maintenance personnel.

9. Secure the zone controller cable to the inside surface of the control box using a field provided nylon wire clamp.
10. Plug the male plug-end of the zone controller communications cable into the CN-REMO socket on the Indoor Unit PC Board (See Figure 24 and Figure 25).
11. Plug the female plug-end of the communications cable to the male plug-end of the pigtail cable connected to the zone controller.

Group Control Communications

For detailed information on how to wire two zone controllers to one indoor unit, or one zone controller to a group of indoor units, refer to the LG Network Solutions Engineering Product Data Book.

Control PCB DIP Switch Settings

⚠WARNING

High voltages capable of causing death or severe injury are used in this equipment. Do not touch live circuits. Ensure input power is not applied when performing this procedure. Use a meter to verify power is not connected. Do not work on this equipment alone. Know how to obtain emergency assistance.

1. Verify power is not connected to the unit.
2. If necessary, remove the front cover (convertible) or side cover (ceiling suspended) to gain access to the unit's control box.
3. Remove cover of the control box.
4. Locate the control PCB. Locate the dual in-line package (DIP) switch on the control PCB.
5. Refer to Table 6 and set switches 3, 4, and 5 as necessary for your unit. Be sure all other switches are set to OFF.
6. Replace the cover of the metal box.
7. Replace the front cover (convertible) or side cover (ceiling suspended) of the unit.

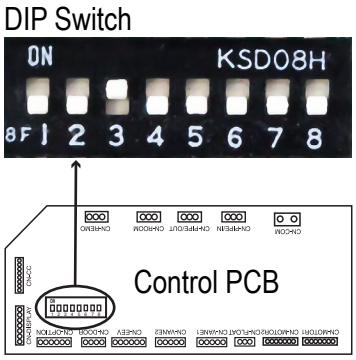


Figure 23: DIP Switch Settings

Table 6: Control PCB DIP Switch Settings

Switch	Function	OFF	ON	Remarks
1, 2, 6, 7, 8				Set to OFF
3	Group	Master	Slave	Sets this unit as the master or a slave in a group of units. If not in a group, set to OFF (Master).
4	Dry Contact Auto Restart	No	Yes	Selects dry contact's ability to restart unit automatically (ON) or to require wall controller button press for restart (OFF). If no dry contact is installed, set to OFF.
5	Location	Ceiling	Floor	For ceiling suspended units, always set to OFF. For convertible units, set for ceiling or floor, as appropriate.

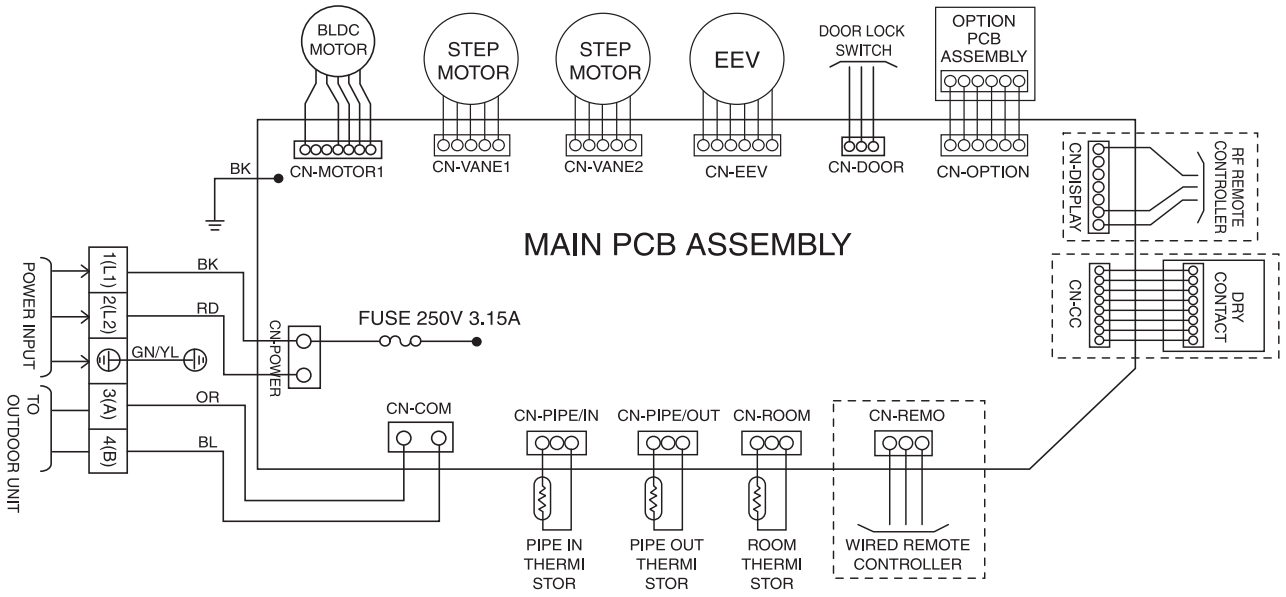


Figure 24: Convertible IDU Control Circuit Board

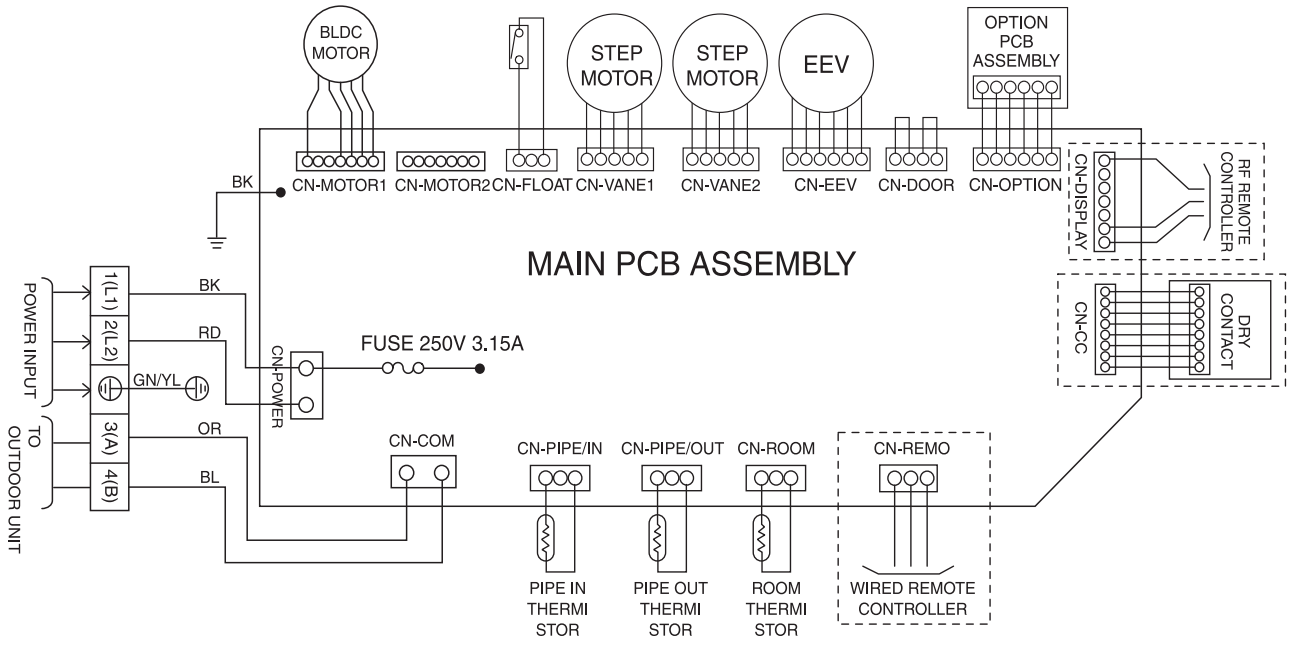


Figure 25: Ceiling Suspended IDU Control Circuit Board

Control Circuit Board Diagrams Legend.

Table 7 lists the control circuit board diagrams legend.

Table 7: Control Circuit Board Diagrams Legend

Descriptor	Description
CN	Socket Connection
CN-CC	Auxillary Controller Connection (Optional; i.e., Dry Contact)
CN-COM	Indoor Unit Communications Bus (3[A] and 4[B])
CN-Display	Not Used
CN-D/PUMP	Condensate Pump Power
CN-EEV	Electronic Expansion Valve
CN-FLOAT	Condensate Drain Pan Overflow Protection Switch (Normally Open)
CN-L	Power Wire Connection (+)
CN-N	Power Wire Connection (-)
CN-MOTOR 1	Indoor Unit Fan Motor 1
CN-MOTOR 2	Indoor Unit Fan Motor 2
CN-OPTION	Indoor Unit Option Card Socket
CN-PIPE/IN	Liquid Pipe Temperature Thermistor
CN-PIPE/OUT	Vapor Pipe Temperature Thermistor
CN-POWER	Line Voltage Power (208 V, 60 Hz, single-phase)
CN-REMO	Wall-Mounted Zone Controller
CN-ROOM	Unit-Mounted Return Air Thermistor
CN-ZONE	Not Used
EARTH	Ground Required
RW-VM	Dual Indoor Unit Fan Board Communications Link
1(L1)	Terminal Block Line Voltage (+)
2(N)	Terminal Block Line Voltage (-)
3(A)	Indoor Unit Communications Bus (“A” Conductor)
4(B)	Indoor Unit Communications Bus (“B” Conductor)
	Terminal Block Ground

Connecting an LG Dry Contact Device

1. Remove the control panel cover.
2. Find the CN-CC socket on the Indoor Unit Control Board. Refer to Figure 24 and Figure 25.
3. Plug the dry contact 5-lead matching plug into the socket.
4. Mount the dry contact securely to the wall of the indoor unit using field provided Velcro® type material.
5. Refer to the installation manual for the particular dry contact in use for instructions on how the dry contract works, and how to ready the dry contact device for commissioning.

Connecting a Smoke Detector

Indoor unit fan operation can be stopped using:

- An optional LG provided dry contact device
- A command initiated from LG's AC Smart II central controller
- A command initiated from a building automation system
- A field provided relay in series with the unit power disconnect breaking power to the indoor unit

In locations where code requires fan shutdown to occur within 30 seconds of smoke being detected, use the field provided relay method. Do not use the other methods. (Refer to Figure 26).

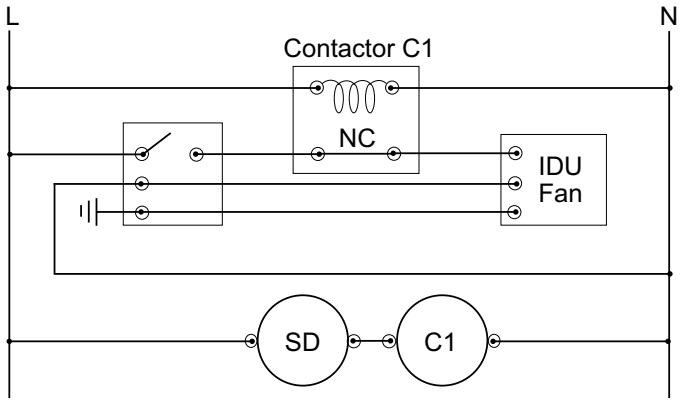


Figure 26: Smoke Detector Field Wiring.

INDOOR UNIT CONTROL SETTINGS

Temperature Sensing Configuration

By default, the room temperature is sensed by the factory mounted return air thermistor. If an optional wall mounted zone controller is present, the room temperature can be sensed by one of three methods.

- At the indoor unit return air sensor.
- At the wall-mounted zone controller.
- At both the return air thermistor and zone controller.

If the return air thermistor and zone controller method is chosen, the indoor unit does not average the readings. The indoor unit is controlled using the reading that is farthest away from set point at a given time. Refer to the zone controller installation manual for detailed information on setting the sensor control DIP switch.

INDOOR UNIT INSTALLATION CHECKLIST

PAGE 1

System ID No.: _____ Indoor Unit ID.: _____

Checked by: _____ Date:_____ Signature:_____

Rough-In	**N/A**	**Not Complete**	**Complete**
Packing materials and literature removed.			
Airflow direction correct.			
Fan operates without obstruction.			
Unit is properly supported – mounting bolts tight.			
Unit is level (condensate pump installations).			
Unit is tilted toward gravity drain pan nipple (gravity drain installations only).			
Recommended minimum service clearances followed.			
Air filter is clean and properly installed.			
Does local code require a secondary drain pan under the IDU? Is a secondary drain line connected to the pan?			
Refrigerant Piping	**N/A**	**Not Complete**	**Complete**
A dry nitrogen purge rate of 3 psig was maintained during all brazing activity			
PVE refrigerant oil was used as a lubricant on flare fittings (POE type was NOT used).			
Field formed pipe flares are 45°.			
Flare fittings properly tightened.			
Refrigerant pipe is properly supported to keep lateral pressure off unit connections.			
Refrigerant shutoff valves are full port design with integral Schrader port - rated for R410A (option).			
Shut off valves have the same internal pipe diameter as the connected pipe (option).			
Two shutoff valves installed; 1 high pressure liquid, 1 low pressure vapor (option).			
Shutoff valves installed with Schrader port between the IDU and the ball of the valve (option).			
Condensate System	**N/A**	**Not Complete**	**Complete**
Condensate pipe is properly sized and supported to keep lateral pressure off unit connections.			
Condensate pipe horizontal segments are sloped a minimum of 1/4 inch per foot of pipe away from the IDU.			
Condensate pipe and drain traps were sized using LG recommendations.			
Field-provided condensate line check valve was installed in the condensate pipe riser (option).			
Condensate traps were installed on gravity drain pipes (high static models only)			
Condensate line vertical rise between IDU bottom and high point of the line does not exceed 27-1/2''.			
Condensate pump riser intersects the building main drain using an inverted trap with connection to the top half of the drain line with no more angle than ±45° of vertical.			
If required by local code, is a secondary high level condensate shutoff switch present/wired properly? Factory provided internal high level float switch will shut down cooling operation if high water level in the pan is detected.			
Insulation	**N/A**	**Not Complete**	**Complete**
Additional housing, refrigerant and condensate pipe insulation has been installed to prevent sweating while operating if IDU installed in abnormal environmental conditions. (Optional - job conditions specific.)			
All pipes are independently insulated. All insulation seams and joints are airtight. Insulation is not compressed. Double layer insulation is provided at pipe supports and wall penetrations.			

INDOOR UNIT INSTALLATION CHECKLIST

Electrical	N/A	Not Complete	Complete
Power provided is single phase, ±10% of IDU nameplate specifications.			
Power wires properly sized and protected per NEC and local codes. IDU is properly grounded.			
Power and communications conductors are separated by the recommended minimum distance.			
Terminal block screws are tight. Power wires are not in contact with terminals 3(A) and/or 4(B). Line voltage wires have spade connectors installed.			
Power wires are properly secured to the control box case to prevent wire tension at the terminal block.			
Wires are protected from chaffing at control box and conduit pipe penetrations.			
Smoke detector is properly installed and wired (optional). New batteries are installed (if applicable).			
Low voltage control cables are properly secured to the control panel case. Terminal block screws are tight and the cable is protected from sharp edges at control box case and conduit openings.			
Cables are installed at recommended distances from high voltage and EMF generating equipment.			
ODU/IDU communications cable connected to terminals 3(A) and 4(B).			
Field provided communications cable is 18 gauge, two conductor, stranded and shielded. All terminations are made at the terminal block. No inline splices or wire caps are present.			
Communications cable is plenum rated.			
Communications cable shield is tied back and and is grounded at ODU end ONLY.			
Wall Mounted Zone Controller Communications	**N/A**	**Not Complete**	**Complete**
LG factory-provided zone controller stranded, shielded (white jacket) cable was used between the zone controller(s) and indoor unit(s).			
Zone controller cable has not been cut, spliced, or tied together with wire caps. Factory plugs are present.			
Cable is securely plugged into the socket on the zone controller or the three screw terminals (controller model specific); Yellow to “Y”, Red to “R”, and Black to “B”.			
Zone controller DIP switches have been adjusted for the application’s space temperature sensing strategy.			
Indoor Unit Control Panel	**N/A**	**Not Complete**	**Complete**
Zone controller cable is securely plugged into the CN-REMO socket on the IDU circuit board.			
If an optional remote temperature sensor was installed, the associated cable is plugged into socket CN-ROOM on the IDU circuit board and the factory return air thermistor has been unplugged.			
IDU DIP switches have been adjusted for application (group control-master/slave; dry contact; ceiling/floor location)			
All plugs are properly seated in the sockets on the IDU circuit board.			
Power and communications cables are properly restrained and separated.			

Final Checks before Leaving Site

Use the checklist on the following pages to verify all tasks have been completed prior to calling for the Multi V system to be commissioned. Place the System ID and Indoor Unit ID at the top of the page, sign and date. Provide a copy to your company's project manager or your Multi V System Commissioning Technician.

- After completing the final checks, be sure to reinstall all internal and external covers.
- Be sure power is not connected to the unit. Power will be connected at commissioning.
- If any installation items are incomplete, note the items on the checklist and be sure your supervisor is aware.
- Check the installation area for tools and debris that may have been left behind.
- If all installation items are correctly completed, the indoor unit is ready for power-up and commissioning.

WHO TO CALL FOR ASSISTANCE

Freight Damage and Unit Replacements	Your LG Manufacturer Representative
Missing Parts	Your LG Manufacturer Representative
Received Wrong Indoor Unit Model	Your LG Manufacturer Representative
Installation, Startup, and Commissioning Technical Assistance	1-888-865-3026

LG Electronics
Commercial Air Conditioning Division
11405 Old Roswell Road
Alpharetta, Georgia 30009
www.lg-vrf.com

LG Customer Information Center, Commercial Products
1-888-865-3026 USA
Follow the prompts for commercial A/C products and parts.

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