

# MULTI V™

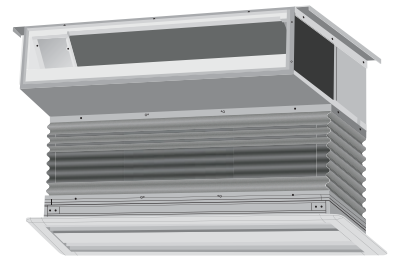
## DUCTED INDOOR UNITS INSTALLATION MANUAL

### High-Static Ducted Indoor Units



- |             |             |             |             |
|-------------|-------------|-------------|-------------|
| ARNU073BGA4 | ARNU283BRA4 | ARNU363B8A4 | ARNU073BHA4 |
| ARNU093BGA4 | ARNU363BRA4 | ARNU423B8A4 | ARNU093BHA4 |
| ARNU123BGA4 | ARNU423BRA4 | ARNU483B8A4 | ARNU123BHA4 |
| ARNU153BGA4 | ARNU483BRA4 | ARNU763B8A4 | ARNU153BHA4 |
| ARNU183BGA4 | ARNU543BRA4 | ARNU963B8A4 | ARNU183BHA4 |
| ARNU243BGA4 |             |             | ARNU243BHA4 |
| ARNU283BGA4 |             |             |             |
| ARNU363BGA4 |             |             |             |
| ARNU423BGA4 |             |             |             |

### Built-In Ducted Indoor Units



- |             |             |
|-------------|-------------|
| ARNU073B3G4 | ARNU153B3G4 |
| ARNU093B3G4 | ARNU183B4G4 |
| ARNU123B3G4 | ARNU243B4G4 |

### Low-Static Ducted Indoor Units



- |             |             |
|-------------|-------------|
| ARNU073L1G4 | ARNU153L2G4 |
| ARNU093L1G4 | ARNU183L2G4 |
| ARNU123L2G4 | ARNU243L3G4 |

### Vertical Air Handler Indoor Units

- |             |
|-------------|
| ARNU123NJA4 |
| ARNU183NJA4 |
| ARNU243NJA4 |
| ARNU303NJA4 |
| ARNU363NJA4 |
| ARNU423NKA4 |
| ARNU483NKA4 |
| ARNU543NKA4 |



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Please read carefully and store in a safe place for future reference.  
Content familiarity required for proper installation.

*The instructions included in this manual 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. A summary of safety precautions begins on page 4.*

*For more technical materials such as submittals, engineering databooks, and catalogs, visit [www.lghvac.com](http://www.lghvac.com).*

IM\_MultiV\_Ducted\_IDU\_5\_16

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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 below.

## TABLE OF SYMBOLS

<b>DANGER</b>	<i>This symbol indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.</i>
<b>WARNING</b>	<i>This symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</i>
<b>CAUTION</b>	<i>This symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.</i>
<b>Note:</b>	<i>This symbol Indicates situations that may result in equipment or property damage accidents only.</i>
	<i>This symbol indicates an action that should not be performed.</i>

## INSTALLATION

### **DANGER**

**Don't use or store flammable gas or combustibles near the unit.**

*There is risk of fire, explosion, and physical injury or death.*

### **WARNING**

**Do not install, remove, or re-install the unit by yourself (end-user). Ask the dealer or an LG trained service provider to install the unit.**

*Improper installation by the user may result in water leakage, fire, explosion, electric shock, physical injury or death.*

**For replacement of an installed unit, always contact an LG trained service provider.**

*There is risk of fire, electric shock, explosion, and physical injury or death.*

**The outdoor unit is shipped with refrigerant and the service valves closed. Do not open service valves on the unit until all non-condensibles have been removed from the piping system and authorization has been obtained from the commissioning agent.**

*There is a risk of physical injury or death.*

**Do not run the compressor with the service valves closed.**

*There is risk of explosion, physical injury, or death.*

**Periodically check that the outdoor unit is not damaged.**

*There is risk of explosion, physical injury, or death.*

**Replace all control box and panel covers.**

*If cover panels are not installed securely, dust, water and animals may enter the unit, causing fire, electric shock, and physical injury or death.*

**Always check for system refrigerant leaks after the unit has been installed or serviced.**

*Exposure to high concentration levels of refrigerant gas may lead to illness or death.*

**Do not install the unit using defective hanging, attaching, or mounting hardware.**

*There is risk of physical injury or death.*

**Wear protective gloves when handling equipment.**

*Sharp edges may cause personal injury.*

**Dispose of the packing materials safely.**

- *Packing materials, such as nails and other metal or wooden parts may cause puncture wounds or other injuries.*

- *Tear apart and throw away plastic packaging bags so that children may not play with them and risk suffocation and death.*

**Do not install the unit in any location exposed to open flame or extreme heat. Do not touch the unit with wet hands.**

*There is risk of fire, electric shock, explosion, and physical injury or death.*

**Install the unit considering the potential for earthquakes.**

*Improper installation may cause the unit to fall, resulting in physical injury or death.*

**Do not change the settings of the protection devices.**

*If the pressure switch, thermal switch, or other protection device is shorted and forced to operate improperly, or parts other than those specified by LG are used, there is risk of fire, electric shock, explosion, and physical injury or death.*

**If the air conditioner is installed in a small space, take measures to prevent the refrigerant concentration from exceeding safety limits in the event of a refrigerant leak.**

*Consult the latest edition of ASHRAE (American Society of Heating, Refrigerating, and Air Conditioning Engineers) Standard 15. If the refrigerant leaks and safety limits are exceeded, it could result in personal*



## INSTALLATION – CONTINUED

*injuries or death from oxygen depletion.*

### **⚠ CAUTION**

**Be very careful when transporting the product.**

- Do not attempt to carry the product without assistance.
- Some products use polypropylene bands for packaging. Do not use polypropylene bands to lift the unit.
- Suspend the unit from the base at specified positions.
- Support the unit at a minimum of four points to avoid slippage from rigging apparatus.
- Failure to follow these directions may result in minor or moderate physical injury.

### **Note:**

**Properly insulate all cold surfaces to prevent “sweating.”**

*Cold surfaces such as uninsulated pipe can generate condensate that may drip and cause a slippery floor condition and/or water damage to walls.*

**When installing the unit in a hospital, mechanical room, or similar electromagnetic field (EMF) sensitive environment, provide sufficient protection against electrical noise.**

*Inverter equipment, power generators, high-frequency medical equipment, or radio communication equipment may cause the air conditioner to operate improperly. The unit may also affect such equipment by creating electrical noise that disturbs medical treatment or image broadcasting.*

⊘ **Do not use the product for special purposes such as preserving foods, works of art, wine coolers, or other precision air conditioning applications. This equipment is designed to provide comfort cooling and heating.**

*There is risk of property damage.*

⊘ **Do not make refrigerant substitutions. Use R410A only.**

*If a different refrigerant is used, or air mixes with original refrigerant, the unit will malfunction and become damaged.*

⊘ **Do not install the unit in a noise sensitive area.**

**When connecting refrigerant tubing, remember to allow for pipe expansion.**

*Improper piping may cause refrigerant leaks and system malfunction.*

**Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable U.S. Environmental Protection Agency (EPA) rules.**

**Periodically check that the outdoor unit is not damaged.**

*There is a risk of equipment damage.*

**Install the unit in a safe location where no one can step on or fall onto it. ⊘ Do not install the unit with defective hanging, attaching, or mounting hardware.**

*There is risk of unit and property damage.*

**Install the drain hose to ensure adequate drainage.**

*There is a risk of water leakage and property damage.*

⊘ **Don't store or use flammable gas/combustibles near the unit.**

*There is risk of product failure.*

**Always check for system refrigerant leaks after the unit has been installed or serviced.**

*Low refrigerant levels may cause product failure*

**The unit is shipped with refrigerant and the service valves closed. ⊘ Do not open service valves on the unit until all non-condensibles have been removed from the piping system and authorization to do so has been obtained from the commissioning agent.**

*There is a risk of refrigerant contamination, refrigerant loss and equipment damage.*

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## WIRING

### DANGER

High voltage electricity is required to operate this system. Adhere to the National Electrical Codes and these instructions when wiring.

*Improper connections and inadequate grounding can cause accidental injury or death.*

**Always ground the unit following local, state, and National Electrical Codes.**

**Turn the power off at the nearest disconnect before servicing the equipment.**

*Electric shock can cause physical injury or death.*

**Properly size all circuit breakers or fuses.**

*There is risk of fire, electric shock, explosion, physical injury or death.*

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### WARNING

The information contained in this manual is intended for use by an industry-qualified, experienced, trained electrician familiar with the U.S. National Electric Code (NEC) who is 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.*

**Ensure the unit is connected to a dedicated power source that provides adequate power.**

*If the power source capacity is inadequate or the electric work is not performed properly, it may result in fire, electric shock, physical injury or death.*

**Refer to local, state, and federal codes, and use power wires of sufficient current capacity and rating.**

*Wires that are too small may generate heat and cause a fire.*

**Secure all field wiring connections with appropriate wire strain relief.**

*Improperly securing wires will create undue stress on equipment power lugs. Inadequate connections may generate heat, cause a fire and physical injury or death.*

**Properly tighten all power connections.**

*Loose wiring may overheat at connection points, causing a fire, physical injury or death.*

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### Note:

Do not cut, lengthen or shorten the communications and power cable between any dry contact unit and its connected indoor unit. Do not install the unit in a location where the communications and power cable cannot be safely and easily connected between the two units. Do not allow strain on this cable.

*Poor cable connections can cause equipment malfunction.*

## OPERATION

### ⚠ DANGER

⊘ Do not provide power to or operate the unit if it is flooded or submerged.

*There is risk of fire, electric shock, physical injury or death.*

**Use a dedicated power source for this product.**

*There is risk of fire, electric shock, physical injury or death.*

⊘ Do not operate the disconnect switch with wet hands.

*There is risk of fire, electric shock, physical injury or death.*

**Periodically verify the hanging bolts and other hardware securing the unit have not deteriorated.**

*If the unit falls from its installed location, it can cause property damage, product failure, physical injury or death.*

**If refrigerant gas leaks out, ventilate the area before operating the unit.**

*If the unit is mounted in an enclosed, low-lying, or poorly ventilated area and the system develops a refrigerant leak, it may cause fire, electric shock, explosion, physical injury or death.*

### ⚠ WARNING

⊘ Do not allow water, dirt, or animals to enter the unit.

*There is risk of unit failure, fire, electric shock, physical injury or death.*

**Avoid excessive cooling and periodically perform ventilation to the unit.**

*Inadequate ventilation is a health hazard.*

⊘ Do not touch refrigerant piping during or after operation.

*It can cause burns or frostbite.*

⊘ Do not operate the unit with the panel(s) or protective cover(s) removed; keep fingers and clothing away from moving parts.

*The rotating, hot, cold, and high-voltage parts of the unit can cause physical injury or death.*

**Periodically check power cable and connection for damage.**

*Cable must be replaced by the manufacturer, its service agent, or similar qualified persons in order to avoid physical injury and/or electric shock.*

**Securely attach the electrical cover to the unit.**

*Non-secured electrical covers can result in burns or electric shock due to dust or water in the service panel.*

⊘ Do not open the inlet grille of the unit during operation. Do not operate the unit with the panels or guards removed. Do not insert hands or other objects through the inlet or outlet when the unit is powered. Do not touch the electrostatic filter, if the unit includes one. The unit contains sharp, rotating, hot, and high voltage parts that can cause personal injury and/or electric shock.

**Ensure no power is connected to the unit other than as directed in this manual. Remove power from the unit before removing or servicing the unit.**

*There is risk of unit failure, fire, electric shock, physical injury or death.*

⊘ Do not open the inlet grille of the unit during operation. Do not operate the unit with the panels or guards removed. Do not insert hands or other objects through the inlet or outlet with the unit is plugged in. Do not touch the electrostatic filter, if the unit includes one.

*The unit contains sharp, rotating, hot, and high voltage parts that can cause personal injury and/or electric shock.*

### ⚠ CAUTION

**To avoid physical injury, use caution when cleaning or servicing the air conditioner.**

#### Note:

**Clean up the site after installation is finished, and check that no metal scraps, screws, or bits of wiring have been left inside or surrounding the unit.**

⊘ Do not use this equipment in mission critical or special-purpose applications such as preserving foods, works of art, wine coolers or refrigeration. This equipment is designed to provide comfort cooling and heating.

**Provide power to the compressor crankcase heaters at least six (6) hours before operation begins.**

*Starting operation with a cold compressor sump(s) may result in severe bearing damage to the compressor(s). Keep the power switch on during the operational season.*

⊘ Do not block the inlet or outlet.

*Unit may malfunction.*

**Securely attach the electrical cover to the indoor unit. Non-secured covers can result in fire due to dust or water in the service panel.**

**Periodically verify the equipment mounts have not deteriorated.**

*If the base collapses, the unit could fall and cause property damage or product failure.*

⊘ Do not allow water, dirt, or animals to enter the unit.

*There is risk of unit failure.*



## Ducted Indoor Units

This manual describes how to install LG ducted indoor units (IDU) for Multi V Variable Refrigerant Flow (VRF) heat pump and heat recovery systems. Table 1 lists the available models. Refer to LG's Multi V Indoor Unit Engineering Manual for complete detailed engineering data and selection procedures.

### Safety

Safety of personnel is the primary concern during all procedures. Read and understand the safety summary at the front of this manual. Read and understand this installation procedure before beginning installation. Use the appropriate tools and accessories during installation. Plan your work and do not work alone, if possible. Know how to obtain emergency medical and fire fighting assistance.

### Installation Personnel

This equipment is intended for installation by personnel trained in the required construction, mechanical, electrical, and/or other disciplines.

### Applicable Codes

Personnel must be familiar with and follow the applicable national, state, and/or local codes.

### ⚠ WARNING

*Installation work must be performed by trained personnel and in accordance with national wiring standards and all local or other applicable codes. Improper installation can result in fire, electric shock, physical injury, or death.*

### Note:

*Please read all instructions before installing this product. Become familiar with the unit, its components and connections, and the order of installation. Incorrect installation can degrade or prevent proper operation.*

### Required Tools (field provided)

- Level
- Screwdriver
- Electrical lineman pliers
- Electric drill
- Holesaw
- Drill
- Flaring tool set
- Tubing cutter
- Tube/pipe reamer
- Torque wrenches
- Allen wrench
- Gas-leak detector
- Thermometer

### Required Parts (field provided)

- Pipes - vapor line and liquid line, with insulation
- 3/8" or 1/2" nuts, flat washers, and lock/split washers
- 3/8" or 1/2" threaded hanger rods
- Insulated drain hose
- Additional drain hose
- Connecting cable (power and control)

Figure 1: High-Static Ducted, BG/BR/B8/BH Chassis



Figure 2: Built-In Ducted, B3/B4 Chassis

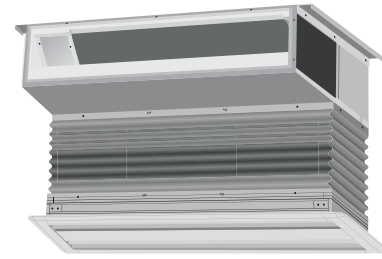


Figure 3: Low-Static Ducted, L1/L2/L3 Chassis



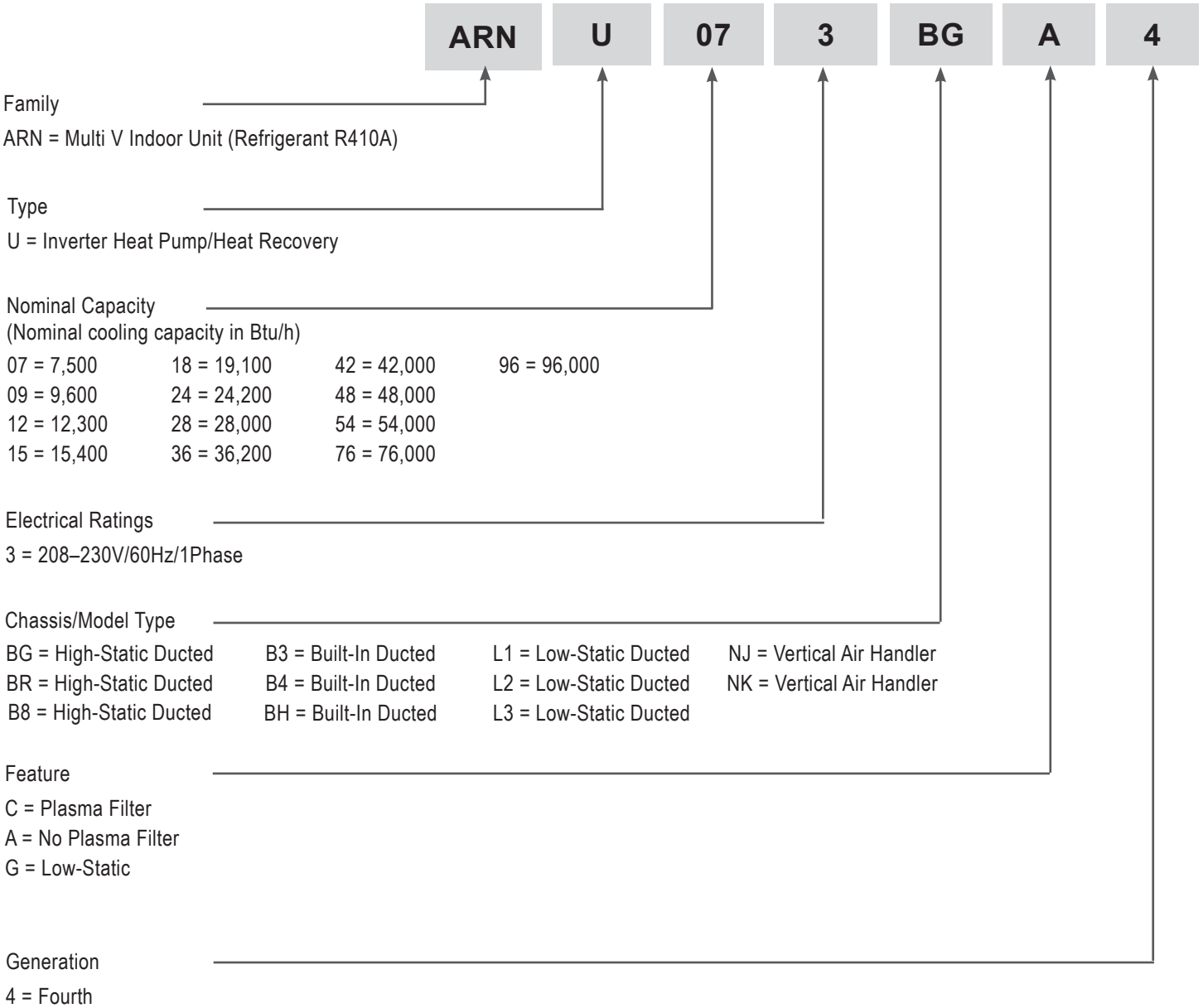
Figure 4: Vertical Air Handler NJ/NK Chassis



Table 1: Multi V Ducted Indoor Units

Unit	Model Numbers			
<p>High-Static Ducted BG/BR/B8</p> 	ARNU073BGA4	ARNU283BRA4	ARNU363B8A4	ARNU073BHA4
	ARNU093BGA4	ARNU363BRA4	ARNU423B8A4	ARNU093BHA4
	ARNU123BGA4	ARNU423BRA4	ARNU483B8A4	ARNU123BHA4
	ARNU153BGA4	ARNU483BRA4	ARNU763B8A4	ARNU153BHA4
	ARNU183BGA4	ARNU543BRA4	ARNU963B8A4	ARNU183BHA4
	ARNU243BGA4			ARNU243BHA4
	ARNU283BGA4			
	ARNU363BGA4			
ARNU423BGA4				
<p>Built-In Ducted B3/B4</p>  <p>(shown with optional canvas boot and grill)</p>	ARNU073B3G4			
	ARNU093B3G4			
	ARNU123B3G4			
	ARNU153B3G4			
	ARNU183B4G4			
	ARNU243B4G4			
<p>Low-Static Ducted L1/L2/L3</p> 	ARNU073L1G4			
	ARNU093L1G4			
	ARNU123L2G4			
	ARNU153L2G4			
	ARNU183L2G4			
	ARNU243L3G4			
<p>Vertical Air Handler</p> 	ARNU123NJA4			
	ARNU183NJA4			
	ARNU243NJA4			
	ARNU303NJA4			
	ARNU633NJA4			
	ARNU423NKA4			
	ARNU483NKA4			
	ARNU543NKA4			

**Cassette Indoor Units Nomenclature**



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R410A refrigerant has a higher operating pressure in comparison to R22 refrigerant and, therefore, all piping system materials installed must have a higher resisting pressure than the materials traditionally used in R22 systems.

R410A refrigerant is an azeotrope of R32 and R125, mixed at 50:50, so the ozone depletion potential (ODP) is 0.

## **⚠ WARNING**

- *Do not place the refrigerant cylinder in direct sunlight. Refrigerant cylinder may explode causing severe injury or death.*

## **Note:**

- *Because R410A is a combination of R32 and R125, the required additional refrigerant must be charged in its liquid state. If the refrigerant is charged in its gaseous state, its composition changes and the system will not work properly.*
- *Do not heat piping more than necessary during installation. Piping may become soft and fail when pressurized.*
- *Do not use any piping that has not been approved for use in high-pressure refrigerant systems. Piping wall thickness must comply with the applicable local, state, and federal codes for the 551 psi design pressure of R410A. Inadequate piping may fail when pressurized.*

Table 2: High-Static Ducted BH Chassis IDU Specifications

Model No.	ARNU073BHA4	ARNU093BHA4	ARNU123BHA4	ARNU153BHA4	ARNU183BHA4	ARNU243BHA4
<b>Cooling Mode Performance</b>						
Capacity (Btu/h)	7,500	9,600	12,300	15,400	19,100	24,200
Power Input <sup>1</sup> (W)	150	150	150	150	150	150
<b>Heating Mode Performance</b>						
Capacity (Btu/h)	8,500	10,900	13,600	17,100	21,500	27,300
Power Input <sup>1</sup> (W)	150	150	150	150	150	150
<b>Entering Mixed Air</b>						
Cooling Max. (°F WB)	76	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59	59
<b>Unit Data</b>						
Refrigerant Type <sup>2</sup>	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV	EEV
Net Unit Weight (lbs.)	58.4	58.4	58.4	58.4	58.4	58.4
Shipping Weight (lbs.)	68.3	68.3	68.3	68.3	68.3	68.3
Communication Cable <sup>4</sup> (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
<b>Fan</b>						
Type	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco
Motor	1	1	1	1	1	1
Housing	2	2	2	2	2	2
Motor/Drive	Brushless Digitally Controlled / Direct					
Airflow Rate H/M/L (CFM) Standard Mode	258 / 222 / 198	258 / 222 / 198	307 / 258 / 198	388 / 357 / 307	466 / 413 / 258	618 / 519 / 445
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	230 / 205 / 191	286 / 230 / 205	339 / 286 / 230	399 / 339 / 230	459 / 399 / 339	565 / 509 / 459
External Static Pressure (in. wg) Standard Mode	0.23	0.23	0.23	0.23	0.23	0.23
External Static Pressure (in. wg) High Mode (Factory Set)	0.31	0.31	0.31	0.31	0.31	0.31
<b>Piping</b>						
Liquid Line (in., O.D.)	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	3/8 Flare
Vapor Line (in., O.D.)	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1	1

<sup>1</sup>Power Input is rated at high speed.

<sup>2</sup>Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

<sup>3</sup>All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communications cable at any other point.

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. Power Supply (V/Hz/Ø): 208-230/60/1

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70°F dry bulb (DB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).

# GENERAL DATA



## Specifications - High-Static BG Chassis

Table 3: High-Static BG Chassis IDU Specifications

Model No.	ARNU073BGA4	ARNU093BGA4	ARNU123BGA4	ARNU153BGA4	ARNU183BGA4
<b>Cooling Mode Performance</b>					
Capacity (Btu/h)	7,500	9,600	12,300	15,400	19,100
Power Input <sup>1</sup> (W)	450	450	450	450	450
<b>Heating Mode Performance</b>					
Capacity (Btu/h)	8,500	10,900	13,600	17,100	21,500
Power Input <sup>1</sup> (W)	450	450	450	450	450
<b>Entering Mixed Air</b>					
Cooling Max. (°F WB)	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59
<b>Unit Data</b>					
Refrigerant Type <sup>2</sup>	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV
Net Unit Weight (lbs.)	83.8	83.8	83.8	83.8	83.8
Shipping Weight (lbs.)	94.8	94.8	94.8	94.8	94.8
Communication Cable <sup>4</sup> (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
<b>Fan</b>					
Type	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco
Motor	1	1	1	1	1
Housing	2	2	2	2	2
Motor/Drive	Brushless Digitally Controlled / Direct				
Airflow Rate H/M/L (CFM) Standard Mode	516 / 484 / 434	533 / 484 / 434	586 / 533 / 484	477 / 427 / 318	547 / 470 / 427
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	441 / 406 / 332	452 / 406 / 332	477 / 427 / 332	487 / 417 / 293	537 / 487 / 417
External Static Pressure (in. wg) Standard Mode	0.15	0.15	0.15	0.23	0.23
External Static Pressure (in. wg) High Mode (Factory Set)	0.23	0.23	0.23	0.31	0.31
<b>Piping</b>					
Liquid Line (in., O.D.)	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor Line (in., O.D.)	5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1

<sup>1</sup>Power Input is rated at high speed.

<sup>2</sup>Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

<sup>3</sup>All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communications cable at any other point.

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. Power Supply (V/Hz/Ø): 208-230/60/1

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70°F dry bulb (DB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).



Table 2: High-Static BG Chassis IDU Specifications – continued

Model No.	ARNU243BGA4	ARNU283BGA4	ARNU363BGA4	ARNU423BGA4
<b>Cooling Mode Performance</b>				
Capacity (Btu/h)	24,200	28,000	36,200	42,000
Power Input <sup>1</sup> (W)	450	450	450	450
<b>Heating Mode Performance</b>				
Capacity (Btu/h)	27,300	31,500	40,600	43,800
Power Input <sup>1</sup> (W)	450	450	450	450
<b>Entering Mixed Air</b>				
Cooling Max. (°F WB)	76	76	76	76
Heating Min. (°F DB)	59	59	59	59
<b>Unit Data</b>				
Refrigerant Type <sup>2</sup>	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV
Net Unit Weight (lbs.)	83.8	83.8	83.8	83.8
Shipping Weight (lbs.)	94.8	94.8	94.8	94.8
Communication Cable <sup>4</sup> (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18
<b>Fan</b>				
Type	Sirocco	Sirocco	Sirocco	Sirocco
Motor	1	1	1	1
Housing	2	2	2	2
Motor/Drive	Brushless Digitally Controlled / Direct			
Airflow Rate H/M/L (CFM) Standard Mode	671 / 576 / 547	893 / 770 / 622	1,003 / 894 / 770	1,130 / 1,003 / 961
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	671 / 537 / 487	915 / 851 / 770	1,141 / 1,024 / 894	1,218 / 1,141 / 1,084
External Static Pressure (in. wg) Standard Mode	0.23	0.31	0.31	0.31
External Static Pressure (in. wg) High Mode (Factory Set)	0.31	0.39	0.39	0.39
<b>Piping</b>				
Liquid Line (in., O.D.)	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor Line (in., O.D.)	5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1

<sup>1</sup>Power Input is rated at high speed.

<sup>2</sup>Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

<sup>3</sup>All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communications cable at any other point.

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. Power Supply (V/Hz/Ø): 208-230/60/1

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70°F dry bulb (DB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).

# GENERAL DATA



## Specifications - High-Static BR/B8 Chassis

Table 4: High-Static BR Chassis IDU Specifications

Model No.	ARNU283BRA4	ARNU363BRA4	ARNU5423BRA4	ARNU483BRA4	ARNU543BRA4
<b>Cooling Mode Performance</b>					
Capacity (Btu/h)	28,000	36,200	42,000	48,100	54,000
Power Input <sup>1</sup> (W)	450	450	450	450	450
<b>Heating Mode Performance</b>					
Capacity (Btu/h)	31,500	40,600	43,800	51,200	61,400
Power Input <sup>1</sup> (W)	450	450	450	450	450
<b>Entering Mixed Air</b>					
Cooling Max. (°F WB)	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59
<b>Unit Data</b>					
Refrigerant Type <sup>2</sup>	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV
Net Unit Weight (lbs.)	112	112	112	112	112
Shipping Weight (lbs.)	132	132	132	132	132
Communication Cable <sup>4</sup> (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
<b>Fan</b>					
Type	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco
Motor	2	2	2	2	2
Housing	2	2	2	2	2
Motor/Drive	Brushless Digitally Controlled / Direct				
Airflow Rate H/M/L (CFM) Standard Mode	1,151 / 1,105 / 1,074	1,430 / 1,151 / 1,105	1,497 / 1,430 / 1,151	1,568/1,395/1,183	1,819/1,678/1,395
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	1,278 / 1,134 / 1,007	1,381 / 1,176 / 1,049	1,490 / 1,381 / 1,176	1,582/1,434/1,176	1,801/1,582/1,434
External Static Pressure (in. wg) Standard Mode	0.39	0.39	0.39	0.39	0.39
External Static Pressure (in. wg) High Mode (Factory Set)	0.55	0.55	0.55	0.55	0.55
<b>Piping</b>					
Liquid Line (in., O.D.)	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor Line (in., O.D.)	5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1

<sup>1</sup>Power Input is rated at high speed.

<sup>2</sup>Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

<sup>3</sup>All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communications cable at any other point.

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. Power Supply (V/Hz/Ø): 208-230/60/1

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70°F dry bulb (DB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).



**Table 5: High-Static B8 Chassis IDU Specifications**

Model No.	ARNU363B8A4	ARNU423B8A4	ARNU483B8A4	ARNU763B8A4	ARNU963B8A4
<b>Cooling Mode Performance</b>					
Capacity (Btu/h)	36,200	42,000	48,100	76,400	95,900
Power Input <sup>1</sup> (W)	800	800	800	800	800
<b>Heating Mode Performance</b>					
Capacity (Btu/h)	40,600	43,800	51,200	86,000	107,500
Power Input <sup>1</sup> (W)	800	800	800	800	800
<b>Entering Mixed Air</b>					
Cooling Max. (°F WB)	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59
<b>Unit Data</b>					
Refrigerant Type <sup>2</sup>	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV
Net Unit Weight (lbs.)	192	192	192	192	192
Shipping Weight (lbs.)	222	222	222	222	222
Communication Cable <sup>4</sup> (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
<b>Fan</b>					
Type	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco
Motor	2	2	2	2	2
Housing	2	2	2	2	2
Motor/Drive	Brushless Digitally Controlled / Direct				
Airflow Rate H/M/L (CFM) Standard Mode	1,896 / 1,748 / 1,550	1,963 / 1,786 / 1,589	2,048 / 1,846 / 1,670	2,050 / 1,766 / 1,766	2,684 / 2,260 / 2,260
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	1,730 / 1,317 / 1,066	1,914 / 1,458 / 1,123	2,019 / 1,518 / 1,200	2,260 / 1,766 / 1,766	2,542 / 2,260 / 2,260
External Static Pressure (in. wg) Standard Mode	0.35	0.35	0.35	0.59	0.59
External Static Pressure (in. wg) High Mode (Factory Set)	0.70	0.70	0.70	0.87	0.87
<b>Piping</b>					
Liquid Line (in., O.D.)	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor Line (in., O.D.)	3/4 Brazed	3/4 Brazed	3/4 Brazed	3/4 Flare	7/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1

<sup>1</sup>Power Input is rated at high speed.

<sup>2</sup>Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

<sup>3</sup>All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communications cable at any other point.

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. Power Supply (V/Hz/Ø): 208-230/60/1

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70°F dry bulb (DB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).

# GENERAL DATA



## Specifications – Low-Static B3/B4 Chassis

Table 6: Low-Static Built-In B3/B4 Chassis IDU Specifications

Model No.	ARNU073B3G4	ARNU093B3G4	ARNU123B3G4	ARNU153B3G4	ARNU183B4G4	ARNU243B4G4
<b>Cooling Mode Performance</b>						
Capacity (Btu/h)	7,500	9,600	12,300	15,400	19,100	24,200
Power Input <sup>1</sup> (W)	85	85	85	85	85	115
<b>Heating Mode Performance</b>						
Capacity (Btu/h)	8,500	10,900	13,600	17,100	21,500	27,300
Power Input <sup>1</sup> (W)	85	85	85	85	85	115
<b>Entering Mixed Air</b>						
Cooling Max. (°F WB)	76	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59	59
<b>Unit Data</b>						
Refrigerant Type <sup>2</sup>	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV	EEV
Net Unit Weight (lbs.)	46.3	46.3	46.3	46.3	57.3	57.3
Shipping Weight (lbs.)	53.3	53.3	53.3	53.3	67.2	67.2
Communication Cable <sup>4</sup> (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
<b>Fan</b>						
Type	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco
Motor	2	2	2	2	2	2
Housing	3	3	3	3	4	4
Motor/Drive	Brushless Digitally Controlled / Direct					
Airflow Rate H/M/L (CFM) Standard Mode	283 / 229 / 194	318 / 247 / 212	353 / 283 / 229	388 / 353 / 283	494 / 424 / 353	600 / 530 / 353
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	283 / 229 / 194	318 / 247 / 212	353 / 283 / 229	388 / 353 / 283	494 / 424 / 353	600 / 530 / 353
External Static Pressure (in. wg) Standard Mode	0	0	0	0	0	0
External Static Pressure (in. wg) High Mode (Factory Set)	0.08	0.08	0.08	0.08	0.08	0.08
<b>Piping</b>						
Liquid Line (in., O.D.)	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	3/8 Flare
Vapor Line (in., O.D.)	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1	1

<sup>1</sup>Power Input is rated at high speed.

<sup>2</sup>Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

<sup>3</sup>All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communications cable at any other point.

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. Power Supply (V/Hz/Ø): 208-230/60/1

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70°F dry bulb (DB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).

Multi V Ducted Indoor Units



## Specifications – Low-Static Ducted L1/L2/L3 Chassis

Table 7: Low-Static Ducted L1/L2/L3 Chassis IDU Specifications

Model No.	ARNU073L1G4	ARNU093L1G4	ARNU123L2G4	ARNU153L2G4	ARNU183L2G4	ARNU243L3G4
<b>Cooling Mode Performance</b>						
Capacity (Btu/h)	7,500	9,600	12,300	15,400	19,100	24,000
Power Input <sup>1</sup> (W)	40	40	85	85	85	115
<b>Heating Mode Performance</b>						
Capacity (Btu/h)	8,500	10,900	13,600	17,100	21,500	27,300
Power Input <sup>1</sup> (W)	40	40	85	85	85	115
<b>Entering Mixed Air</b>						
Cooling Max. (°F WB)	76	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59	59
<b>Unit Data</b>						
Refrigerant Type <sup>2</sup>	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV	EEV
Net Unit Weight (lbs.)	38.6	38.6	50.7	50.7	50.7	59.5
Shipping Weight (lbs.)	47.4	47.4	60.6	60.6	60.6	68.3
Communication Cable <sup>4</sup> (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
<b>Fan</b>						
Type	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco
Motor	1	1	2	2	2	2
Housing	2	2	3	3	3	4
Motor/Drive	Brushless Digitally Controlled / Direct					
Airflow Rate H/M/L (CFM) Standard Mode	270 / 230 / 200	320 / 250 / 200	360 / 310 / 250	450 / 360 / 310	530 / 450 / 360	710 / 570 / 430
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	270 / 230 / 200	320 / 250 / 200	360 / 310 / 250	450 / 360 / 310	530 / 450 / 360	710 / 570 / 430
External Static Pressure (in. wg) Standard Mode	0	0	0	0	0	0
External Static Pressure (in. wg) High Mode (Factory Set)	0.1	0.1	0.1	0.1	0.1	0.1
<b>Piping</b>						
Liquid Line (in., O.D.)	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	1/4 Flare	3/8 Flare
Vapor Line (in., O.D.)	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	1/2 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1	1

<sup>1</sup>Power Input is rated at high speed.

<sup>2</sup>Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

<sup>3</sup>All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communications cable at any other point.

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. Power Supply (V/Hz/Ø): 208-230/60/1

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70°F dry bulb (DB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).

# GENERAL DATA



## Specifications – Vertical Air Handler NJ Chassis

Table 8: Vertical Air Handler NJ Chassis IDU Specifications

Model No.	ARNU123NJA4	ARNU183NJA4	ARNU243NJA4	ARNU303NJA4	ARNU363NJA4
<b>Cooling Mode Performance</b>					
Capacity (Btu/h)	12,000	18,000	24,000	30,000	36,000
Power Input <sup>1</sup> (W)	80	80	120	178	228
<b>Heating Mode Performance</b>					
Capacity (Btu/h)	13,500	20,000	27,000	34,000	40,000
Power Input <sup>1</sup> (W)	80	80	120	178	228
<b>Entering Mixed Air</b>					
Cooling Max. (°F WB)	76	76	76	76	76
Heating Min. (°F DB)	59	59	59	59	59
<b>Unit Data</b>					
Refrigerant Type <sup>2</sup>	R410A	R410A	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV	EEV	EEV
Net Unit Weight (lbs.)	117	117	117	117	121
Shipping Weight (lbs.)	140	140	140	140	144
Communication Cable <sup>4</sup> (No. x AWG)	2 x 18	2 x 18	2 x 18	2 x 18	2 x 18
<b>Fan</b>					
Type	Sirocco	Sirocco	Sirocco	Sirocco	Sirocco
Motor	1	1	1	1	1
Housing	1	1	1	1	1
Motor/Drive	Brushless Digitally Controlled / Direct				
Airflow Rate H/M/L (CFM) Standard Mode	530 / 480 / 380	580 / 530 / 480	710 / 640 / 480	880 / 800 / 630	990 / 880 / 800
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	530 / 480 / 380	580 / 530 / 480	710 / 640 / 480	880 / 800 / 630	990 / 880 / 800
External Static Pressure (in. wg) Standard Mode	0.3	0.3	0.3	0.3	0.3
External Static Pressure (in. wg) High Mode (Factory Set)	0.5	0.5	0.5	0.5	0.5
<b>Piping</b>					
Liquid Line (in., O.D.)	1/4 Flare	1/4 Flare	3/8 Flare	3/8 Flare	3/8 Flare
Vapor Line (in., O.D.)	1/2 Flare	1/2 Flare	5/8 Flare	5/8 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1	1	1

<sup>1</sup>Power Input is rated at high speed.

<sup>2</sup>Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

<sup>3</sup>All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communications cable at any other point.

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. Power Supply (V/Hz/Ø): 208-230/60/1

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70°F dry bulb (DB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).



Table 9: Vertical Air Handler NK Chassis IDU Specifications

Model No.	ARNU423NKA4	ARNU483NKA4	ARNU543NKA4
<b>Cooling Mode Performance</b>			
Capacity (Btu/h)	42,000	48,000	54,000
Power Input <sup>1</sup> (W)	260	330	366
<b>Heating Mode Performance</b>			
Capacity (Btu/h)	46,000	54,000	60,000
Power Input <sup>1</sup> (W)	260	330	366
<b>Entering Mixed Air</b>			
Cooling Max. (°F WB)	76	76	76
Heating Min. (°F DB)	59	59	59
<b>Unit Data</b>			
Refrigerant Type <sup>2</sup>	R410A	R410A	R410A
Refrigerant Control	EEV	EEV	EEV
Net Unit Weight (lbs.)	165	165	165
Shipping Weight (lbs.)	181	181	181
Communication Cable <sup>4</sup> (No. x AWG)	2 x 18	2 x 18	2 x 18
<b>Fan</b>			
Type	Sirocco	Sirocco	Sirocco
Motor	1	1	1
Housing	1	1	1
Motor/Drive	Brushless Digitally Controlled / Direct		
Airflow Rate H/M/L (CFM) Standard Mode	1,250 / 1,100 / 1,000	1,400 / 1,260 / 1,000	1,475 / 1,400 / 1,260
Airflow Rate H/M/L (CFM) High Mode (Factory Set)	1,250 / 1,100 / 1,000	1,400 / 1,260 / 1,000	1,475 / 1,400 / 1,260
External Static Pressure (in. wg) Standard Mode	0.3	0.3	0.3
External Static Pressure (in. wg) High Mode (Factory Set)	0.5	0.5	0.5
<b>Piping</b>			
Liquid Line (in., O.D.)	3/8 Flare	3/8 Flare	3/8 Flare
Vapor Line (in., O.D.)	5/8 Flare	5/8 Flare	5/8 Flare
Condensate Line (in., I.D.)	1	1	1

<sup>1</sup>Power Input is rated at high speed.

<sup>2</sup>Take appropriate actions at the end of HVAC equipment life to recover, recycle, reclaim or destroy R410A refrigerant according to applicable regulations (40 CFR Part 82, Subpart F) under section 608 of CAA.

<sup>3</sup>All communication cable to be minimum 18 AWG, 2-conductor, stranded, shielded and must comply with applicable local and national codes. Ensure the communication cable is properly grounded at the master outdoor unit only. Do not ground the ODU-IDU communications cable at any other point.

EEV: Electronic Expansion Valve

Power wiring is field supplied and must comply with the applicable local and national codes. Power Supply (V/Hz/Ø): 208-230/60/1

This unit comes with a dry nitrogen charge.

This data is rated 0 ft above sea level, with 25 ft of refrigerant line per indoor unit and a 0 ft level difference between outdoor and indoor units. All capacities are net with a combination ratio between 95-105%.

Cooling capacity rating obtained with air entering the indoor coil at 80°F dry bulb (DB) and 67°F wet bulb (WB) and outdoor ambient conditions of 95°F dry bulb (DB).

Heating capacity rating obtained with air entering the indoor unit at 70°F dry bulb (DB) and outdoor ambient conditions of 47°F dry bulb (DB) and 43°F wet bulb (WB).

# GENERAL DATA



## Electrical - High-Static BH/BG/BR/B8 Chassis

Table 10: High-Static BH/BG/BR/B8 Chassis Indoor Unit Electrical Data.

Model	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)	
					Hz	Volts	Phase	Cooling	Heating
<b>BH Units</b>									
ARNU073BHA4	187-253	1.32	15	1.06	60	208-230	1	150	150
ARNU093BHA4		1.32		1.06				150	150
ARNU123BHA4		1.32		1.06				150	150
ARNU153BHA4		1.32		1.06				150	150
ARNU183BHA4		1.32		1.06				150	150
ARNU243BHA4		1.32		1.06				150	150
<b>BG Units</b>									
ARNU073BGA4	187-253	3.3	15	2.65	60	208-230	1	450	450
ARNU093BGA4		3.3		2.65				450	450
ARNU123BGA4		3.3		2.65				450	450
ARNU153BGA4		3.3		2.65				450	450
ARNU183BGA4		3.3		2.65				450	450
ARNU243BGA4		3.3		2.65				450	450
ARNU283BGA4		3.3		2.65				450	450
ARNU363BGA4		3.3		2.65				450	450
ARNU423BGA4		3.3		2.65				450	450
<b>BR Units</b>									
ARNU283BRA4	187-253	4.4	15	3.5	60	208-230	1	450	450
ARNU363BRA4		4.4		3.5				450	450
ARNU423BRA4		4.4		3.5				450	450
ARNU483BRA4		4.4		3.5				450	450
ARNU543BRA4		4.4		3.5				450	450
<b>B8 Units</b>									
ARNU363B8A4	187-253	6.5	15	5.2	60	208-230	1	800	800
ARNU423B8A4		6.5		5.2				800	800
ARNU483B8A4		6.5		5.2				800	800
ARNU763B8A4		6.5		5.2				800	800
ARNU963B8A4		6.5		5.2				800	800

MCA : Minimum Circuit Ampacity.  
MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.  
Select wire size based on the larger MCA value.  
Instead of fuse, use circuit breaker.

Multi V Ducted Indoor Units



Table 11: Low-Static Built-In B3/B4 Chassis Electrical Data.

Model	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)	
					Hz	Volts	Phase	Cooling	Heating
<b>B3 Units</b>									
ARNU073B3G4	187-253	1.0	15	0.76	60	208-230	1	85	85
ARNU093B3G4		1.0		0.76				85	85
ARNU123B3G4		1.0		0.76				85	85
ARNU153B3G4		1.0		0.76				85	85
<b>B4 Units</b>									
ARNU183B4G4	187-253	1.2	15	0.97	60	208-230	1	115	115
ARNU243B4G4		1.2		0.97				115	115

MCA : Minimum Circuit Ampacity.  
MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.  
Select wire size based on the larger MCA value.  
Instead of fuse, use circuit breaker.



# GENERAL DATA



## Electrical - Low-Static Ducted L1/L2/L3 Chassis

Table 12: Low-Static Ducted L1/L2/L3 Chassis Electrical Data.

Model	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)	
					Hz	Volts	Phase	Cooling	Heating
<b>L1 Units</b>									
ARNU073L1G4	208-230	0.5	15	0.4	60	208-230	1	40	40
ARNU093L1G4		0.5		0.4				40	40
<b>L2 Units</b>									
ARNU123L2G4	208-230	1.0	15	0.76	60	208-230	1	85	85
ARNU153L2G4		1.0		0.76				85	85
ARNU183L2G4		1.0		0.76				85	85
<b>L3 Units</b>									
ARNU243L3G4	208-230	1.2	15	0.97	60	208-230	1	115	115

MCA : Minimum Circuit Ampacity.  
MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.  
Select wire size based on the larger MCA value.  
Instead of fuse, use circuit breaker.

Table 13: Vertical Air Handler NJ/NK Chassis Electrical Data.

Model	Voltage Range	MCA	MOP	Rated Amps (A)	Power Supply			Power Input (W)	
					Hz	Volts	Phase	Cooling	Heating
<b>NJ Units</b>									
ARNU123NJA4	208-230	1.4	15	1.12	60	208-230	1	228	228
ARNU183NJA4		1.4		1.12				228	228
ARNU243NJA4		1.4		1.12				228	228
ARNU303NJA4		1.4		1.12				228	228
ARNU363NJA4		1.4		1.12				228	228
<b>NK Units</b>									
ARNU423NKA4	208-230	2.3	15	1.8	60	208-230	1	366	366
ARNU483NKA4		2.3		1.8				366	366
ARNU543NKA4		2.3		1.8				366	366

MCA : Minimum Circuit Ampacity.  
MOP : Maximum Overcurrent Protection.

Units are suitable for use on an electrical system where voltage supplied to unit terminals is within the listed range limits.  
Select wire size based on the larger MCA value.  
Instead of fuse, use circuit breaker.

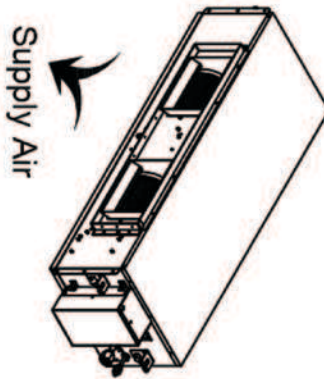
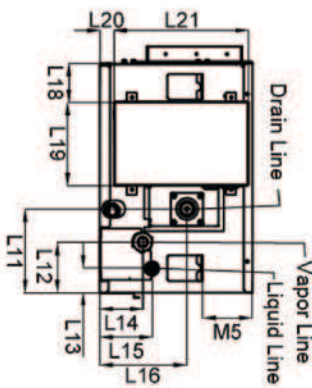
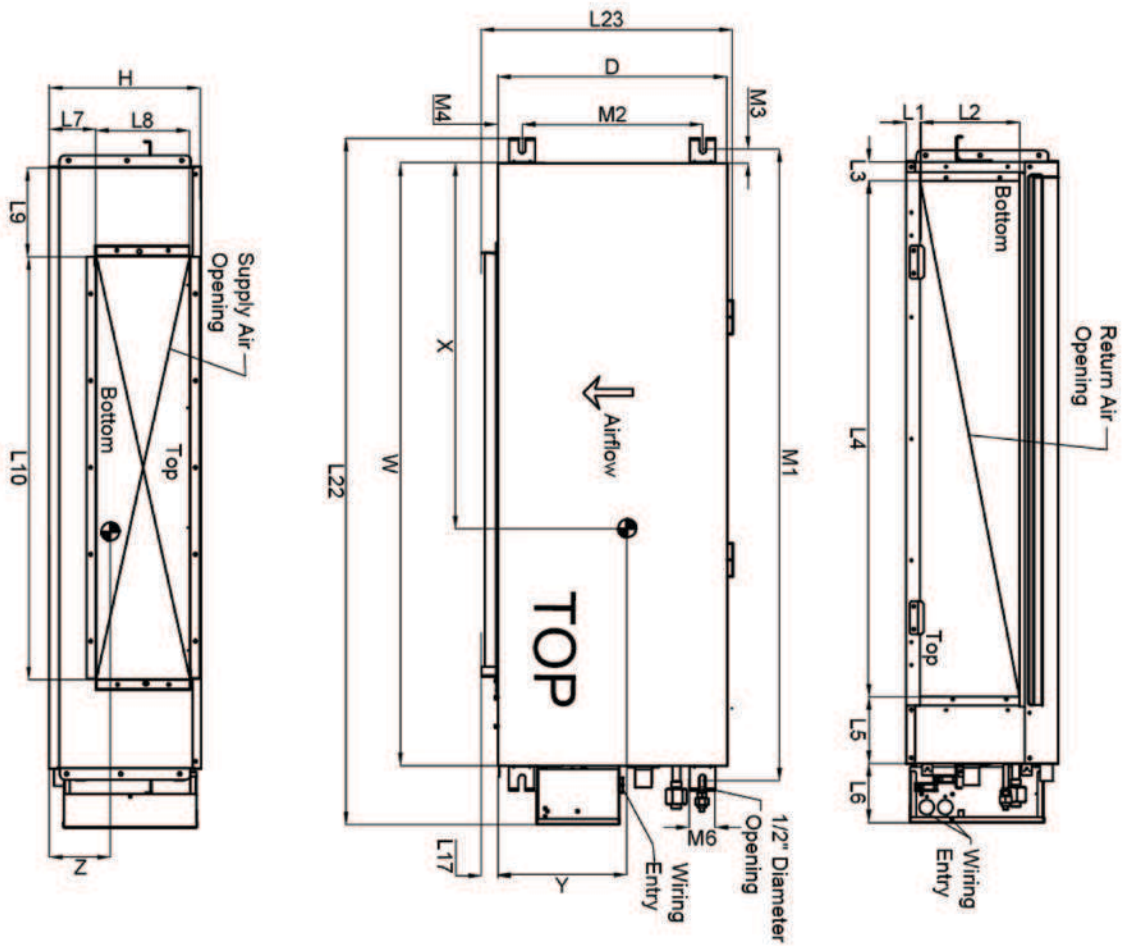




# GENERAL DATA



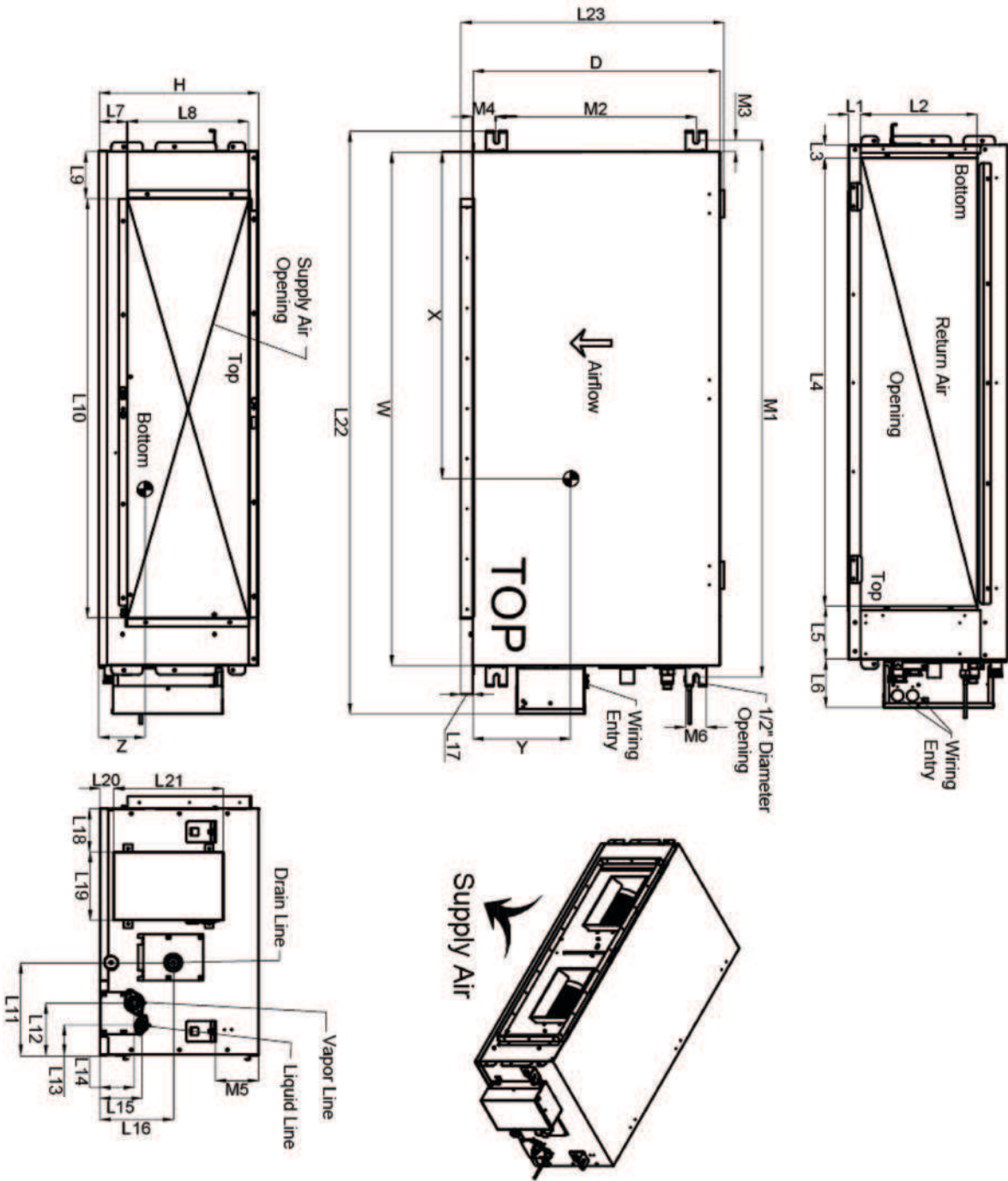
## Dimensions – High-Static Ducted BG Chassis



W	46 9/16"
D	17 3/4"
H	11 3/4"
L1	13/16"
L2	8"
L3	15/16"
L4	41 1/8"
L5	4 1/2"
L6	4 1/4"
L7	3 3/8"
L8	7 3/8"
L9	6 15/16"
L10	32 5/8"
L11	6 3/8"
L12	3 15/16"
L13	1 7/8"
L14	3 1/4"
L15	4"
L16	6 3/4"
L17	1 3/8"
L18	3"
L19	4 13/16"
L20	1 1/8"
L21	10 1/4"
L22	53"
L23	19 5/16"
M1	48 7/16"
M2	14"
M3	1"
M4	2 15/16"
M5	2 1/2"
M6	2"
Center of Gravity	
X	21 1/4"
Y	8 5/8"
Z	5 3/8"

Note - All dimensions have a tolerance of  $\pm 0.25$  in.  
 = Center of Gravity





W	48 7/16"
D	23 1/4"
H	15"
L1	1"
L2	11 1/8"
L3	11 1/16"
L4	43"
L5	4 3/4"
L6	4 7/16"
L7	2 9/16"
L8	11 9/16"
L9	4 1/2"
L10	39 9/16"
L11	8 3/4"
L12	4 13/16"
L13	2 13/16"
L14	3 1/4"
L15	3 15/16"
L16	6 3/4"
L17	1 3/8"
L18	4 1/8"
L19	4 13/16"
L20	1 5/16"
L21	10 1/4"
L22	55"
L23	24 13/16"
M1	50 9/16"
M2	18 3/4"
M3	1 1/16"
M4	2 3/16"
M5	4 1/8"
M6	2"

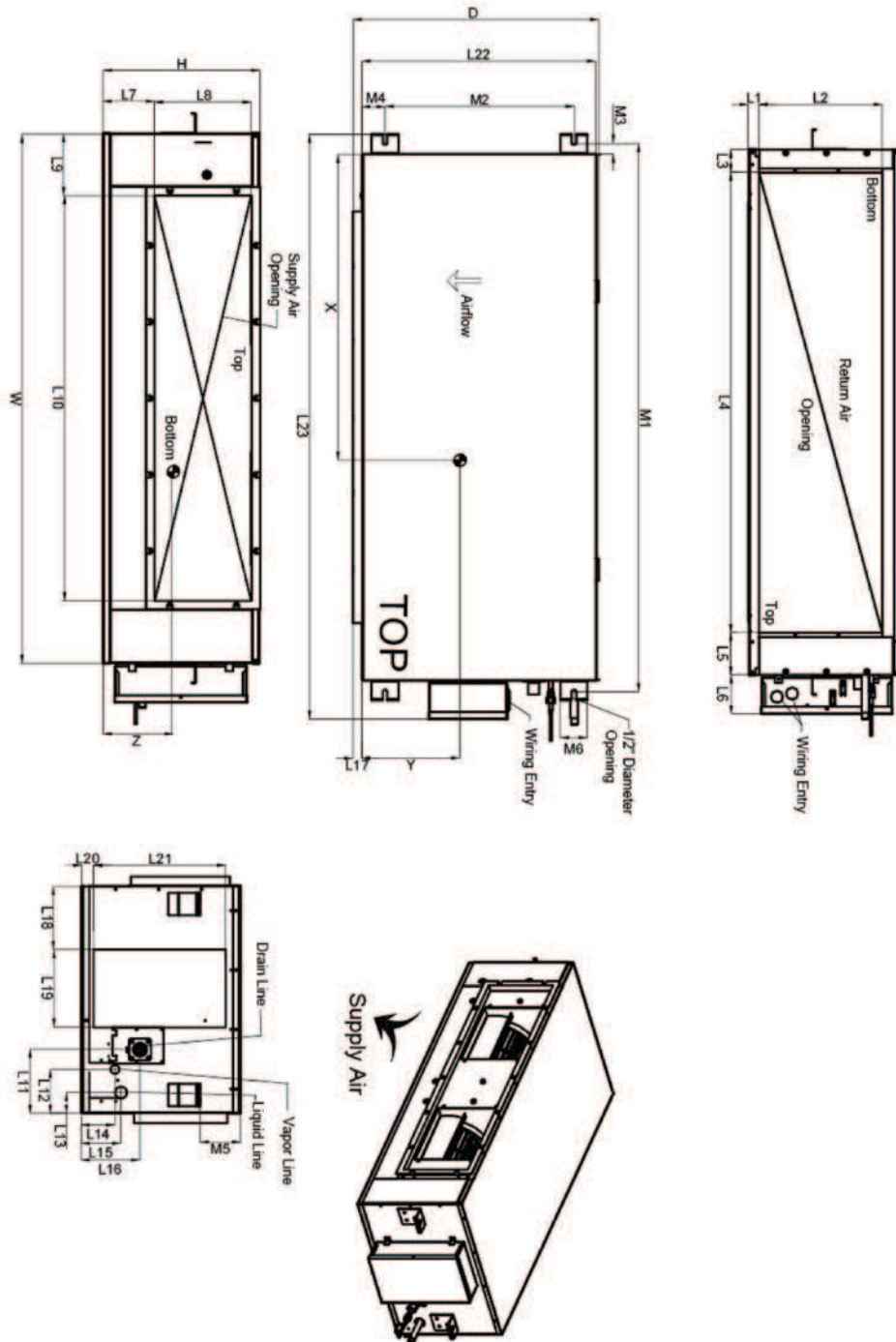
Center of Gravity	
X	23 3/8"
Y	14 1/8"
Z	6 7/8"

Note - All dimensions have a tolerance of ± 0.25 in.  
 = Center of gravity

# GENERAL DATA



## Dimensions – High-Static Ducted B8 Chassis



W	61 1/2"
D	27 1/8"
H	18 1/8"
L1	2 3/8"
L2	15 7/16"
L3	2"
L4	55"
L5	4 9/16"
L6	4 1/2"
L7	6 3/8"
L8	12 7/16"
L9	6 3/4"
L10	44 1/4"
L11	7 5/8"
L12	5 1/4"
L13	2 1/2"
L14	4 3/4"
L15	5 1/2"
L16	6 7/8"
L17	1 3/16"
L18	7 13/16"
L19	9 3/16"
L20	1 5/16"
L21	15 3/8"
L22	28 5/8"
L23	68 1/4"
M1	63 13/16"
M2	22"
M3	1 3/16"
M4	2 1/2"
M5	4 1/8"
M6	3 3/16"

Center of Gravity

X	31 1/16"
Y	18 1/8"
Z	8 3/4"

Note - All dimensions have a tolerance of  $\pm 0.25$  in.  
 = Center of Gravity

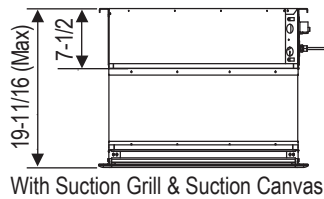
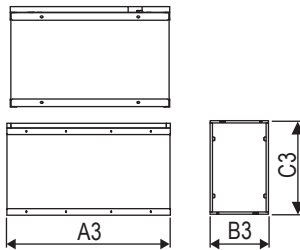
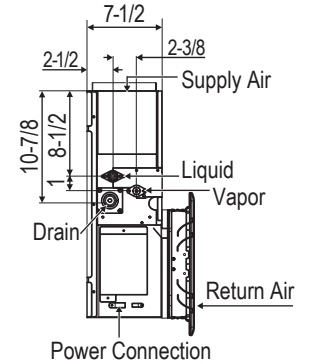
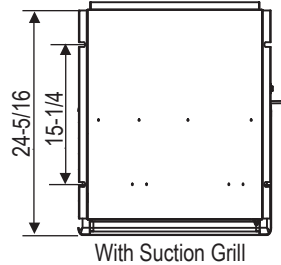
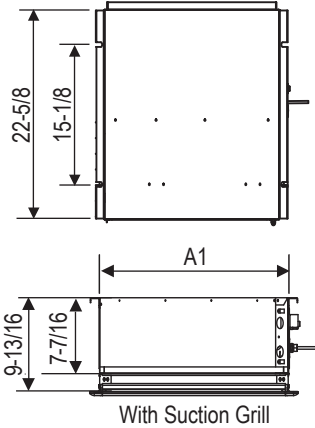
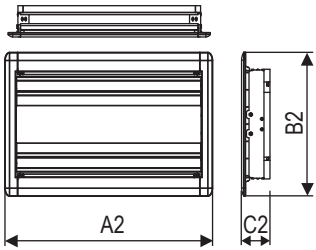
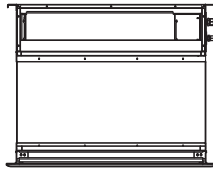
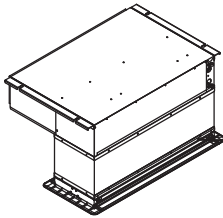
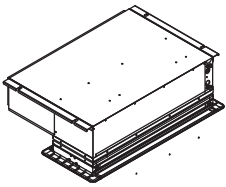


Dimensions – Built-In Low-Static Ducted B3/B4 Chassis

With Suction Grill

With Suction Grill & Suction Canvas

With Suction Grill & Suction Canvas



Model	A1
ARNU073B3G4	32-5/8
ARNU093B3G4	
ARNU123B3G4	
ARNU153B3G4	
ARNU183B4G4	43-5/16
ARNU243B4G4	

Unit: inches  
 Note: All measurements have a tolerance of ±1/4 in.

Accessory	A2	B2	C2
PBSGB30	35-13/16	14-1/8	2-3/16
PBSGB40	46-13/16	14-1/8	2-3/16

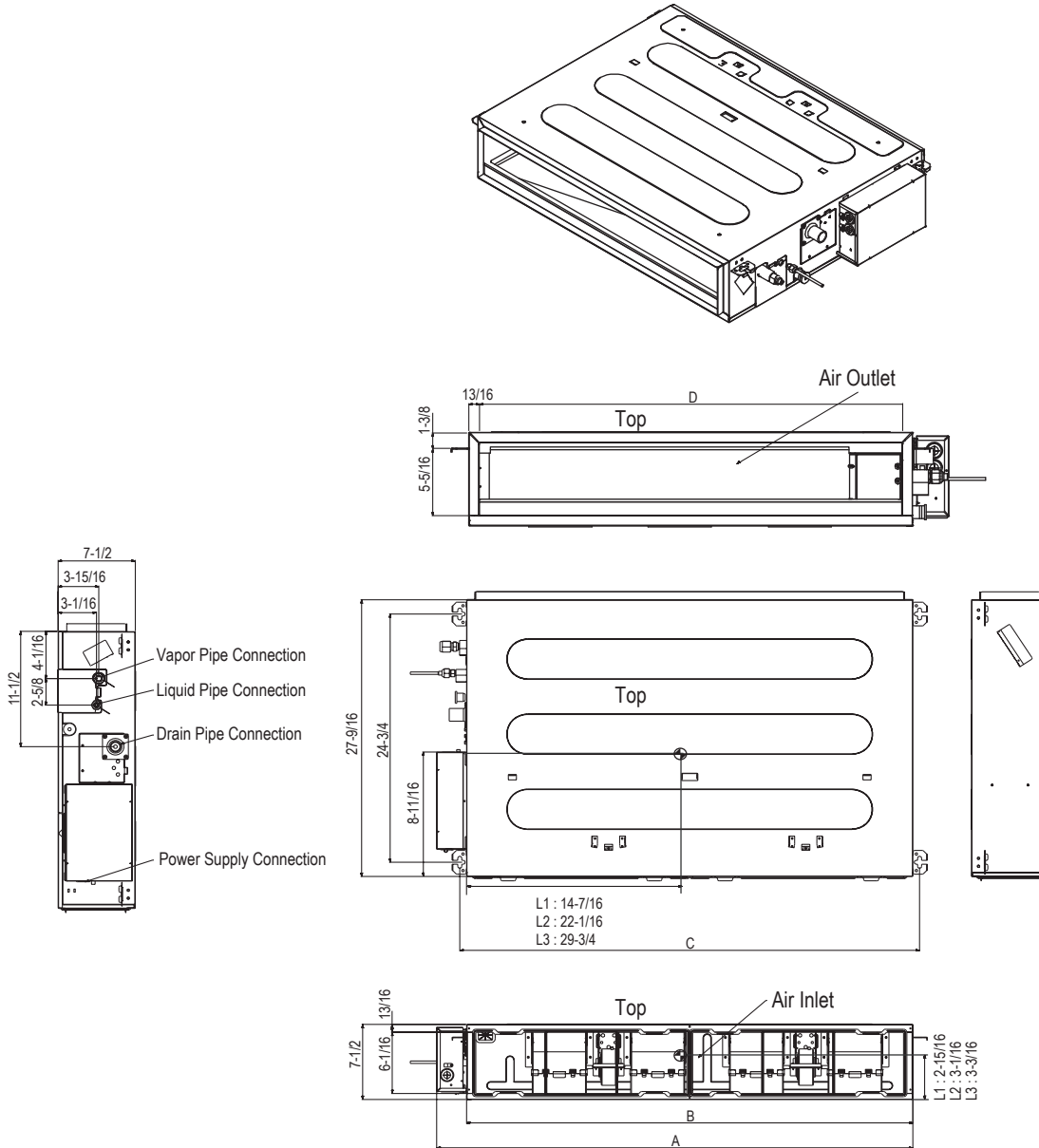
Accessory	A3	B3	C3
PBSC30	32-5/16	10-11/16	1-9/16 to 9-13/16
PBSC40	43-5/16	10-11/16	1-9/16 to 9-13/16

# GENERAL DATA



## Dimensions – Low-Static Ducted L1/L2/L3 Chassis

Multi V Ducted Indoor Units



☉ Center of Gravity

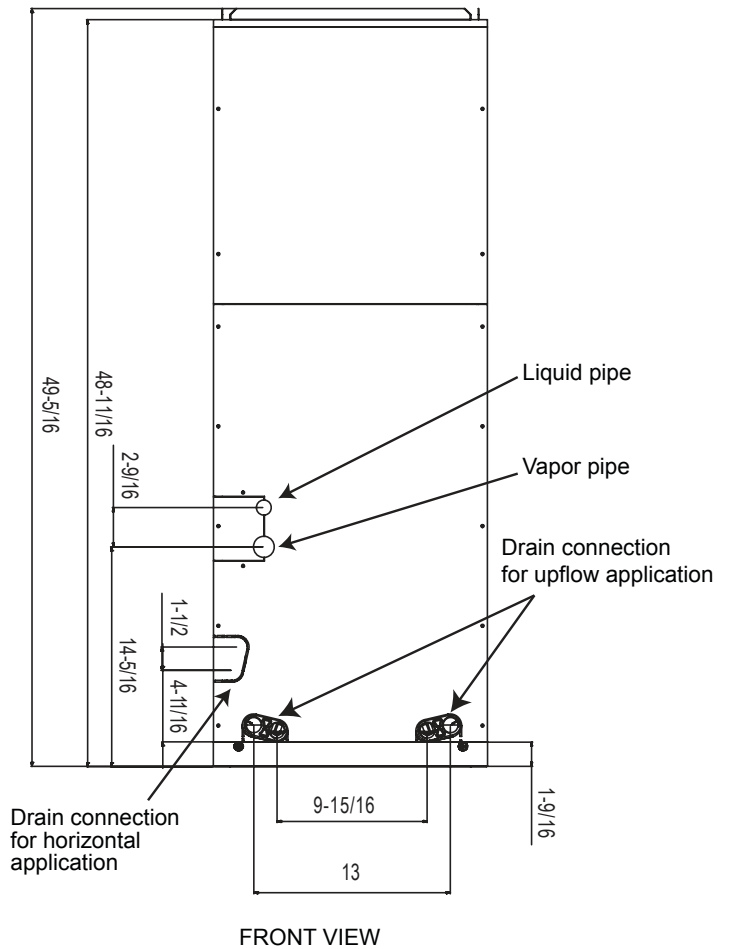
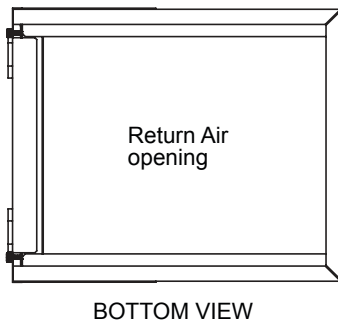
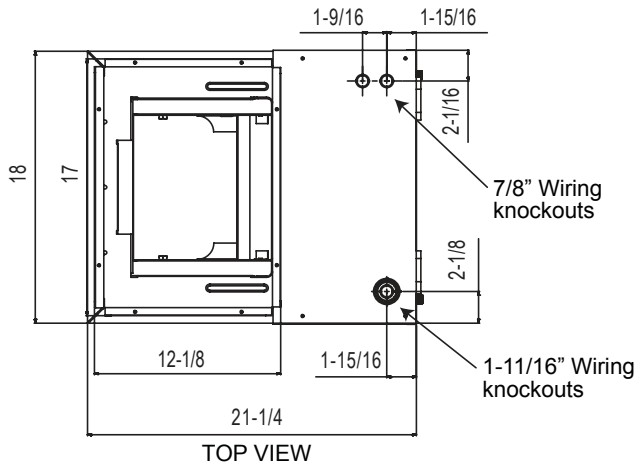
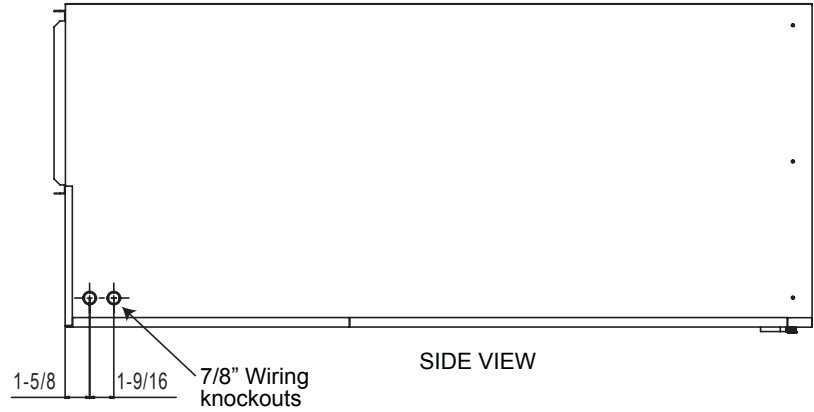
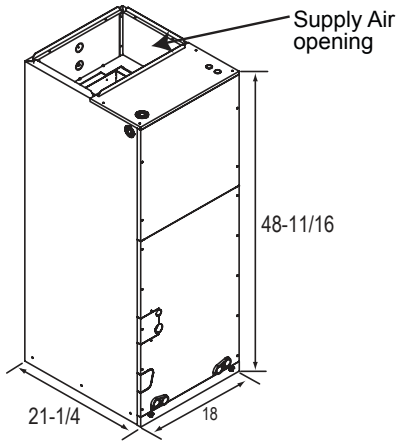
Unit: inches

Note: All measurements have a tolerance of  $\pm 1/4$  in.

	A	B	C	D
ARNU073L1G4	30-1/2	27-9/16	28-7/8	26
ARNU093L1G4				
ARNU123L2G4	38-3/8	35-7/16	36-3/4	33-7/8
ARNU153L2G4				
ARNU183L2G4				
ARNU243L3G4	46-1/4	43-5/16	44-5/8	41-3/4



Dimensions – Vertical Air Handler NJ Chassis

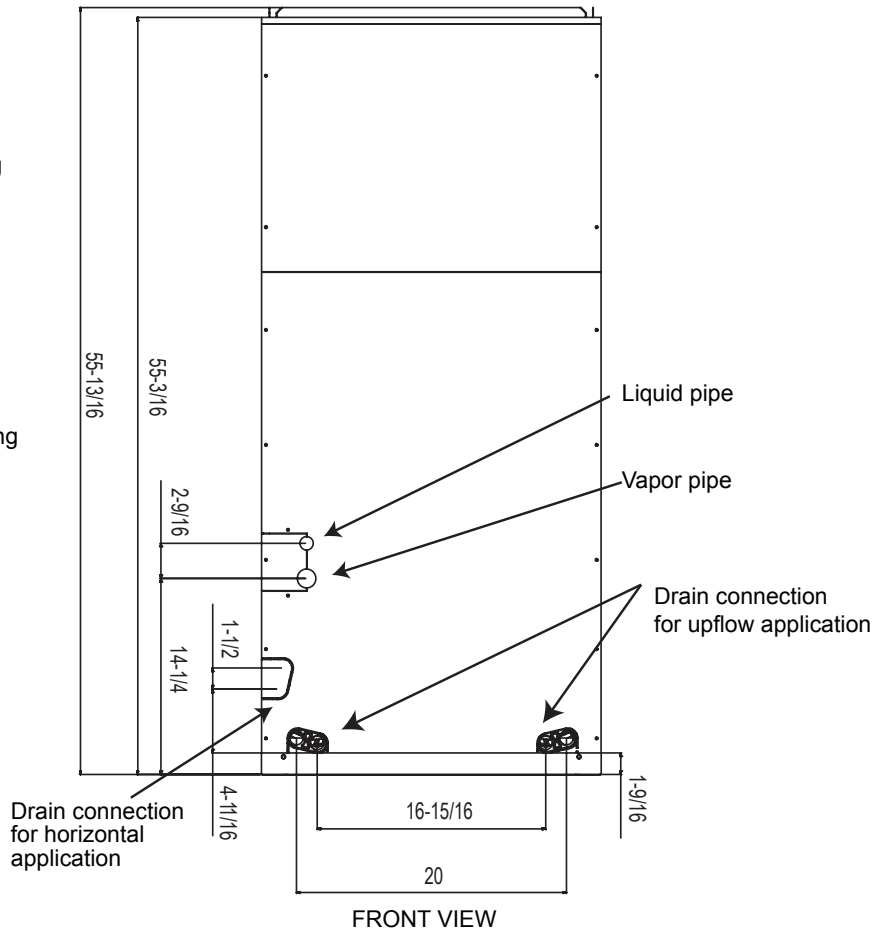
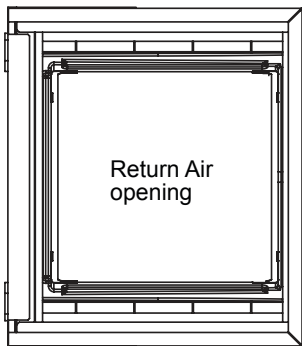
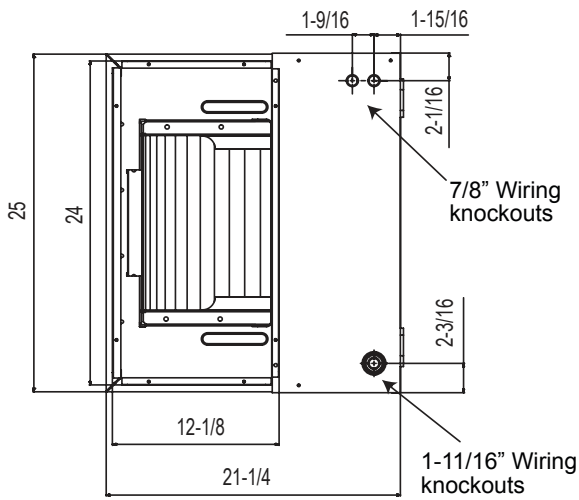
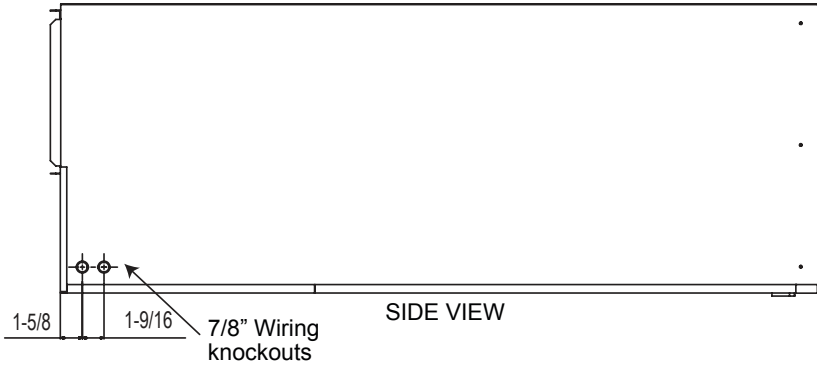
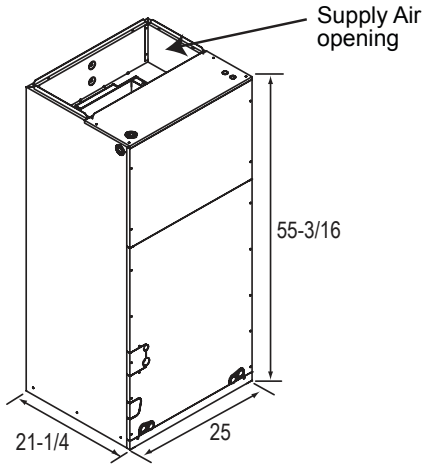


Unit: inches  
Note: All measurements have a tolerance of  $\pm 1/4$  in.

# GENERAL DATA



## Dimensions – Vertical Air Handler NK Chassis



Unit: inches  
 Note: All measurements have a tolerance of  $\pm 1/4$  in.

Multi V Ducted Indoor Units

Figure 5: High-Static Ducted BG/BR/BH, Low-Static Ducted L1/L2L3/B3/B4, and Vertical Air Handler NJ/NK Refrigerant Piping Diagram

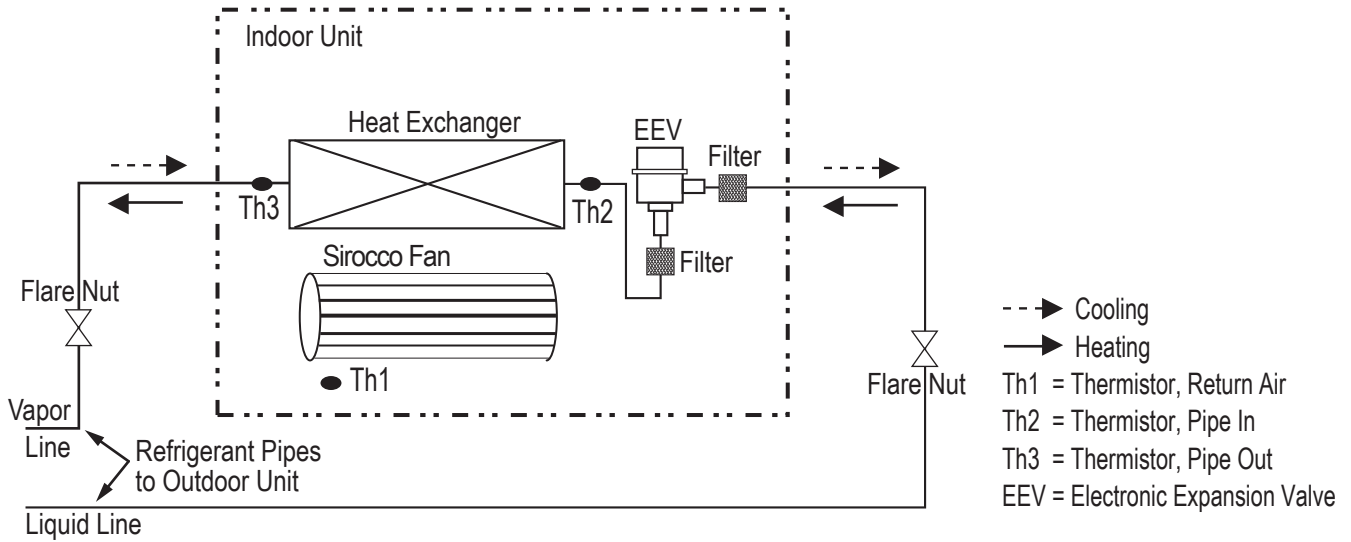
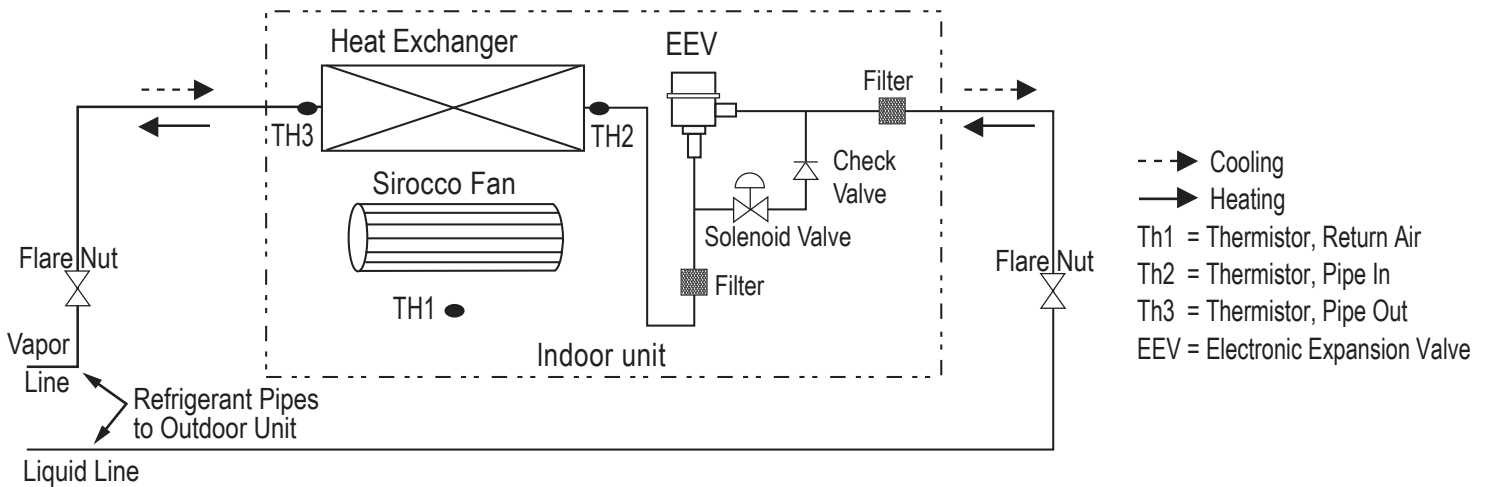


Figure 6: High-Static Ducted B8 Refrigerant Piping Diagram



## Location Selection

### **⚠ DANGER**

To avoid the possibility of fire, do not install the unit in an area where combustible gas may generate, flow, stagnate, or leak. Failure to do so will cause serious bodily injury or death. Before beginning installation, read the safety summary at the beginning of this manual.

#### **Note:**

Select a location for installing the wall-mounted indoor unit (IDU) that meets the following conditions:

- Where there is enough structural strength to bear the weight of the unit.
- Operating sound from the unit will not disturb occupants.
- Include enough space for service access.
- Include space for drainage to ensure condensate flows properly out of the unit when it is in cooling mode.
- Use a level indicator to ensure the unit is installed on a level plane.
- Include space for drainage to ensure condensate flows properly out of the unit when it is in cooling mode

#### **Note:**

The unit may be damaged, may malfunction, and/or will not operate as designed if installed in any of these conditions:

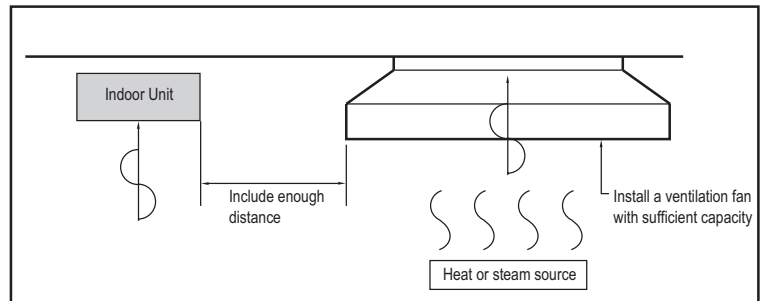
- ⊘ Do not install the unit near a heat or steam source (Figure 7) , or where considerable amounts of oil, iron powder, or flour are used. These materials may generate condensate, cause a reduction in heat exchanger efficiency, or malfunction of the condensate drain. If this is a potential problem, install a ventilation fan large enough to vent out these materials
- ⊘ Do not install the unit where it will be subjected to direct thermal radiation from other heat sources.
- ⊘ Do not install the unit in an area where combustible gas may generate, flow, stagnate, or leak. There is the possibility of fire.
- ⊘ Do not install the unit in a location where acidic solution and spray (sulfur) are often used.
- ⊘ Do not use the unit in environments where oil, steam, or sulfuric gas are present.
- ⊘ Do not install additional ventilation products on the chassis of the unit.
- ⊘ Do not install the unit near high-frequency generator sources.

### Installing in an Area Exposed to Unconditioned Air

In some installation applications, areas (floors, walls) in some rooms may be exposed to unconditioned air. The room may be above or next to an unheated garage or storeroom. To counter this condition:

- Verify that carpet is or will be installed (carpet may increase the temperature by three (3) degrees).
- Install radiant heat or another type of heating system to the floor.
- Add insulation between the floor joists.

Figure 7: Installing Near a Heat or Steam Source



## Unpack and Inspect for Freight Damage

### **⚠ CAUTION**

Table 2 lists shipping and net weights. To help avoid personnel injury and unit damage, use at least two people when carrying a unit by hand.

#### **Note:**

⊘ Do not unpack the unit and remove protective materials until ready to install. Before opening the shipping container, check the container labeling to verify the unit received is the correct unit. Verify the unit capacity, type, and voltage. Refer to the Nomenclature chart on page 11. Before unpacking, carefully move packaged unit to a work area near installation location. After opening, if unit is damaged, repack unit as it was shipped. **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. File a freight claim and order a replacement unit.

1. Place the box on a solid surface right side up.
2. Cut the white reinforced nylon straps, open the top of the box, and fold back all four flaps.



3. Remove the protective cardboard/Styrofoam® top sheet and place to the side.
4. The walls and top panels are not attached to the bottom of the box. Lift the carton by the flaps and remove the box walls and top.
5. Remove the moisture barrier plastic bonnet.
6. Check the unit nameplate data and model number. Verify the unit voltage, and capacities are correct before proceeding.
7. Locate and retain the piping/condensate accessory kit located in the bottom of the box under the refrigerant pipe stubs.
8. Using two people, carefully lift the unit and inspect for freight damage. ⚠ DO NOT lift by the refrigerant piping or drain pipe stub. Lift by the hangar brackets or chassis frame only. If damage is found, repack the unit as it was received in the original container.
9. If the unit is undamaged, remove and retain the installation manual. It is located under or on top of the unit.

### ⚠ WARNING

**Securely install threaded rod hangars (bolts) and hardware to prevent the chassis falling from its installation location.**

- There is risk of personnel injury from falling equipment.

**Installation work must be performed by trained personnel and in accordance with all local or other applicable codes.**

- There is risk of injury to personnel from incorrect installation.

#### Note:

- Ensure the unit is properly installed. Incorrectly installed units can malfunction resulting in degraded performance or an inoperative unit/system.
- Securely install threaded rod hangars (bolts) and hardware to prevent the chassis falling from its installation location. There is risk of equipment or property damage from falling equipment.
- Use a level indicator to ensure the chassis is installed on a level plane.

## Roughing In the Indoor Unit

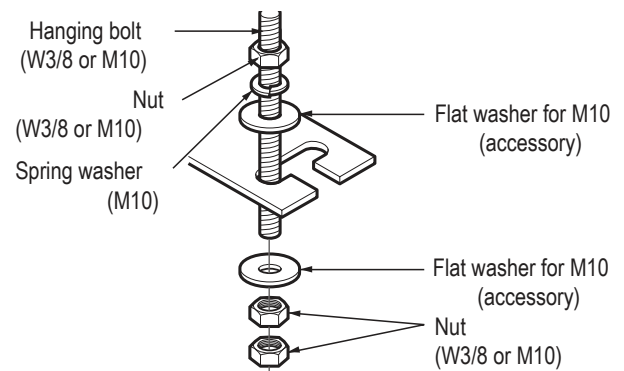
1. Determine the installation location. Ensure the location has enough space to allow necessary duct connections and maintenance access.
2. Securely install the four field-provided threaded rod hangars to the overhead support locations.
3. Hang the chassis from the four field-supplied threaded rod hangars. Refer to the threaded rod hangar details in Figure 8.
4. Use a level to ensure the chassis is level and securely tighten the mounting nuts.
5. If local code requires an auxiliary drain pan under the unit, install a field-provided auxiliary drain pan.
6. Connect ductwork to the unit as necessary.

## Roughing-In Wall-Mounted Zone Controllers

#### Note:

- It may be necessary to use a handy box that is sized in metric units, depending on the controller model. Check with your LG representative to verify which size 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.
  - ⚠ 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.
1. 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 fifty-five (55) inches above the finished floor.

Figure 8: Typical Threaded Rod Hanger and Attaching Hardware



The following parts are field supplied:

- Hanging bolt - W-3/8" or 1/2"
- Nut - W-3/8" or M10
- Spring washer - M10

Included with the indoor unit:

- Flat washer - M10

# INSTALLATION



## Indoor Unit Dimensions

2. Use only LG-provided cable to connect the zone controller. Pull LG communications cable between the zone controller handy box and the indoor unit. A thirty-three (33) foot length of cable will be found with the wall-mounted zone controller.
3. Store a minimal amount of cable in the handy box. Any additional cable should be coiled and stored near the indoor unit control panel.
4. If additional cable is needed, order a thirty-three (33) foot LG Wired Remote Group Control Extension cable (Model No. PZC-WRC1).
5. 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.
6. Zone controller rough-in is complete.

Figure 9: High-Static Ducted Indoor Unit Dimensions.

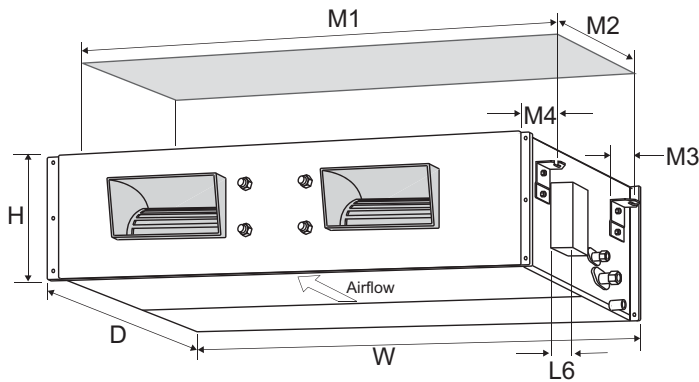


Figure 10: Low-Static Ducted Indoor Unit Dimensions.

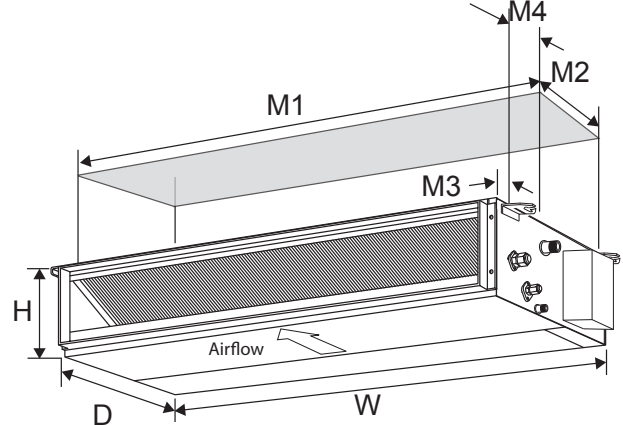


Figure 11: Low-Static Ducted Indoor Unit B3/B4 Dimensions.

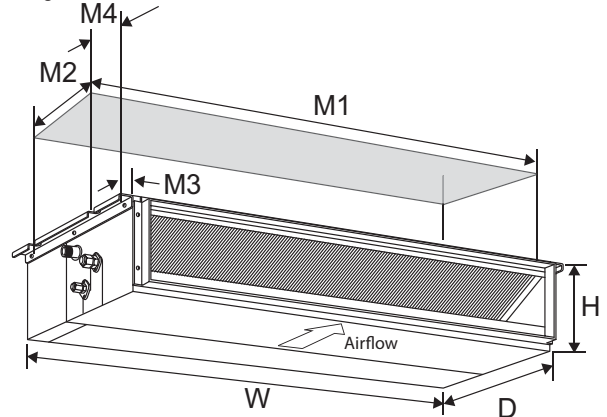


Table 14: Ducted Indoor Unit Dimensions and Weights.

Chassis Code	Weight (lbs.)	Major Dimensions (in.) <sup>1</sup>				Mounting Dimensions (in.)			
		W	D	H	L6	M1	M2	M3	M4
<b>High-Static Ducted Indoor Units</b>									
BH	59	34-3/4	17-3/4	10-1/4	4-1/4	36-11/16	14	1	1-7/8
BG	84	46-1/2	17-3/4	11-3/4	4-1/4	48-1/2	14	1	1
BR	112	48-1/2	23-5/16	15	4-7/16	50-1/2	18-3/4	1	1
B8	192	61-5/8	27-1/8	18-1/8	4-11/16	63-7/8	22-7/8	1-3/16	1-3/16
<b>Low-Static Ducted Indoor Units</b>									
L1	39	30-1/2	27-9/16	7-1/2	3	28-7/8	24-3/4	5/8	1-3/8
L2	51	38-3/8	27-9/16	7-1/2	3	36-3/4	24-3/4	5/8	1-3/8
L3	60	46-1/4	27-9/16	7-1/2	3	44-5/8	24-3/4	5/8	1-3/8
<b>Low-Static Built-In Ducted Indoor Units</b>									
B3	46	32-5/8	22-5/8	7-1/2	1-7/16	33-7/16	15	5/8	3-11/16
B4	57	43-5/16	22-5/8	7-1/2	1-7/16	44-7/16	15	5/8	3-11/16

<sup>1</sup>Case dimensions exclude insulation. Add approximately 1/8" for factory-applied external insulation for each side. High-Static models are insulated on all sides. Low-Static models are insulated on the bottom and end cold surfaces only between the fan discharge and midway to the rear of the unit.

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Figure 12: High-Static Ducted (BH, BG, BR, B8) Indoor Unit Duct Connection Dimensions.

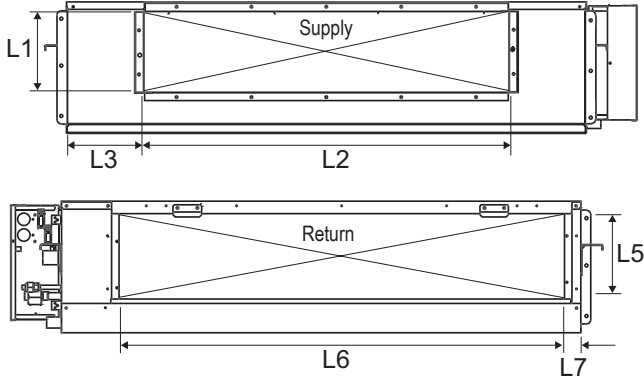


Figure 13: Low-Static Ducted (L1/L2/L3) Indoor Unit Duct Connection Dimensions.

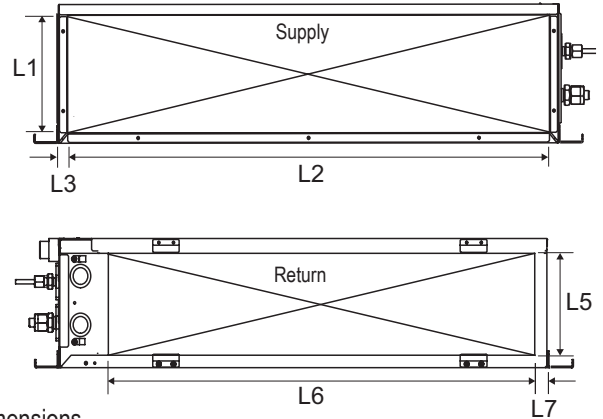


Figure 14: Low-Static Built-In Ducted (B3, B4) Indoor Unit Duct Connection Dimensions.

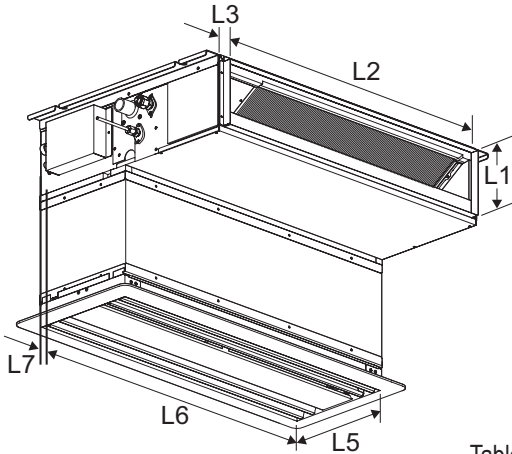


Table 15: Duct Connection Dimensions (in.).

Chassis Code	Supply Duct Connection					Return Duct Connection				
	Type	L1	L2	L3	Flange Depth	Opening Location	L5	L6	L7	Flange Depth
<b>High-Static Ducted Indoor Units</b>										
BH	Flange	6-1/4	29-1/2	1-5/8	1-3/16	Rear	6-3/8	29-1/2	7/8	No Flange
BG	Flange	7-5/16	32-11/16	6-7/8	1	Rear	7-7/8	41-1/8	1	No Flange
BR	Flange	11-5/8	39-5/8	4-9/16	1	Rear	11-1/8	42-15/16	7/8	No Flange
B8	Flange	12-7/16	44-1/4	6-3/4	1	Rear	15-7/16	55	2	1-1/8
<b>Low-Static Ducted Indoor Units</b>										
L1	Flange	5-7/8	26	13/16	5/8	Rear	6-1/8	26	3/4	No Flange
						Bottom	6-1/16	26	3/4	No Flange
L2	Flange	5-7/8	33-13/16	13/16	5/8	Rear	6-1/8	33-11/16	3/4	No Flange
						Bottom	6-1/16	33-13/16	3/4	No Flange
L3	Flange	5-7/8	41-3/4	13/16	5/8	Rear	6-1/8	41-11/16	3/4	No Flange
						Bottom	6-1/16	41-11/16	3/4	No Flange
<b>Low-Static Built-In Ducted Indoor Units</b>										
B3	Flange	6-7/16	31-5/16	1/2	3/4	Bottom	7	28-9/16	1-1/2	No Flange
B4	Flange	6-7/16	41-5/16	1/2	3/4	Bottom	7	39-9/16	1-1/2	No Flange

## Maintenance Clearances

Figure 15: High-Static Ducted (BG/BR/B8/BH) Indoor Unit Maintenance Clearances.

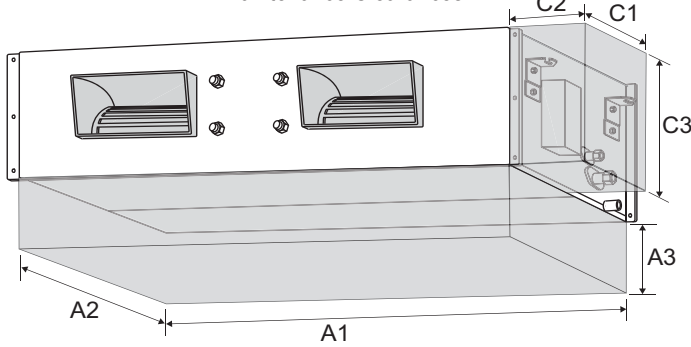


Figure 16: Low-Static Ducted (L1/L2/L3) Indoor Unit Maintenance Clearances.

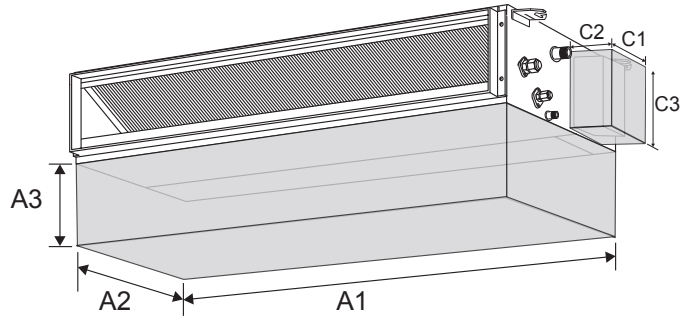
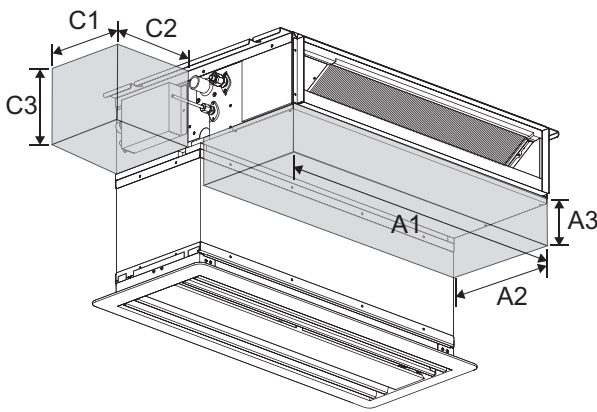


Figure 17: Low-Static Built-In Ducted (B3, B4) Indoor Unit Maintenance Clearances.



**Note:**

When space is available, best practice would be to leave two (2) to three (3) inches on the end opposite the control panel. Leave adequate room for visual inspection, pipe installation, brazing, power wiring, control wiring, and pipe insulating activities. Provide adequate access to service nearby piping, drain lines, shutoff valves, etc., following the dimension guidelines listed in the table below.

Table 16: Minimum Maintenance Clearances (in.).

Chassis Code	Control Panel Access				Major Maintenance Access			
	Location*	C1	C2	C3	Location	A1	A2	A3*
<b>High-Static Ducted Indoor Units</b>								
BH	Right End	12	12	10-1/2	Bottom	35	18	11
BG	Right End	12	14	12	Bottom	47	18	12
BR	Right End	12	14	15	Bottom	49	24	15
B8	Right End	12	14	18	Bottom	62	28	19
<b>Low-Static Ducted Indoor Units</b>								
L1	Right End	10	12	8	Bottom	30	25	8
L2	Right End	10	12	8	Bottom	38	25	8
L3	Right End	10	12	8	Bottom	46	25	8
<b>Low-Static Built-In Ducted Indoor Units</b>								
B3	Left End	10	12	8	Bottom	34	23	8
B4	Left End	10	12	8	Bottom	44	23	8

\*Does not apply when the ceiling surface below can be removed.

Figure 18: High-Static Ducted (BH/BG/BR/B8) Indoor Unit Piping Connection Dimensions.

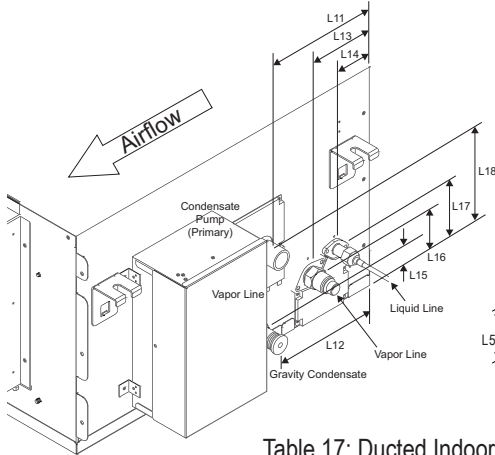


Figure 19: Low-Static Convertible Ducted (L1/L2/L3) Indoor Unit Piping Connection Dimensions.

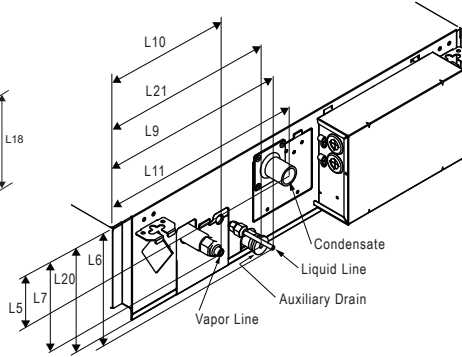


Figure 20: Low-Static Ducted Built-In (B3/B4) Indoor Unit Piping Connection Dimensions.

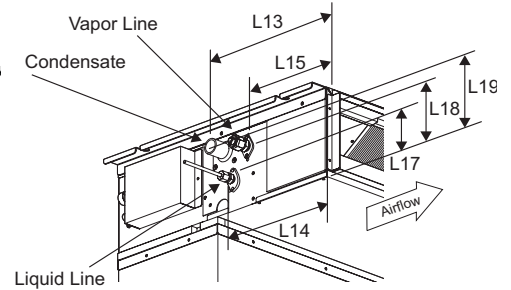


Table 17: Ducted Indoor Unit Pipe Connections (in.).

Size / Chassis	Liquid Line				Vapor Line				Condensate Pump Drain				Gravity Drain (Plugged)			
	Dia. <sup>1</sup>	Conn.	L14	L17	Dia. <sup>1</sup>	Conn.	L13	L16	Dia. <sup>1</sup>	Conn. <sup>2</sup>	L11	L18	Dia. <sup>3</sup>	Conn. <sup>2</sup>	L12	L15
<b>High-Static Ducted Indoor Units</b>																
7-18 BH	1/4	45° Flare	1-7/8	3-15/16	1/2	45° Flare	3-15/16	3-1/4	1.0	Plain	6-9/16	6-3/4	1.0"-14	MPT	1-1/8	6-9/16
24 BH	1/4	45° Flare	1-7/8	3-15/16	5/8	45° Flare	3-15/16	3-1/4	1.0	Plain	6-9/16	6-3/4	1.0"-14	MPT	1-1/8	6-9/16
07-42 BG	3/8	45° Flare	1-7/8	3-15/16	5/8	45° Flare	3-15/16	3-5/16	1.0	Plain	6-9/16	6-3/4	1.0"-14	MPT	6-9/16	1-1/8
28-54 BR	3/8	45° Flare	2-13/16	3-15/16	5/8	45° Flare	4-13/16	3-1/4	1.0	Plain	8-3/4	6-3/4	1.0"-14	MPT	8-3/4	1-1/4
36-76 B8	3/8	45° Flare	2-1/2	5-1/2	3/4	45° Flare	5-1/4	4-3/4	1.0	Plain	7-5/8	6-7/8	1.0"-14	MPT	7-5/8	1-1/4
96 B8	3/8	45° Flare	2-1/2	5-1/2	7/8	45° Flare	5-1/4	4-3/4	1.0	Plain	7-5/8	6-7/8	1.0"-14	MPT	7-5/8	1-1/4
<b>Low-Static Convertible Ducted Indoor Units</b>																
Frame	Liquid Line				Vapor Line				Condensate Pump (Primary)				Auxiliary Drain Connection			
	Dia. <sup>1</sup>	Conn.	L6	L9	Dia. <sup>1</sup>	Conn.	L7	L10	Dia. <sup>1</sup>	Conn. <sup>2</sup>	L5	L11	Dia. <sup>1</sup>	Conn. <sup>2</sup>	L20	L21
L1	1/4	45° Flare	3-7/8	7-1/4	1/2	45° Flare	3-1/2	4-1/2	1.0	Plain	2	11-1/2	1.0	Plain	6-3/8	9-3/4
L2	1/4	45° Flare	3-7/8	7-1/4	5/8	45° Flare	3-1/2	4-1/2	1.0	Plain	2	11-1/2	1.0	Plain	6-3/8	9-3/4
L3	3/8	45° Flare	3-7/8	7-1/4	5/8	45° Flare	3-1/2	4-1/2	1.0	Plain	2	11-1/2	1.0	Plain	6-3/8	9-3/4
<b>Low-Static Bottom Ducted Indoor Units</b>																
Frame	Liquid Line				Vapor Line				Condensate Pump (Primary)							
	Dia. <sup>1</sup>	Conn.	L14	L17	Dia. <sup>1</sup>	Conn.	L15	L18	Dia. <sup>1</sup>	Conn. <sup>2</sup>	L13	L19				
B3	1/4	45° Flare	9-7/16	2-9/16	1/2	45° Flare	8-1/2	4-15/16	1.0	Plain	10-7/8	5-1/16				
B4	3/8	45° Flare	9-7/16	2-9/16	5/8	45° Flare	8-1/2	4-15/16	1.0	Plain	10-7/8	5-1/16				

<sup>1</sup>Inches I.D.

<sup>2</sup>Plastic Resin

<sup>3</sup>14 Threads Per Inch, Straight Thread

**Refrigerant Safety**

**⚠ WARNING**

Verify the maximum refrigerant concentration in the space where the indoor unit will be mounted meets the concentration limit allowed by ASHRAE Standards 15-2010 and 34-2010. There is danger of asphyxiation from oxygen displacement.

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.<sup>1</sup>

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.<sup>1</sup> Also consult state and local codes in regards to refrigerant safety.

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



## Piping Preparation

### ⚠ WARNING

Do not braze in an enclosed location. Do not allow the refrigerant to leak during brazing. Always test for gas leaks before and after brazing.

• If refrigerant combusts, it generates a toxic gas.

#### Note:

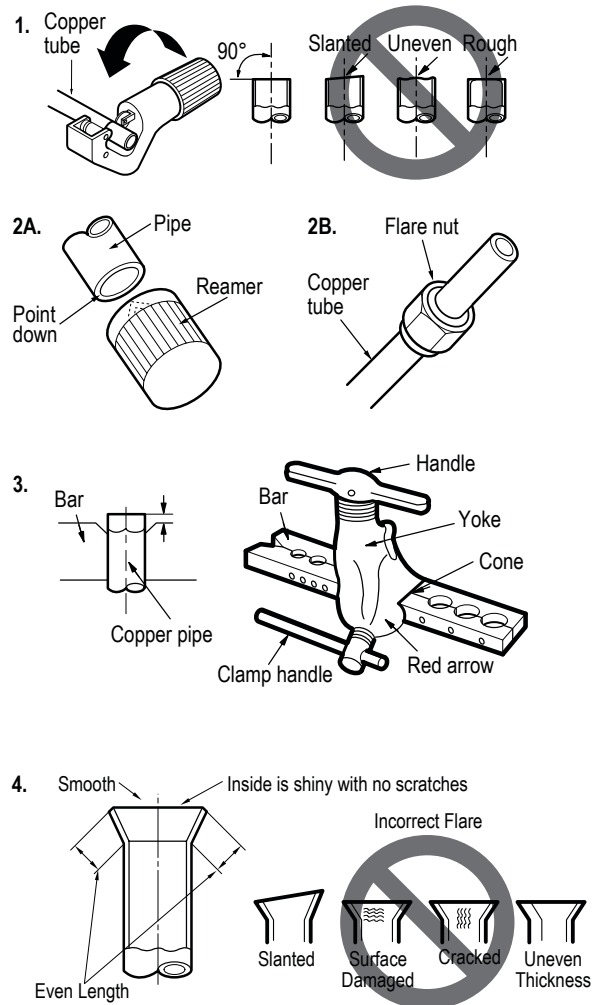
• Do not use kinked pipe.

Braze the pipe to the service valve pipe stub of the outdoor unit. After brazing, check for refrigerant gas leaks. When selecting flare fittings, always use a 45° fitting rated for high-pressure refrigerant R410A. Fittings must also comply with local, state, and federal standards.

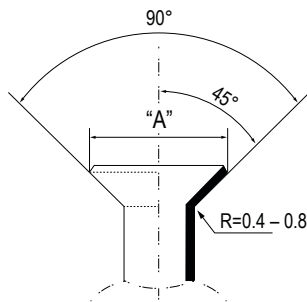
### Creating a Flare Fitting

One of the main causes of refrigerant leaks is defective flared connections. Use the following procedure to create flared connections.

1. Determine the installation location. Ensure the location has enough space to allow necessary duct connections and maintenance access.
  - Measure the distance between the indoor unit and the outdoor unit.
  - Cut the pipes a little longer than measured distance.
- 2A. Remove the burrs.
  - Completely remove all burrs from pipe ends.
  - When removing burrs, point the end of the copper pipe down to avoid introducing foreign materials into the pipe.
- 2B. Slide the flare nut onto the copper tube.
3. Flare the pipe end.
  - Use the proper size flaring tool to finish flared connections as shown.
  - ALWAYS create a 45° flare when working with R410A.
4. Carefully inspect the flared pipe end.
  - Compare the geometry with the figure to the right.
  - If the flare is defective, cut it off and re-do procedure.
  - If flare looks good, blow the pipe clean with dry nitrogen.



Dimensions of the Flare.




Pipe Size (in. O.D.)	Outside Diameter (mm)	"A" Dimension (mm [in.])
1/4	6.35	~ 9.1 (11/32 - 23/64)
3/8	9.52	~ 13.2 (1/2 - 33/64)
1/2	12.7	~ 16.6 (41/64 - 21/32)
5/8	15.88	~ 19.7 (49/64 - 25/32)
3/4	19.05	—

**Tightening Flare Nuts**

1. When connecting the flare nuts, coat the flare (inside and outside) with polyvinyl ether (PVE) refrigeration oil only.

**Note:**

•  Do not use polyolyester (POE) or any other type of mineral oil as a lubricant. These lubricants are not compatible with PVE oil used in this system and create oil sludge leading to equipment damage and system malfunction..

2. Initially hand tighten the flare nuts using three (3) or four (4) turns.

3. To finish tightening the flare nuts, use both a torque wrench and a backup wrench.

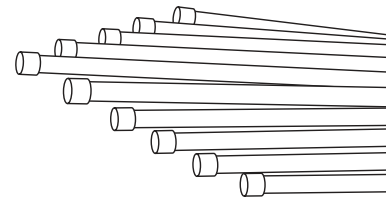
4. After all the piping has been connected and the caps have been tightened, check for refrigerant gas leaks

**Loosening Flare Nuts**

Always use two (2) wrenches to loosen flare nuts.

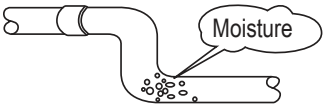

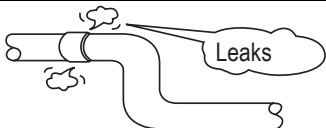
Pipe Size (in. O.D.)	Outside Diameter (mm)	Tightening Torque (ft-lbs.)
1/4	6.35	13.0 - 18.0
3/8	9.52	24.6 - 30.4
1/2	12.7	39.8 - 47.7
5/8	15.88	45.4 - 59.3
3/4	19.05	71.5 - 87.5

Keep Pipes Capped While Storing.



**Piping Materials and Handling**

Pipes used for the refrigerant piping system must include the specified thickness, and the interior must be clean. While handling and storing, do not bend or damage the pipes, and take care not to contaminate the interior with dust, moisture, etc. Keep refrigerant pipe dry, clean, and airtight.

	Dry	Clean	Airtight
	No moisture should be inside the piping.	No dust should be inside the piping.	No leaks should occur.
			
<b>Possible Problems</b>	<ul style="list-style-type: none"> <li>- Significant hydrolysis of refrigerant oil.</li> <li>- Refrigerant oil degradation.</li> <li>- Poor insulation of the compressor.</li> <li>- System does not operate properly.</li> <li>- EEVs, capillary tubes are clogged.</li> </ul>	<ul style="list-style-type: none"> <li>- Refrigerant oil degradation.</li> <li>- Poor insulation of the compressor.</li> <li>- System does not operate properly.</li> <li>- EEVs and capillary tubes become clogged.</li> </ul>	<ul style="list-style-type: none"> <li>- Refrigerant gas leaks/shortages.</li> <li>- Refrigerant oil degradation.</li> <li>- Poor insulation of the compressor.</li> <li>- System does not operate properly.</li> </ul>
<b>Solutions</b>	<ul style="list-style-type: none"> <li>- Remove moisture from the piping.</li> <li>- Piping ends should remain capped until connections are complete.</li> <li>- Do not install piping on a rainy day.</li> <li>- Connect piping properly at the unit's side.</li> <li>- Remove caps only after the piping is cut, the burrs are removed, and after passing the piping through the walls.</li> <li>- Evacuate system to a minimum of 500 microns and insure the vacuum holds at that level for 24 hours</li> </ul>	<ul style="list-style-type: none"> <li>- Remove dust from the piping.</li> <li>- Piping ends should remain capped until connections are complete.</li> <li>- Connect piping properly at the side of the unit.</li> <li>- Remove caps only after the piping is cut and burrs are removed.</li> <li>- Retain the cap on the piping when passing it through walls, etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Test system for air tightness.</li> <li>- Perform brazing procedures that comply with all applicable standards.</li> <li>- Perform flaring procedures that comply with all applicable standards.</li> <li>- Perform flanging procedures that comply with all applicable standards.</li> <li>- Ensure that refrigerant lines are pressure tested to 550 psig.</li> </ul>

## Refrigerant Safety

### ⚠ WARNING

Verify the maximum refrigerant concentration level in the space where the indoor unit will be mounted meets the concentration limit for the application. There is risk of asphyxiation from oxygen depletion.

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.<sup>1</sup>

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.<sup>1</sup> Also consult state and local codes in regards to refrigerant safety.

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

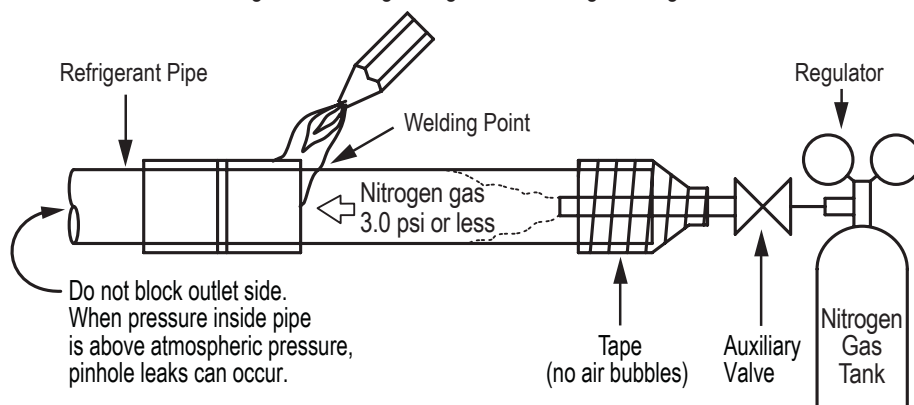
## Brazing

### Note:

It is imperative to keep the piping system free of contaminants and debris such as copper burrs, slag, or carbon dust during installation.

- All joints are brazed in the field. Multi V IV 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.
  - Store pipe stock in a dry place and keep stored pipe capped and clean.
  - Purge all pipe sections clean with dry nitrogen prior to assembly.
- Proper system operation depends on the installer using best practices and the utmost care while assembling the piping system.
  - Use adapters to assemble different sizes of pipe.
  - Always use a non-oxidizing material for brazing. Do not use flux, soft solder, or anti-oxidant agents. If the proper material is not used, oxidized film may accumulate and clog or damage the compressors. Flux can harm the copper piping or refrigerant oil.
  - Use a tubing cutter; do not use a saw to cut pipe. De-bur and clean all cuts before assembly.
- Brazing joints:
  - Use a dry nitrogen purge operating at a minimum pressure of three (3) psig and maintain a steady flow.
  - Use a 15% silver phosphorous copper brazing alloy to avoid overheating and produce good flow.
  - Protect isolation valves, electronic expansion valves, and other heat-sensitive control components from excessive heat with a wet rag or heat barrier spray.

Figure 21: Using Nitrogen Gas During Brazing



A properly installed pipe system will have sufficient support so that pipes will not sag during the life of the system. As necessary, place supports closer for segments where potential sagging could occur. Maximum spacing of pipe supports must meet local codes.

Figure 22: Pipe Support at Indoor Unit.

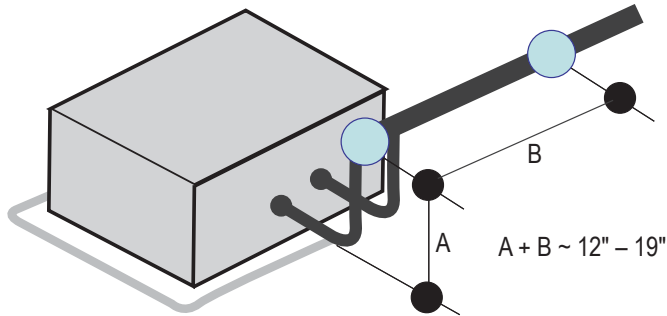
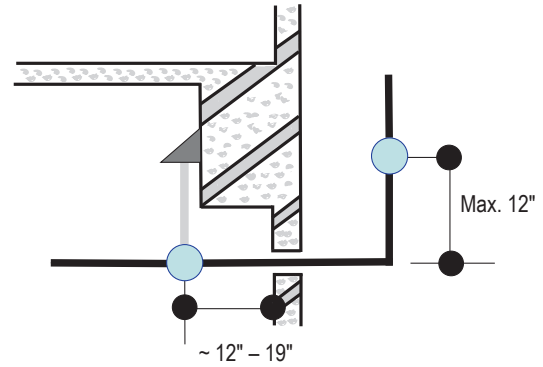


Figure 23: Typical Pipe Support Location—Change in Pipe Direction.



**Refrigerant Pipe 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.

**Flare Fittings**

- All unit flare fittings are 45° and rate for high-pressure R410A refrigerant.
- Properly form all flare fittings using best practices.
- Place a drop of PVE oil on the outside of the flare fitting before tightening.

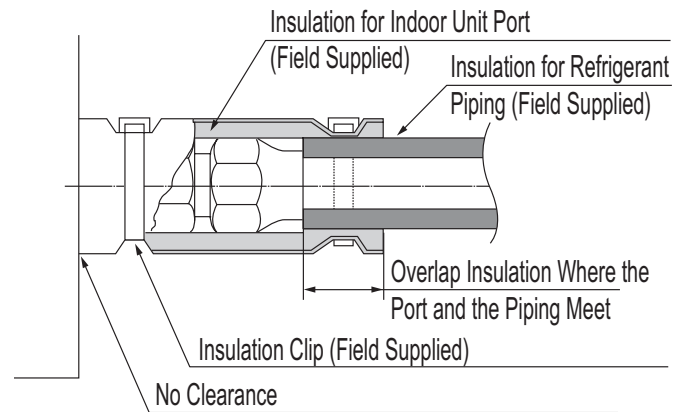
**Note:**

- 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.
- Do not over-tighten flare nuts. Excessive tightening will cause fittings to crack.

**Note:**

Multi V refrigeration system components contain very small capillary tubes, small orifices, electronic expansion valves, oil separators, and heat exchangers that can easily become blocked.

Figure 24: Typical Refrigerant Line Flare Fitting Insulation Detail



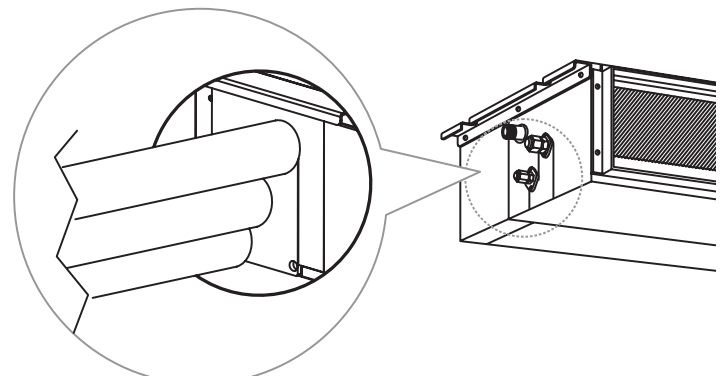
**Insulate Refrigerant Pipes**

Sufficiently insulate all cold surfaces to prevent moisture forming. All pipes must be insulated and each pipe must be separately wrapped. Refer to Figure 24 and Figure 25. Use field-provided one-half (1/2) inch thick (or thicker) closed-cell insulation. The thickness may need to be increased based on ambient conditions and local codes.

Wrap all refrigerant and condensate piping including field-provided isolation ball valves and flexible pipe connection kits provided by LG. Glue all insulation joints with no air gaps between insulation segments, and between insulation segments and the unit case. Ensure insulation material fits snugly against the refrigeration pipe with no air space between the pipe surface and the surrounding insulation.

Protect insulation inside hangers and supports with a second insulation layer. Ensure insulation on all pipe passing through pipe hangers, inside conduit, and/or sleeves is not compressed.

Figure 25: No Air Gap in Pipe Insulation to Indoor Unit Frame.



All ducted indoor units except the vertical air handler have a factory-mounted condensate pump that runs continuously while the unit is in cooling mode. The pump has an internal high-level float switch that stops the unit if the water level in the pan rises too high.

All ducted indoor units have a flexible drain hose kit and one or two clamps. The hose can be used to connect the condensate pipe to the condensate pump connection. On high-static units, there is the option to directly connect a one (1) inch FPT fitting to the drain pan's gravity drain connection.

**Note:**

⊘ When making condensate pipe connections, be careful not to exert lateral force on the drain nipple. Internal damage may occur. Refer to Table 17 for condensate pipe connection sizes.

**Condensate Pump Connection**

All ducted units have a condensate pump except the vertical air handler unit. Note the following when connecting the condensate pipe to the unit.

- Indoor units DO NOT come with check valves or a backflow prevention device. If check valves are needed, they must be field supplied.
- The maximum lift of all condensate pumps is 27 in.-wg.
- Measure lift distance from the bottom surface of the indoor unit, NOT from the condensate pipe connection.
- Slope all horizontal condensate pipe segments a minimum of 1/4 inch per foot away from the indoor unit.

**Ducted Unit Drain Information**

When the bottom surface of the indoor unit is at an elevation below the receiving building drain line connection, install an inverted trap at the top of the condensate pump discharge riser before connection to the building drain pipe.

When the receiving drain line is mounted horizontal, connect the inverted trap to the top half of the pipe. The connection point of the inverted trap to the building drain pipe should always be to the top half of the pipe and should never be over 45° either side of the upper most point of the horizontal building drain line.

If connecting to a vertical drain line or plumbing system vent line, connect the IDU condensate pump discharge line using a Y-45 fitting with the double end of the Y-45 fitting facing up. When connecting to a vertical drain line include an inverted trap at the top of the IDU condensate pump discharge riser before connection to the Y-45 fitting.

**Gravity Condensate Pipe Connection**

High-static indoor units (BH/BG/BR/B8) have an auxiliary gravity condensate drain connection just below the condensate pump pipe connection on the control panel end of the unit. This connection may be used instead of using the condensate pump.

- Verify the unit is installed with a slight cant toward the gravity drain connection.
- Remove the rubber plug before connecting the condensate line to the indoor unit.
- The gravity condensate line must be equipped with a condensate trap for proper condensate flow. Refer to Figure 26 for trap details.
- All horizontal segments of condensate pipe should be sloped a minimum of 1/4 inch per foot away from the indoor unit.
- Use materials acceptable by local code.

Table 18: Indoor Unit Drainage Specifications.

Indoor Unit	Drain Type	Drain Pipe Dia. (ID, in.)
BH, BG, BR, B8 Frame High Static Ducted	27 in. Lift Drain Pump, Factory Installed	Ø1
L1, L2, L3 Frame Low Static Ducted		
B3, B4 Frame Built In Ducted		
NJ, NK Frame Vertical/Horizontal Air Handler Unit	Gravity	Ø1

Figure 26: High Static, Low Static, Built In Ducted Indoor Unit Drain Pump to Drain Piping System

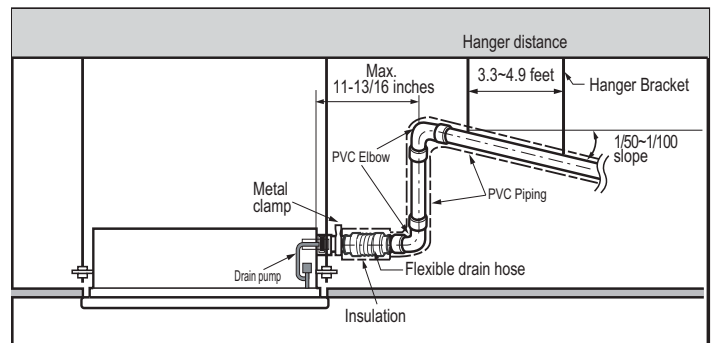
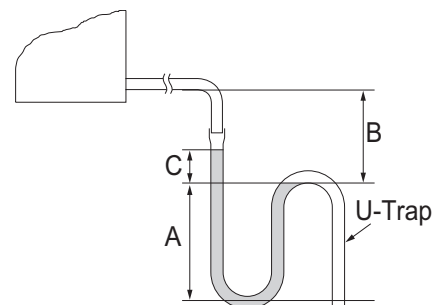


Figure 27: Gravity Condensate Trap..



Where:

A = 2-1/2"

B ≥ 2 x C

C ≤ 2 x External Static Pressure (in.-wg)

**Vertical/Horizontal Air Handler Unit Drain Information**

**Note:**

Install a field-supplied external condensate pan underneath the entire vertical air handler unit to avoid damage due to condensate overflow.

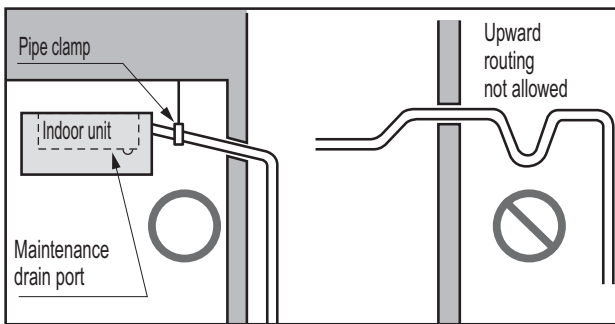
Vertical / Horizontal Air Handler units have a gravity drain.

- Avoid blocking filter access panel when connecting drain lines.
- An additional external condensate line should run from the unit into the pan.
- The entire condensate line should be drained from the external condensate pan.
- Point the drain hose downward for easy drain flow.
- Do not use pipe joint connection or PVC/CPVC for the unit drain line connection. Use Teflon® tape.

**Install the Condensation Drain Pipe**

- Drain piping must slope down or flow may reverse back to unit.
  - During drain piping connection, be careful not to exert extra force on the drain port on the indoor unit.
  - Refer to Table 17 for drain pipe sizing.
  - Use polyvinyl chloride pipe.
  - Install insulation on the drain piping.
  - Use polyethylene foam greater than 5/16 inch thick for insulation.
1. Refer to Figure 30 and plan the drain pipe routing so that the pipe will slope downward from the indoor unit to its end drain location.

Figure 30: Drain Piping Slope.



2. Connect the provided flexible drain pipe to the main drain pipe.
3. Pour water into the flexible pipe as shown in Figure 33 to test for leaks. Repair leaks if necessary.
4. Route the flexible drain pipe to the indoor unit and connect the flexible drain pipe to the drain port of the indoor unit.
5. Install field-supplied thermal insulation on the flexible drain pipe and position snugly against indoor unit.

Figure 32: Do Not Sharply Bend Drain Pipe.

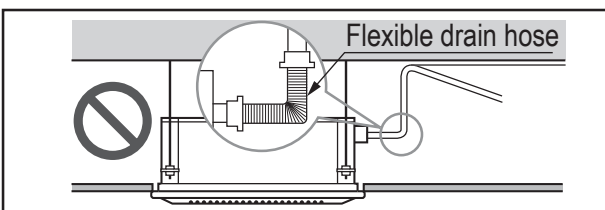


Figure 28: Vertical / Horizontal Air Handler Unit Drain Piping System.

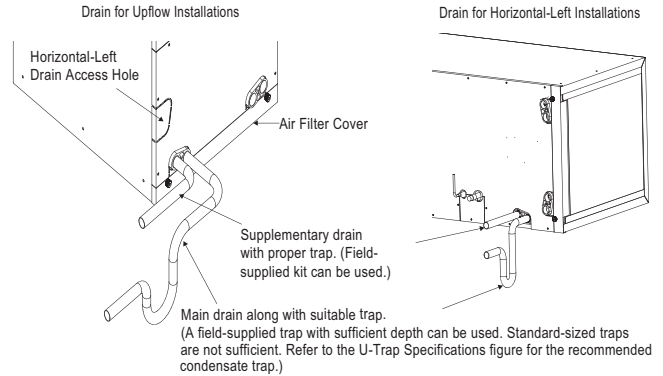


Figure 29: Vertical / Horizontal Air Handler Unit U-Trap Specifications.

- Install the U-Trap to prevent leaks caused by blocking the intake air filter.

**Applied U-Trap Dimensions**

- A ≥ 2-9/16 inch
- B ≥ 2C
- C ≥ 2 x SP
- SP = External Pressure (in. WG)
- Ex) External Pressure = 0.4 in. WG
- A ≥ 2-9/16 inches
- B ≥ 1-7/12 inches
- C ≥ 13/16 inches

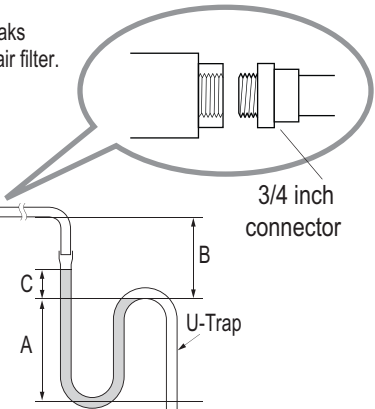


Figure 31: Properly Insulating the Drainage Piping.

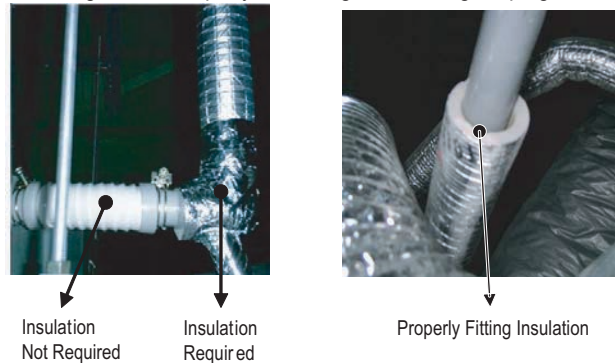
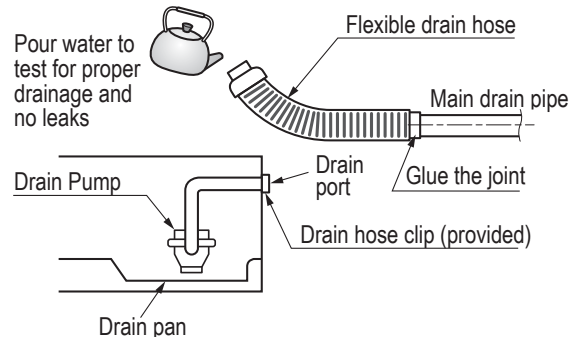


Figure 33: Testing the Drain Pipe.



## Overview

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### Connecting Power and Control Wiring

Indoor unit installation best practices are to connect control wiring (low voltage) and then connect power wiring (high voltage). Do not apply power to the indoor unit or any Multi V system component until authorized to do so by the system commissioning agent.

#### **DANGER**

**High voltage electricity is required to operate this system. Adhere to the National Electrical Codes and these instructions when wiring.**

*Improper connections and inadequate grounding can cause accidental injury or death.*

**Always ground the unit following local, state, and National Electrical Codes.**

*Improper connections and inadequate grounding can cause accidental injury or death.*

**Properly size all circuit breakers or fuses.**

*There is risk of fire, electric shock, explosion, physical injury or death.*

#### **WARNING**

**The information contained in this manual is intended for use by a trained electrician familiar with applicable local codes and the U.S. National Electric Code (NEC), and who is equipped with the proper tools and test instruments.**

*Failure to carefully read and follow all instructions in this manual can result in personal injury or death.*

**Connect the indoor unit input power cable but do not apply power to the indoor unit until authorized to do so by the system commissioning agent.**

*Inappropriate power connection can result in personal injury or death.*

**Ensure the unit is connected to a dedicated power source that provides adequate power.**

*If the power source capacity is inadequate or the electric work is not performed properly, it may result in fire, electric shock, physical injury or death.*

**Refer to local, state, and federal codes, and use power wires of sufficient current capacity and rating.**

*Wires that are too small may generate heat and cause a fire, resulting in physical injury or death.*

**Secure all field wiring connections with appropriate wire strain relief.**

*Improperly securing wires will create undue stress on equipment power lugs. Inadequate connections may generate heat, cause a fire and physical injury or death.*

**Properly tighten all power connections.**

*Loose wiring may overheat at connection points, causing a fire, physical injury or death.*

#### **Note:**

**Connect the indoor unit input power cable but do not apply power to the indoor unit until authorized to do so by the system commissioning agent.**

*Inappropriate power connection can result in equipment damage and will void the LG limited liability warranty.*

**Do not cut, lengthen or shorten the communications and power cable between a zone controller or dry contact unit and its connected indoor unit. Do not install the zone controller or dry contact unit in a location where the communications and power cable cannot be safely and easily connected between the two units. Do not allow strain on this cable.**

*Poor cable connections can cause equipment malfunction.*

**The information contained in this manual is intended for use by an industry-qualified, experienced, trained electrician familiar with applicable local codes and the U.S. National Electric Code (NEC), and who is equipped with the proper tools and test instruments.**

*Failure to carefully read and follow all instructions in this manual can result in equipment malfunction or property damage and will void the LG limited liability warranty.*

**Note:**

*Failure to follow any of these power and communications wiring guidelines or instructions will likely cause communications errors and unit malfunction.*

Polarity matters. When connecting the communications cable conductors at each Multi V system component, be careful the conductor connected to the IDU(A) terminal on the outdoor unit is connected to the A/3(A) terminal at each indoor unit. The conductor connected to the IDU(B) terminal on the outdoor unit must be connected to the B/4(B) terminals at each indoor unit. Cross connecting the A/3(A) and B/4(B) terminals will cause communications errors and system malfunction.

**Note:**

*The minimum distance required between power wires and the communications cable is voltage/ampereage dependent and in cases where either are relatively high the minimum distance may be more than two (2) inches. Refer to the appropriate LG Multi V Outdoor Unit Engineering Manual on [www.lg-vrf.com](http://www.lg-vrf.com) for detailed information.*

- Keep communications cables away from line voltage wiring, lighting ballasts, and other devices emitting EMF energy. Maintain a minimum of two (2) 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. Star or wye configurations are not allowed.
- Refer to the wiring connection diagrams for the appropriate unit (Figure 34 through Figure 40) Connect the communications cables to the A/3(A) and B/4(B) terminals at indoor units and/or heat recovery units. Maintain polarity throughout the communications bus. Be sure A/3(A) terminals are connected to A/3(A) terminals and B/4(B) terminals are connected to B/4(B) terminals.
- Ground the shield of the communications cable at one end only, at the master outdoor unit.

**⊘ Don'ts**

- Never use wire caps and 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 IDU/ODU communications cable.

**Communication Cable Connection**

**Note:**

*When connecting the communications bus between the outdoor unit, indoor unit(s), and heat recovery unit(s), it does not matter what physical path or route the wire takes. The installer may use discretion when choosing the order the components are connected to the communications bus, but must maintain the daisy chain and polarity configuration.*

1. If not already done so, read Connecting Power and Control Wiring on the previous page.
2. Remove a knock-out plug from the control box. Remember the communications cable and the power cable must enter the control box through different knockouts.
3. Field-install a plastic or rubber grommet in the knockout hole to prevent wire chaffing.
4. If using conduit, connect the conduit to the control box using field-provided fittings and industry best-practice procedures.
5. Provide at least three (3) to four (4) inches of slack cable at each indoor unit.
6. Secure the communications cable to the inside surface of the control box using a field provide nylon wire clamp.
7. Strip approximately half of an inch of insulation from each communications cable conductor. At each indoor unit, insert the conductors under the terminal screw.



## Indoor Unit Communications Cable Connections

8. Securely tighten the terminal screws to prevent the communications conductors from coming loose from the terminal block.
9. Secure the communications cable in appropriate locations outside the indoor unit to prevent damage to the cable or injury to maintenance personnel.

Figure 34: Location of Power Wiring and Communications Cable Terminals in the High Static and Low Static Ducted Indoor Units

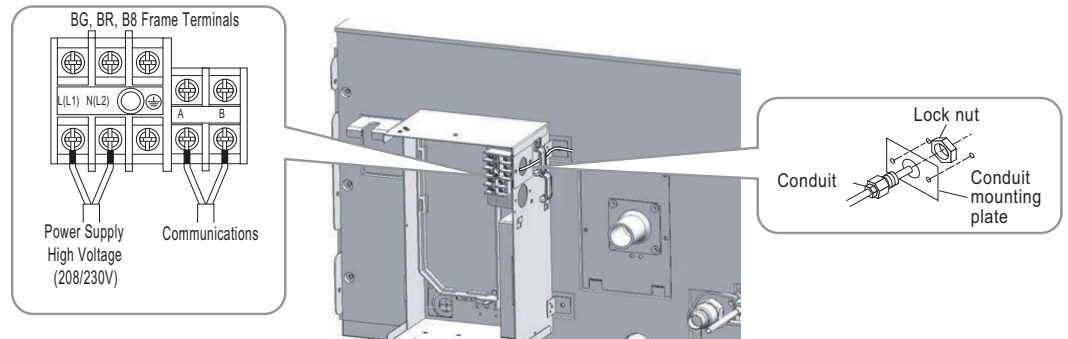


Figure 35: Terminal Block in the High Static (BH, BG, BR, B8 Frame) Ducted Indoor Units

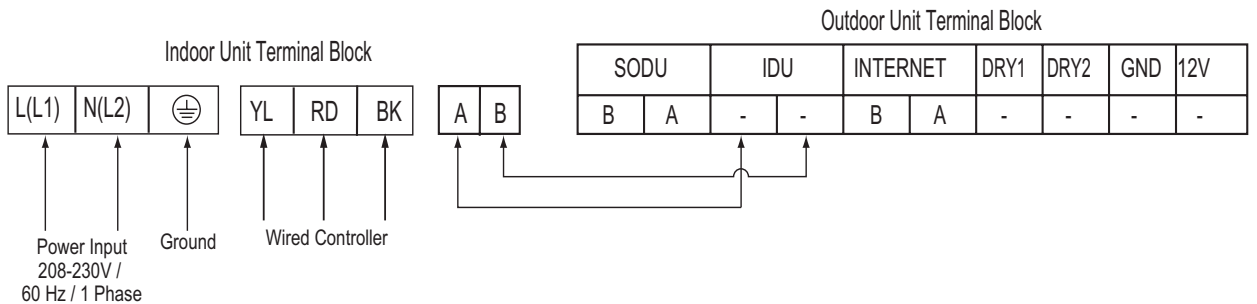
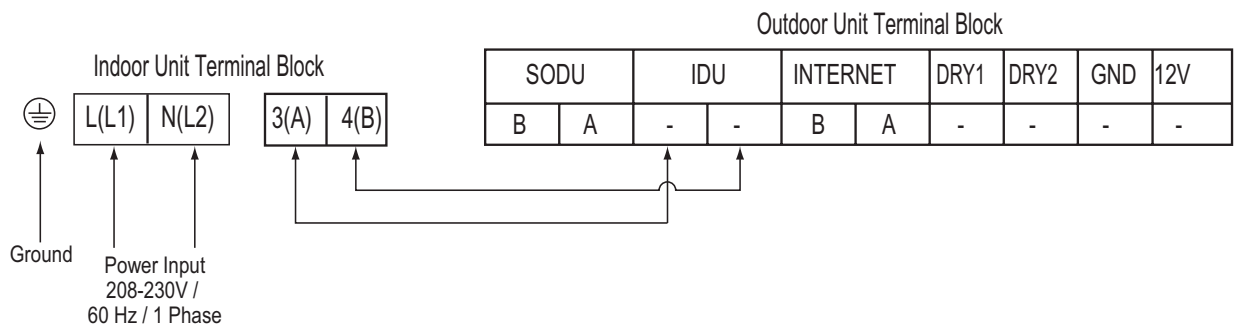


Figure 36: Terminal Block in the Low Static (L1, L2, L2 Frame) Ducted Indoor Units



**Indoor Unit Communication Cable Connections**

Figure 37: Location of Power Wiring and Communications Cable Terminals in the Built In Ducted Indoor Unit

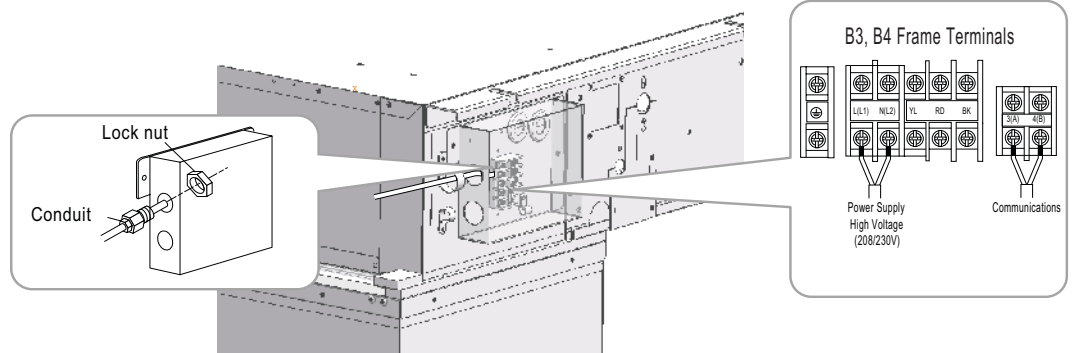


Figure 38: Terminal Block in the Built In Ducted Indoor Units

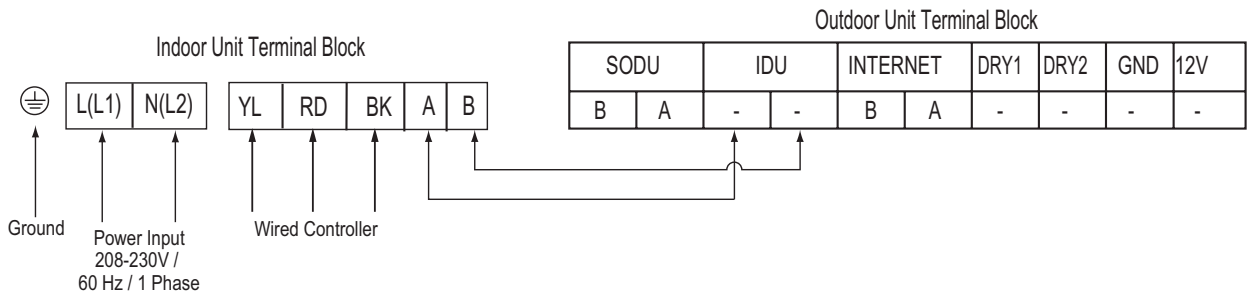


Figure 39: Location of Power Wiring and Communications Cable Terminals in the Vertical/Horizontal Air Handler Unit

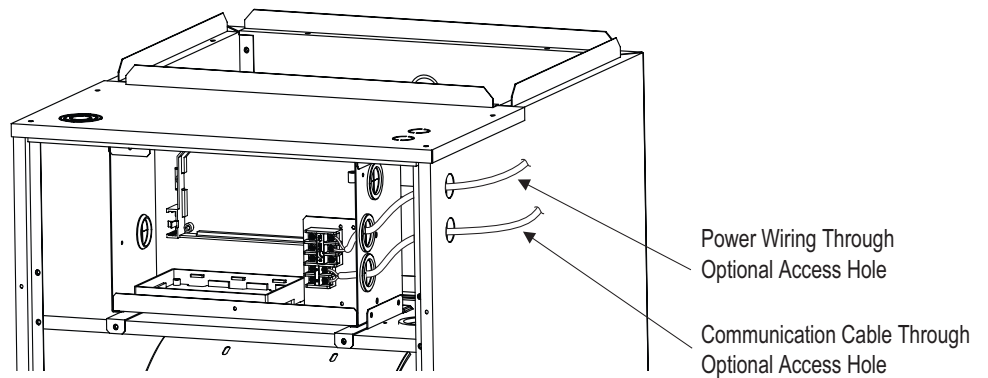
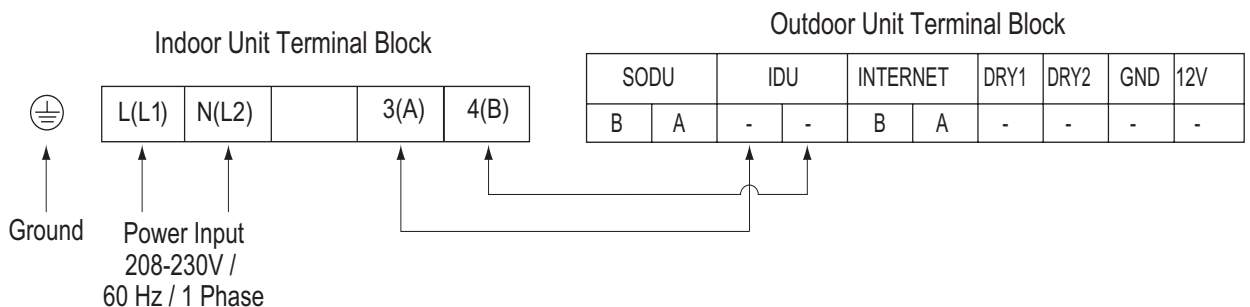


Figure 40: Terminal Block in the Vertical / Horizontal Air Handler Units



### Connecting Power and Control Wiring

Indoor unit installation best practices are to connect control wiring (low voltage) and then connect power wiring (high voltage). Do not apply power to the indoor unit or any Multi V system component until authorized to do so by the system commissioning agent.

#### **DANGER**

**High voltage electricity is required to operate this system. Adhere to the National Electrical Codes and these instructions when wiring.**

*Improper connections and inadequate grounding can cause accidental injury or death.*

**Always ground the unit following local, state, and National Electrical Codes.**

*Improper connections and inadequate grounding can cause accidental injury or death.*

**Properly size all circuit breakers or fuses.**

*There is risk of fire, electric shock, explosion, physical injury or death.*

#### **WARNING**

**The information contained in this manual is intended for use by a trained electrician familiar with applicable local codes and the U.S. National Electric Code (NEC), and who is equipped with the proper tools and test instruments.**

*Failure to carefully read and follow all instructions in this manual can result in personal injury or death.*

**Connect the indoor unit input power cable but do not apply power to the indoor unit until authorized to do so by the system commissioning agent.**

*Inappropriate power connection can result in personal injury or death.*

**Ensure the unit is connected to a dedicated power source that provides adequate power.**

*If the power source capacity is inadequate or the electric work is not performed properly, it may result in fire, electric shock, physical injury or death.*

**Refer to local, state, and federal codes, and use power wires of sufficient current capacity and rating.**

*Wires that are too small may generate heat and cause a fire.*

**Secure all field wiring connections with appropriate wire strain relief.**

*Improperly securing wires will create undue stress on equipment power lugs. Inadequate connections may generate heat, cause a fire and physical injury or death.*

**Properly tighten all power connections.**

*Loose wiring may overheat at connection points, causing a fire, physical injury or death.*

#### **Note:**

**Connect the indoor unit input power cable but do not apply power to the indoor unit until authorized to do so by the system commissioning agent.**

*Inappropriate power connection can result in equipment damage and will void the LG limited liability warranty.*

**The information contained in this manual is intended for use by a trained electrician familiar with applicable local codes and the U.S. National Electric Code (NEC), and who is equipped with the proper tools and test instruments.**

*Failure to carefully read and follow all instructions in this manual can result in equipment malfunction or property damage and will void the LG limited liability warranty.*

**⚠ WARNING**

Read and understand all power-related **DANGER** and **WARNING** statements in this manual before working with power cables. Ensure the power source is disconnected from the indoor unit's power input cable before connecting the cable.

*Improper connections and inadequate grounding can cause accidental injury or death.*

**Note:**

*Keep line voltage power away from the communications terminals. Line voltage power applied to the communications terminals will damage the indoor unit control board and it will have to be replaced. Maintain a minimum of two (2) inches between line voltage wires and communications or zone controller cables.*

*Size all field provided electrical components per NEC and local code. Always use copper wire.*

**Power Wiring Instructions**

1. If not already done so, read Connecting Power and Control Wiring on page 50.
2. Provide clean 208/60/1 power to the unit. Maximum acceptable power fluctuation range is 188 volts to 253 volts.
3. To access the power and communications terminal block on high-static ducted units (BH/BG/BR/B8) and low-static built-in units (B3/B4), remove the control box cover.
4. To access the power and communications terminal block on low-static ducted units (L1/L2/L3), the terminal block is behind the end panel of the case. Refer to Figure 19.
5. Remove a knock-out plug from the control box. Do not use the same knock-out as the communications and zone controller cables.
6. To prevent wire chafing, install a field-supplied plastic or rubber grommet in the hole just created by removing the knock-out plug.
7. If using conduit, follow industry best practice procedures to connect the conduit to the control box using field-provided fittings.
8. Provide enough slack wire at each indoor unit to connect to the terminal block without tension on the wire. Route the wire through the conduit (if used) and into the control box. Be sure to keep a minimum of two (2) inches of spacing between the power wiring and the communications wiring.
9. Secure power wiring to the inside surface of the control box using a field-provided nylon wire clamp.
10. If needed, secure the power wiring in appropriate locations outside the indoor unit to prevent damage to the wire or injury to maintenance personnel.
11. Strip approximately half (1/2) 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 the spade connector under the appropriate terminal block screw and tighten. Refer to Figure 34 through Figure 40 for details of the terminal block wiring of the unit being installed.
12. Securely tighten the terminal screws to prevent the conductors from coming loose.

## DIP Switch Settings for Gen4 Equipment

### Generation 4 Equipment

The latest versions of LG's indoor units and outdoor (air/water source) units are designated Generation 4 (Gen 4). For Gen 4 units to operate with Gen 4 features, the air conditioning system must meet the following requirements:

- All indoor units, heat recovery units, and air/water source units must be Gen 4.
- All air/water source units must have Gen 4 software installed.
- Air/water source units DIP switch 3 must be set to ON (factory default setting is OFF).
- All controllers must support Gen 4 features.

Figure 41: Location and Setting of ODU DIP Switch 3

ODU/WSU DIP Switch No. 3

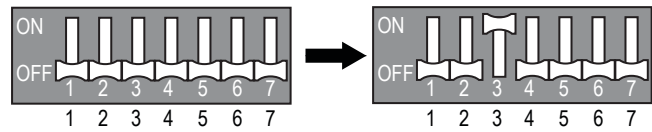
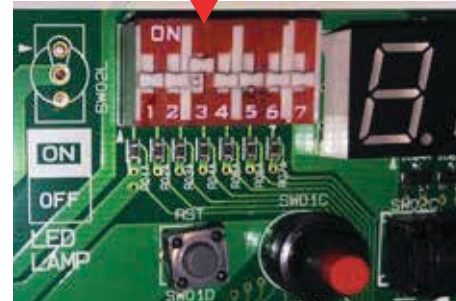


Figure 41 shows the ODU DIP switch. Table 19 lists how combining different components will affect system operation. Table 20 lists the serial numbers of air and water source units that have Gen 4 software. All air and water source units, indoor units, heat recovery units, and controllers in a system must be Gen 4 compatible or the system will not operate with Gen 4 features.

Table 19: System Component Combinations and Operation Status

Air / Water Source Units*	Indoor Unit(s)**	Heat Recovery Unit(s)	Outdoor Unit DIP Switch No. 3	Operation Status
Gen 4	Gen 4 ONLY	Model 2A ONLY	Must be ON	System will operate WITH Gen. 4 features.
Gen 4	Gen 4 ONLY	Model 2A ONLY	OFF	System will operate but WITHOUT Gen. 4 features.
Gen 4	Gen 4 ONLY	Any combination of Models 1A, 2A	Must be OFF (factory default)	Does NOT include Gen. 4 features. System will not operate if DIP Switch No. 3 is ON, and an error code will be generated.
Gen 4	Any combination of Gen 2 and Gen 4	Model 2A ONLY	Must be OFF (factory default)	
Gen 4	Any combination of Gen 2 and Gen 4	Any combination of Models 1A, 2A	Must be OFF (factory default)	
Gen 2	Any combination of Gen 2 and Gen 4	Any combination of Models 0A****, 1A, 2A	N/A***	Does not include Gen. 4 features.

\*Gen 4 Air/Water Source Units = Multi V IV or Multi V Water IV with Gen 4 software (see table below for Gen 4 serial numbers) or Multi V S. Gen 2 Air/Water Source Units = Multi V II, Multi V III, Multi V IV without Gen. 4 software, Multi V Water II, Multi V Water IV without Gen. 4 software, Multi V Mini, Multi V Water Mini, or Multi V Space II.

\*\*Gen 4 Indoor Units model numbers end in "4"; Gen 2 Indoor Units model numbers end in "2" or an "A", including Hydro Kit.

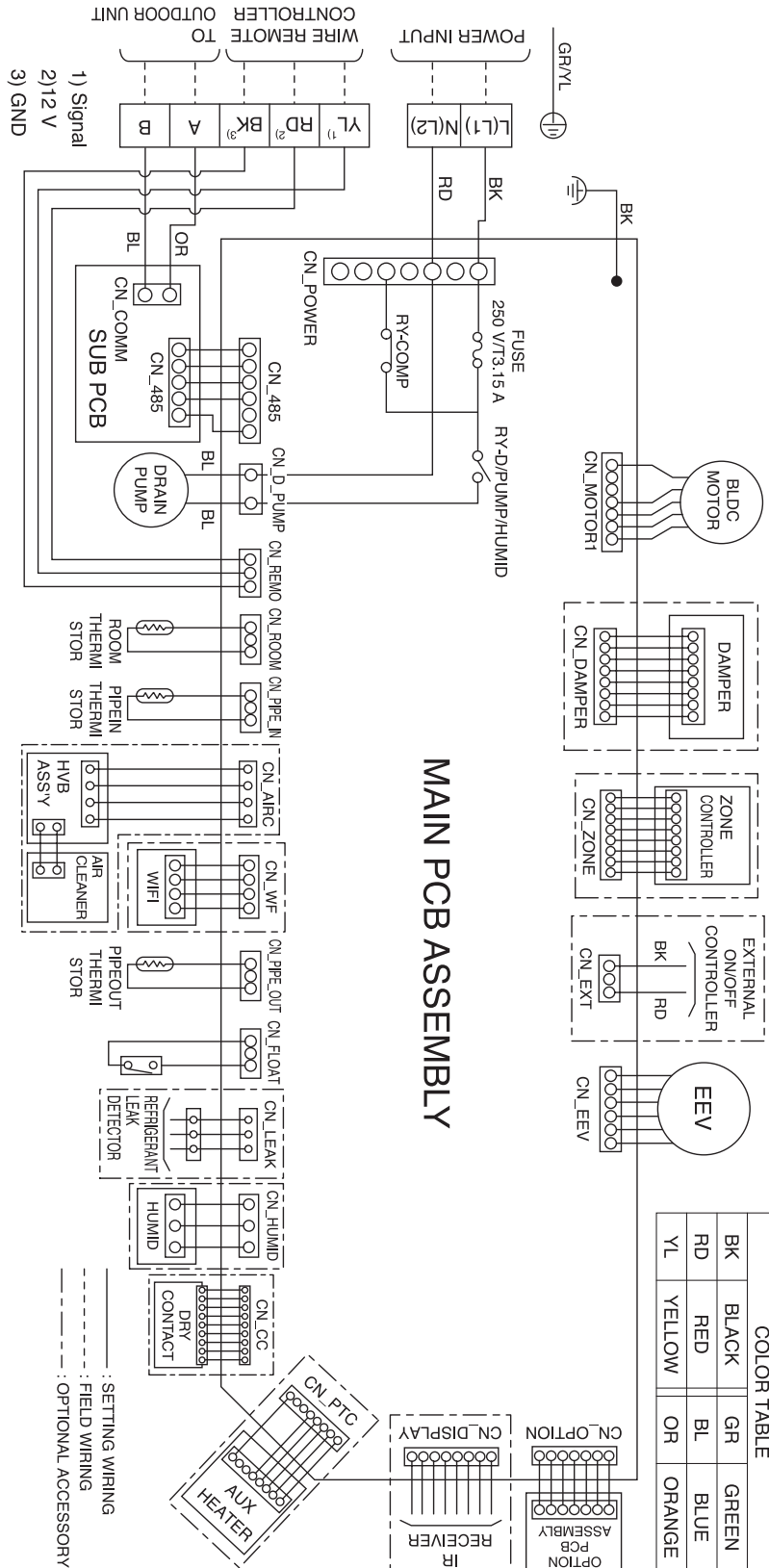
\*\*\*DIP Switch No. 3 on Gen 2 air/water source units is not related to Gen 4 features as it is with Gen 4 air/water source units.

\*\*\*\*0A Model Heat Recovery units are not for use with Multi V IV, Multi V Water IV, or Multi V III heat recovery systems.

Table 20: Serial Numbers of Air/Water Source Units with Gen 4 Software

Air/Water Source Unit Model Type	Multi V IV Air Source Heat Pump	Multi V Air Source Heat Recovery	Multi V IV Water Source Heat Pump	Multi V IV Water Source Heat Recovery
Serial Number of Air/Water Source Units with Gen 4 Software	502***** and Higher	503***** and Higher	504***** and Higher	

Figure 42: High-Static Ducted BH Chassis Wiring Diagram



## High-Static Ducted BH Chassis

Table 21: High-Static Ducted BH Chassis Wiring Diagram

CONNECTOR	PURPOSE	FUNCTION
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-DAMPER	N / A	N / A
CN-ZONE	Zone controller	Zone controller connection
CN-EXT	External on / off controller	External on / off Controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-DISPLAY	Display	Display of indoor status
CN-PTC	Auxiliary heater	Connection for Auxiliary Heater
CN-CC	Dry contact	Dry Contact connection
CN-HUMID	N / A	N / A
CN-LEAK	Leak detector	Leak detector connection
CN-FLOAT	Float switch input	Float switch sensing
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-WF	N / A	N / A
CN-AIRC	N / A	N / A
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-ROOM	Room sensor	Room air thermistor
CN-REMO	Wired remote controller	Wired remote control connection
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 22: BH Chassis DIP Switch Settings

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for ducted indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off

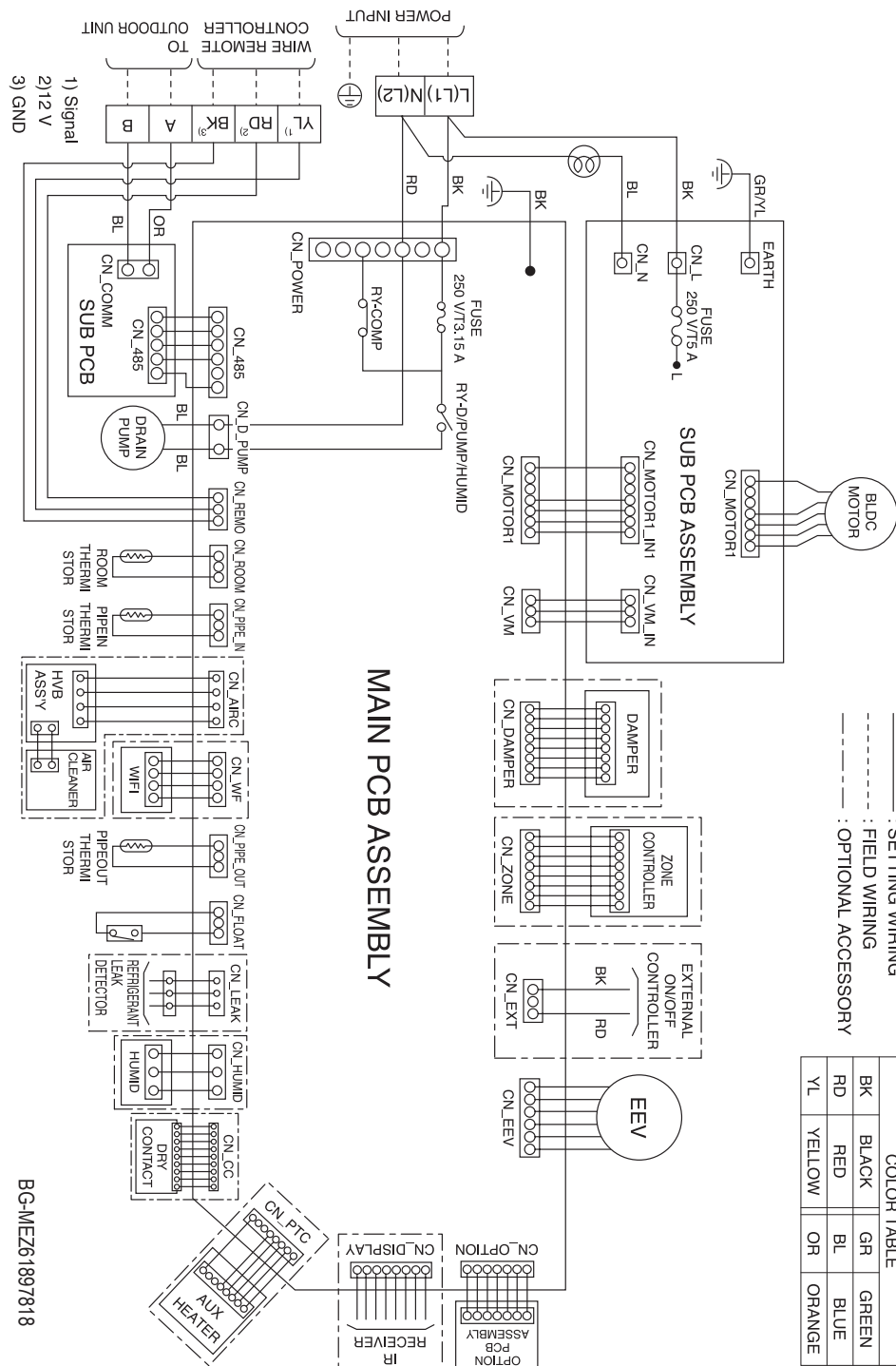
\*For Gen 4 Multi V ducted indoor units, DIP Switches 1, 2, 6 through 8 must be set to OFF. These DIP switches are used for other models.

\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.

Optional Connections

Figure 43 shows the control board for the BG chassis. Connect optional equipment to the control board as required for your system.

Figure 43: High-Static Ducted BG Chassis Wiring Diagram



BG-MEZ61897818

## High-Static Ducted BG Chassis

Table 23: High-Static Ducted BG Chassis Wiring Diagram

CONNECTOR	PURPOSE	FUNCTION
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-VM	Sub PCB to Main PCB power supply	Power supply connection
CN-DAMPER	N / A	N / A
CN-ZONE	Zone controller	Zone controller connection
CN-EXT	External on / off controller	External on / off Controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-DISPLAY	Display	Display of indoor status
CN-PTC	Auxiliary heater	Connection for Auxiliary Heater
CN-CC	Dry contact	Dry Contact connection
CN-HUMID	N / A	N / A
CN-LEAK	Leak detector	Leak detector connection
CN-FLOAT	Float switch input	Float switch sensing
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-WF	N / A	N / A
CN-AIRC	N / A	N / A
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-ROOM	Room sensor	Room air thermistor
CN-REMO	Wired remote controller	Wired remote control connection
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 24: BG Chassis DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for ducted indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off

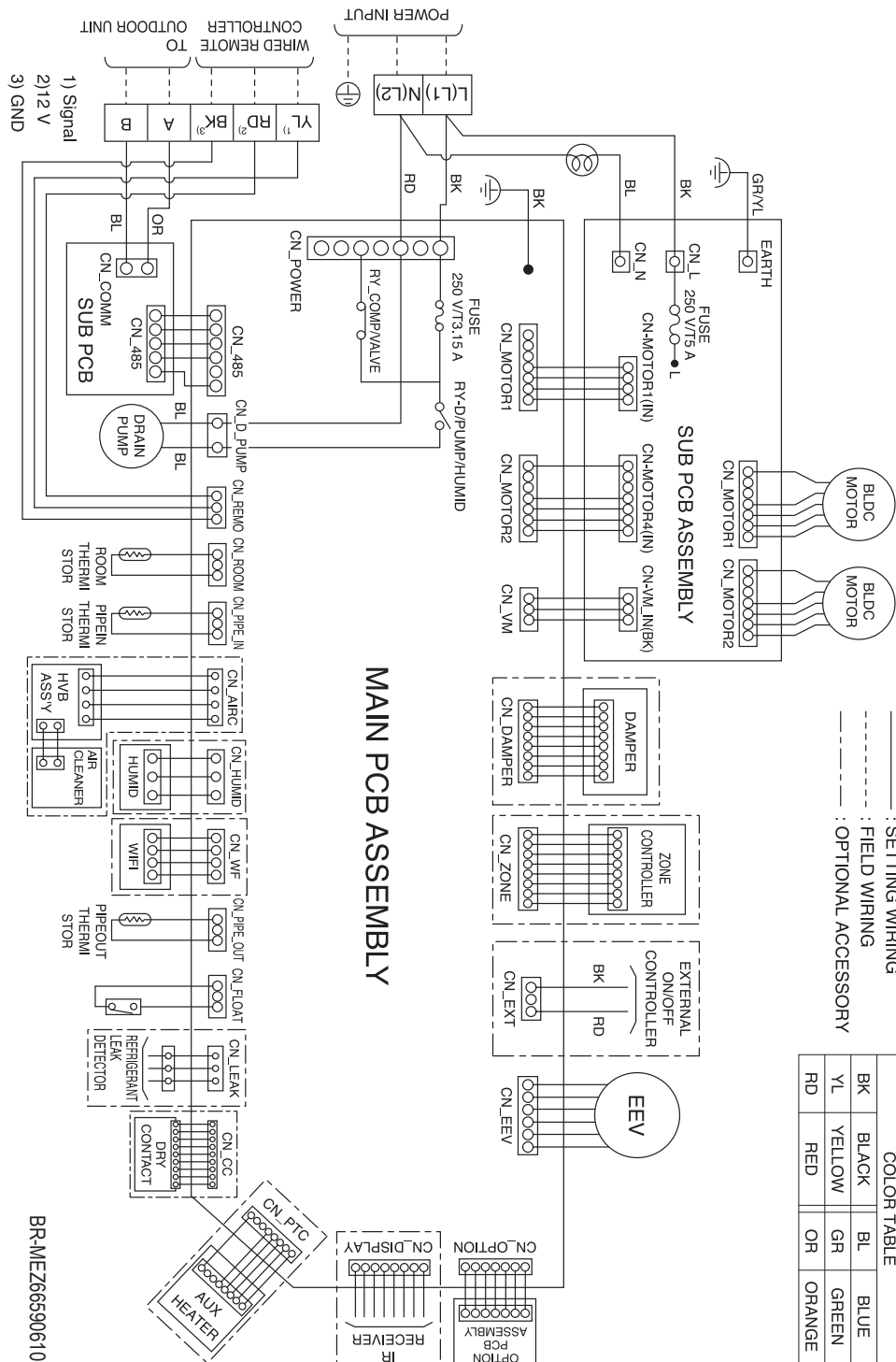
\*For Gen 4 Multi V ducted indoor units, DIP Switches 1, 2, 6 through 8 must be set to OFF. These DIP switches are used for other models.

\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.

Optional Connections

Figure 44 shows the control board for the BR chassis. Connect optional equipment to the control board as required for your system.

Figure 44: High-Static Ducted BR Chassis Wiring Diagram



## High-Static Ducted BR Chassis

Table 25: High-Static Ducted BR Chassis Wiring Diagram

CONNECTOR	PURPOSE	FUNCTION
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-MOTOR2	Fan motor output	Motor output of BLDC
CN-VM	Sub PCB to Main PCB power supply	Power supply connection
CN-DAMPER	N / A	N / A
CN-ZONE	Zone controller	Zone controller connection
CN-EXT	External on / off controller	External on / off Controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-DISPLAY	Display	Display of indoor status
CN-PTC	Auxiliary heater	Connection for Auxiliary Heater
CN-CC	Dry contact	Dry Contact connection
CN-LEAK	Leak detector	Leak detector connection
CN-FLOAT	Float switch input	Float switch sensing
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-WF	N / A	N / A
CN-HUMID	N / A	N / A
CN-AIRC	N / A	N / A
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-ROOM	Room sensor	Room air thermistor
CN-REMO	Wired remote controller	Wired remote control connection
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 26: BR Chassis DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for ducted indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off

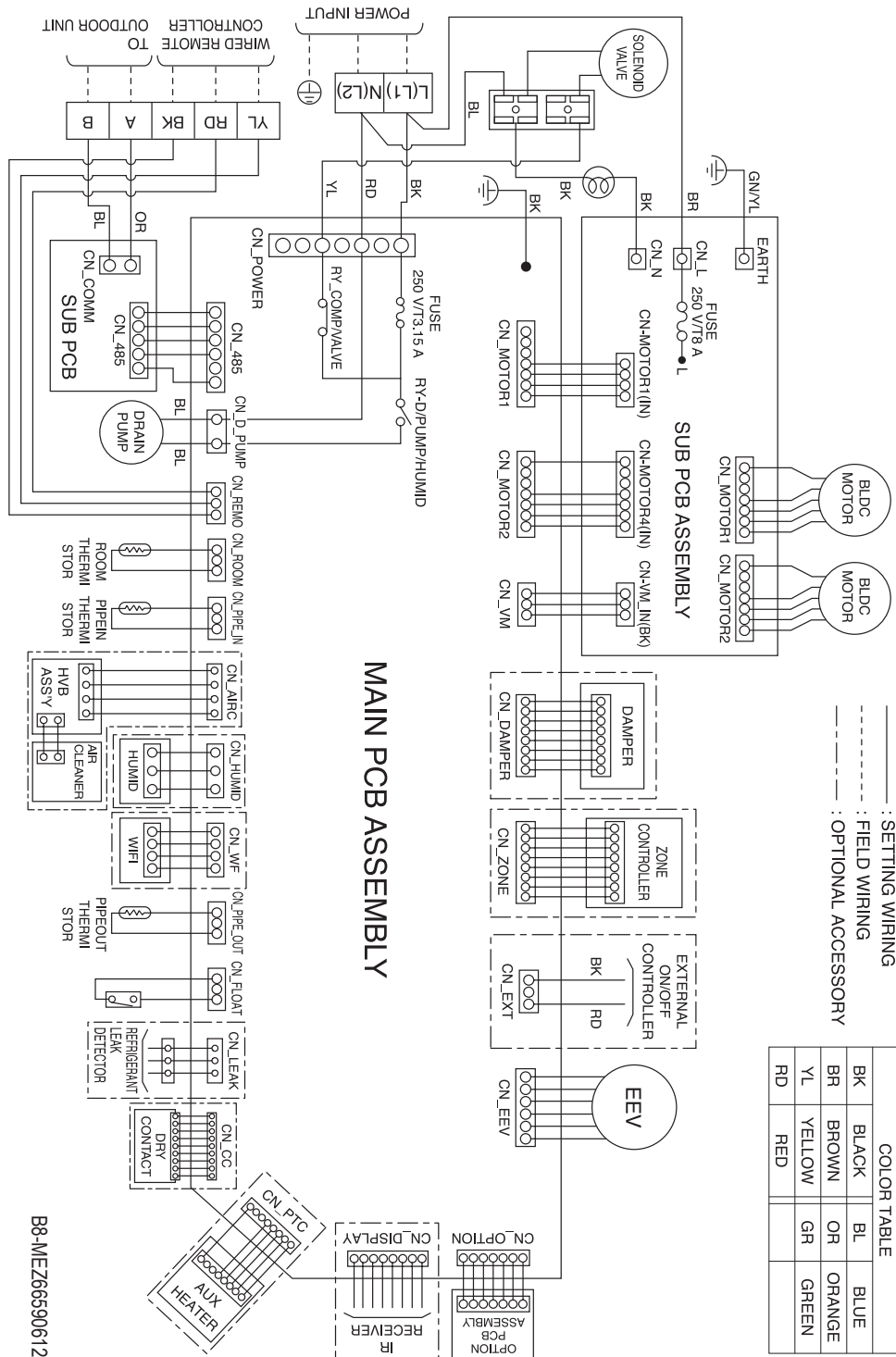
\*For Gen 4 Multi V ducted indoor units, DIP Switches 1, 2, 6 through 8 must be set to OFF. These DIP switches are used for other models.

\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.

Optional Connections

Figure 45 shows the control board for the B8 chassis. Connect optional equipment to the control board as required for your system.

Figure 45: High-Static Ducted B8 Chassis Wiring Diagram



## High-Static Ducted B8 Chassis

Table 27: High-Static Ducted B8 Chassis Wiring Diagram

CONNECTOR	PURPOSE	FUNCTION
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-MOTOR2	Fan motor output	Motor output of BLDC
CN-VM	Sub PCB to Main PCB power supply	Power supply connection
CN-DAMPER	N / A	N / A
CN-ZONE	Zone controller	Zone controller connection
CN-EXT	External on / off controller	External on / off Controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-DISPLAY	Display	Display of indoor status
CN-PTC	Auxiliary heater	Connection for Auxiliary Heater
CN-CC	Dry contact	Dry Contact connection
CN-LEAK	Leak detector	Leak detector connection
CN-FLOAT	Float switch input	Float switch sensing
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-WF	N / A	N / A
CN-HUMID	N / A	N / A
CN-AIRC	N / A	N / A
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-ROOM	Room sensor	Room air thermistor
CN-REMO	Wired remote controller	Wired remote control connection
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 28: B8 Unit DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for ducted indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off

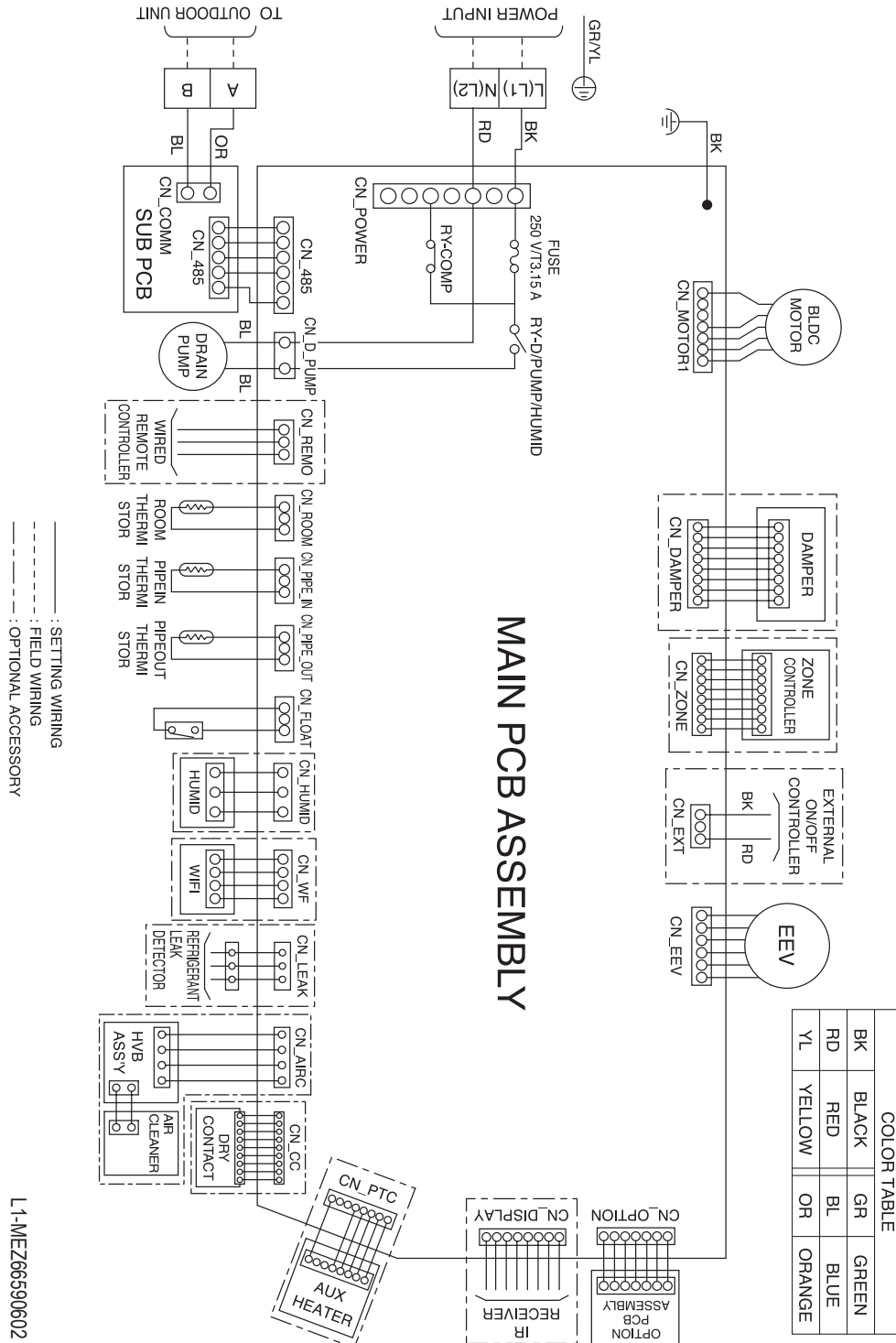
\*For Gen 4 Multi V ducted indoor units, DIP Switches 1, 2, 6 through 8 must be set to OFF. These DIP switches are used for other models.

\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.

Optional Connections

Figure 46 shows the control board for the L1 chassis. Connect optional equipment to the control board as required for your system.

Figure 46: Low-Static Ducted L1 Chassis Wiring Diagram



## Low-Static Ducted L1 Chassis

Table 29: Low-Static Ducted L1 Chassis Wiring Diagram

CONNECTOR	PURPOSE	FUNCTION
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-DAMPER	N / A	N / A
CN-ZONE	Zone controller	Zone controller connection
CN-EXT	External on / off controller	External on / off Controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-DISPLAY	Display	Display of indoor status
CN-PTC	Auxiliary heater	Connection for Auxiliary Heater
CN-CC	Dry contact	Dry Contact connection
CN-AIRC	N / A	N / A
CN-LEAK	Leak detector	Leak detector connection
CN-WF	N / A	N / A
CN-HUMID	N / A	N / A
CN-FLOAT	Float switch input	Float switch sensing
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-ROOM	Room sensor	Room air thermistor
CN-REMO	Wired remote controller	Wired remote control connection
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 30: L1 Unit DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for ducted indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off

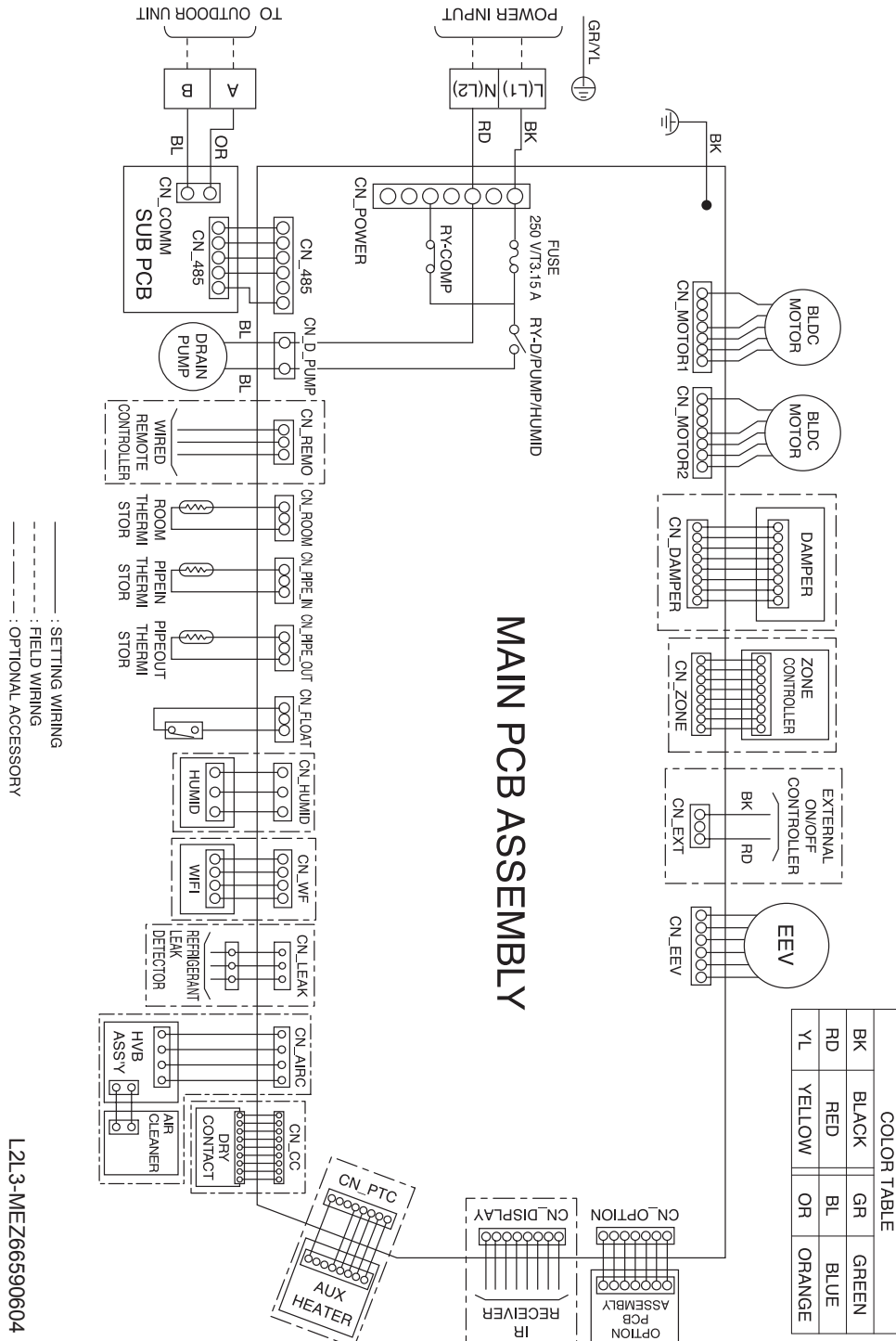
\*For Gen 4 Multi V ducted indoor units, DIP switches 1, 2, 6 through 8 must be set to OFF. These DIP switches are used for other models.

\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.

Optional Connections

Figure 47 shows the control board for the L2/L3 chassis. Connect optional equipment to the control board as required for your system.

Figure 47: Low-Static Ducted L2/L3 Chassis Wiring Diagram



## Low-Static Ducted L2/L3 Chassis

Table 31: Low-Static Ducted L2/L3 Chassis Wiring Diagram

CONNECTOR	PURPOSE	FUNCTION
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-MOTOR2	Fan motor output	Motor output of BLDC
CN-DAMPER	N / A	N / A
CN-ZONE	Zone controller	Zone controller connection
CN-EXT	External on / off controller	External on / off Controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-DISPLAY	Display	Display of indoor status
CN-PTC	Auxiliary heater	Connection for Auxiliary Heater
CN-CC	Dry contact	Dry Contact connection
CN-AIRC	N / A	N / A
CN-LEAK	Leak detector	Leak detector connection
CN-WF	N / A	N / A
CN-HUMID	N / A	N / A
CN-FLOAT	Float switch input	Float switch sensing
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-ROOM	Room sensor	Room air thermistor
CN-REMO	Wired remote controller	Wired remote control connection
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 32: L2, L3 Unit DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for ducted indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off

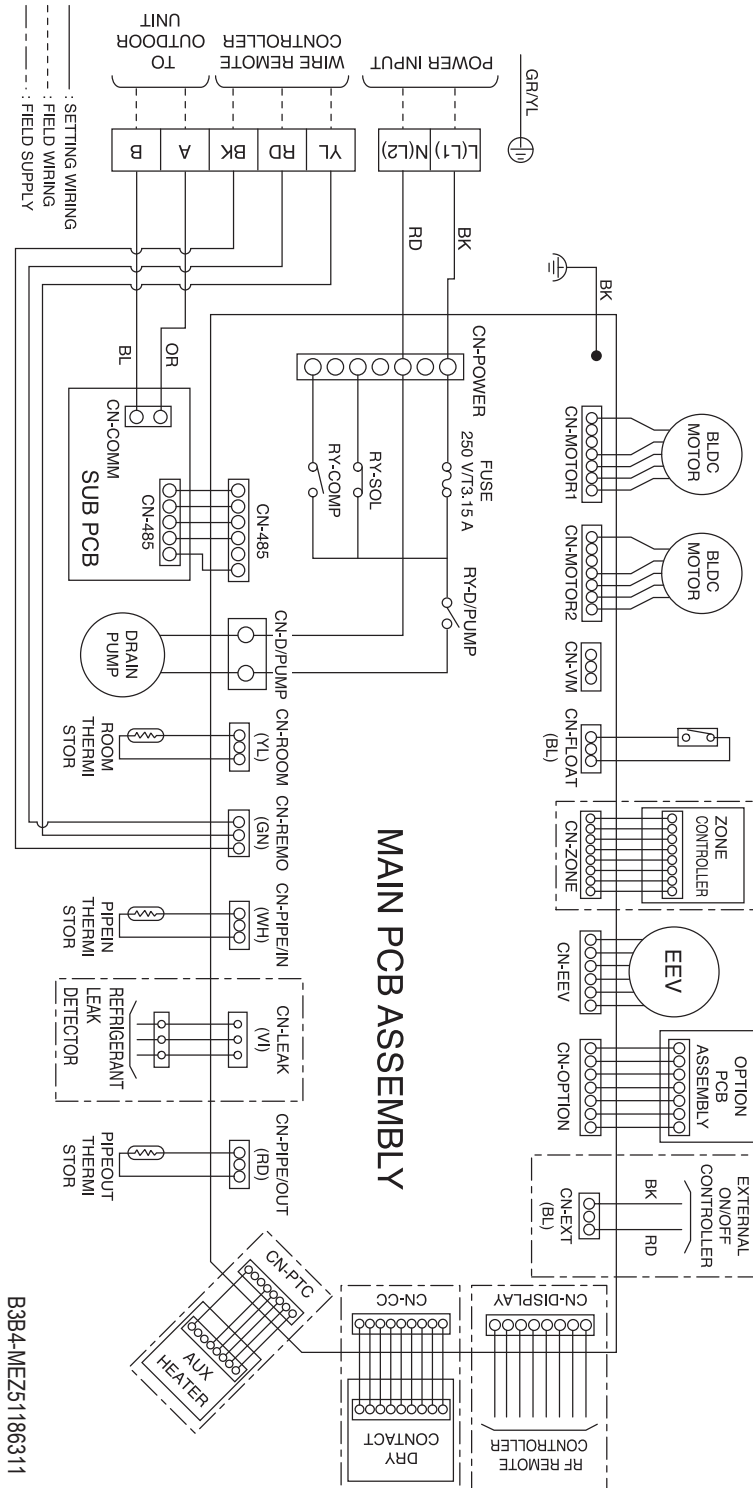
\*For Gen 4 Multi V ducted indoor units, DIP switches 1, 2, 6 through 8 must be set to OFF. These DIP switches are used for other models.

\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.

Optional Connections

Figure 48 shows the control board for the L1 chassis. Connect optional equipment to the control board as required for your system.

Figure 48: Low-Static Built-In B3/B4 Chassis Wiring Diagram



## Low-Static Built-In B3/B4 Chassis

Table 33: Low-Static Built-In B3/B4 Chassis Wiring Diagram

CONNECTOR	PURPOSE	FUNCTION
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
CN-MOTOR2	Fan motor output	Motor output of BLDC
CN-VM	Sub PC power supply	Power supply connection
CN-FLOAT	Float switch input	Float switch sensing
CN-ZONE	Zone controller	Zone controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-EXT	External ON / OFF controller	External ON / OFF controller connection
CN-DISPLAY	Display	Display of indoor status
CN-CC	Dry contact	Dry Contact connection
CN-PTC	Auxiliary heater	Connection for Auxiliary Heater
CN-PIPE/OUT	Discharge pipe sensor	Pipe out thermistor
CN-LEAK	Refrigerant leak detector	Refrigerant leak detector connection
CN-PIPE/IN	Suction pipe sensor	Pipe in thermistor
CN-REMO	Wired remote controller	Wired remote control connection
CN-ROOM	Room sensor	Room air thermistor
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 34: B3, B4 Unit DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for ducted indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off

\*For Gen 4 Multi V ducted indoor units, DIP switches 1, 2, 6 through 8 must be set to OFF. These DIP switches are used for other models.

\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.



## Vertical Air Handler NJ Chassis

Table 35: NJ Frame Wiring Diagram Legend.

Terminal	Purpose	Function
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
RV-VM	Sub PC power supply	Power supply connection
CN_OUT	Heater	Connection for heater
CN-FLOAT	Float switch input	Float switch sensing
CN-ZONE	Zone controller	Zone controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-EXT	External ON / OFF controller	External ON / OFF controller connection
CN-DISPLAY	Display	Display of indoor status
CN-CC	Dry contact	Dry Contact connection
CN-PTC	Auxiliary heater	Auxiliary heater connection
CN-PIPE/OUT (RD)	Discharge pipe sensor	Pipe out thermistor
CN-LEAK (VI)	Refrigerant leak detector	Refrigerant leak detector connection
CN-PIPE/IN (WH)	Suction pipe sensor	Pipe in thermistor
CN-REMO (GN)	Wired remote controller	Wired remote control connection
CN-ROOM (YL)	Room sensor	Room air thermistor
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 36: NJ Frame DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for ducted indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off
SW6	HEATER INTERLOCK	Off	On	Selects heater interlock function for vertical air handler units 1. On: Automatic (heater will automatically operate during heating mode) 2. Off: Manual (heater needs to be manually turned on during heating mode)

\*For Gen 4 Multi V vertical air handler indoor units, DIP switches 1, 2, 7 and 8 must be set to OFF. These DIP switches are used for other models.

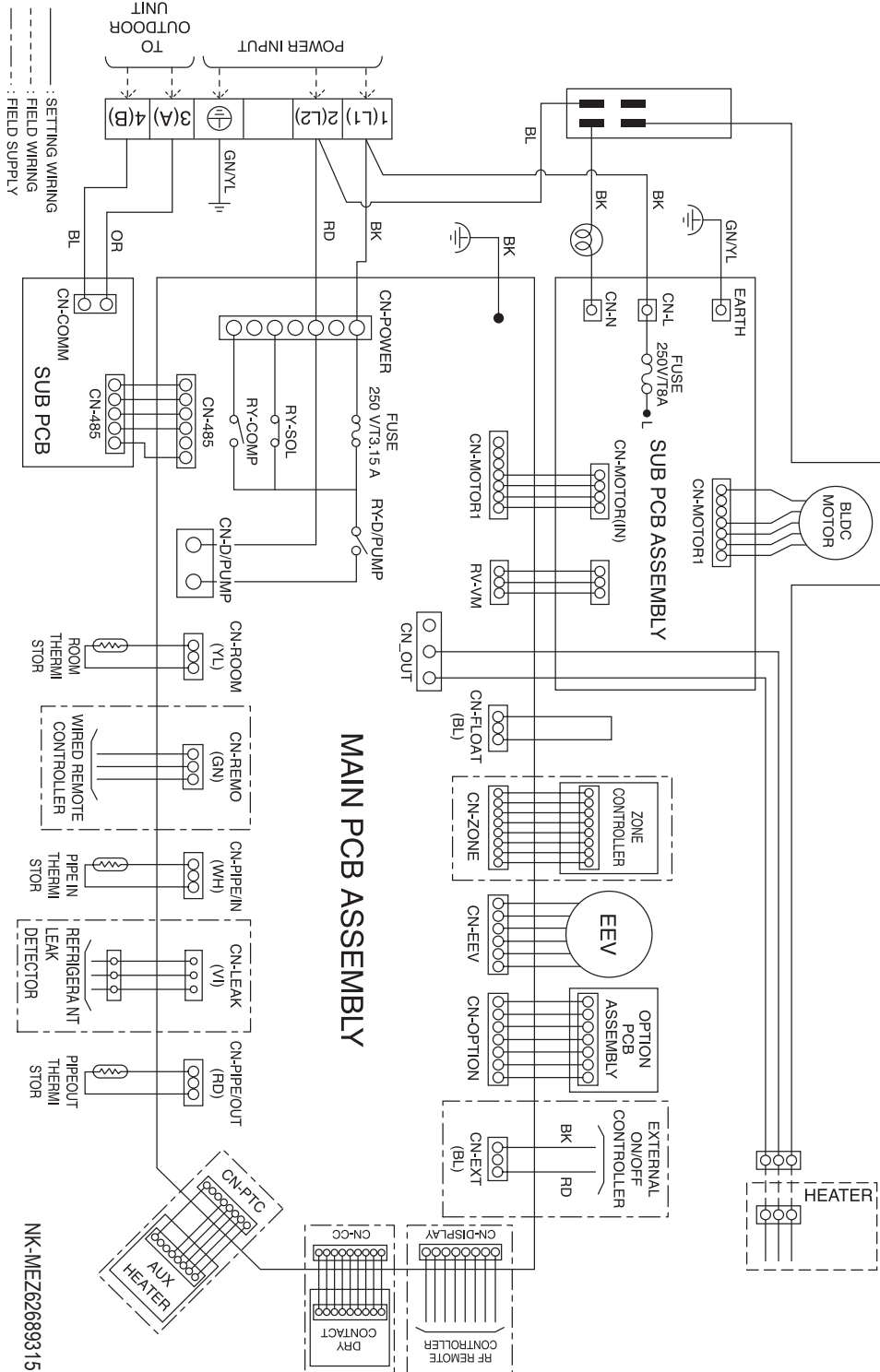
\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.



Optional Connections

Figure 49 shows the control board for the NK chassis. Connect optional equipment to the control board as required for your system.

Figure 50: Vertical Air Handler NK Chassis Wiring Diagram



## Vertical Air Handler NK Chassis

Table 37: NK Frame Wiring Diagram Legend.

Terminal	Purpose	Function
CN-POWER	AC Power supply	AC Power line
CN-MOTOR1	Fan motor output	Motor output of BLDC
RV-VM	Sub PC power supply	Power supply connection
CN_OUT	Heater	Connection for heater
CN-FLOAT	Float switch input	Float switch sensing
CN-ZONE	Zone controller	Zone controller connection
CN-EEV	EEV Output	EEV control output
CN-OPTION	Optional PCB EPROM	Option PCB connection
CN-EXT	External ON / OFF controller	External ON / OFF controller connection
CN-DISPLAY	Display	Display of indoor status
CN-CC	Dry contact	Dry Contact connection
CN-PTC	Auxiliary heater	Auxiliary heater connection
CN-PIPE/OUT (RD)	Discharge pipe sensor	Pipe out thermistor
CN-LEAK (VI)	Refrigerant leak detector	Refrigerant leak detector connection
CN-PIPE/IN (WH)	Suction pipe sensor	Pipe in thermistor
CN-REMO (GN)	Wired remote controller	Wired remote control connection
CN-ROOM (YL)	Room sensor	Room air thermistor
CN-D/PUMP	Drain pump output	AC output for drain pump
CN-485	Communication	Connection between indoor and outdoor units

Table 38: NK Frame DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW3	GROUP CONTROL	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master / Slave on each indoor unit
SW4	DRY CONTACT MODE	Variable	Auto	Sets operation mode for optional Dry Contact accessory 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
SW5	CONTINUOUS FAN	Off	On	Selects continuous fan for ducted indoor units. 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on / off
SW6	HEATER INTERLOCK	Off	On	Selects heater interlock function for vertical air handler units 1. On: Automatic (heater will automatically operate during heating mode) 2. Off: Manual (heater needs to be manually turned on during heating mode)

\*For Gen 4 Multi V vertical air handler indoor units, DIP switches 1, 2, 7 and 8 must be set to OFF. These DIP switches are used for other models.

\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.



### Wall-Mounted Sensor Installation

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 fifty-five (55) inches above the finished floor.

- It may be necessary to use a handy box that is sized in metric units, depending on the controller model. Check with your LG representative to verify which size 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.
  - 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.
- ⊘ Do not route power wiring and communications cables in the same conduit.
- ⊘ 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.

### Wall-Mounted Controller Installation

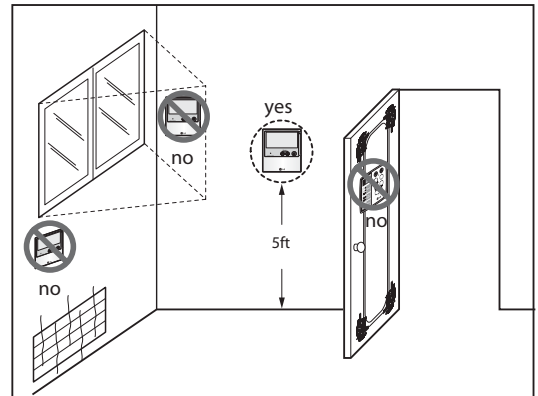
Since the room temperature sensor is inside the remote controller, the remote controller should be installed in a place away from direct sunlight, high humidity and direct supply of hot or cold air to maintain proper space temperature. Install the remote controller about 5 ft above the floor in an area with good air circulation and an average temperature.

- ⊘ Do not install the remote controller where it can be affected by the following:
- Drafts or dead spots behind doors and in corners
  - Hot or cold air from ducts
  - Radiant heat from sun or appliances
  - Concealed pipes and chimneys
  - Uncontrolled areas such as an outside wall behind the remote controller

This remote controller is equipped with a seven segment LED display. For proper display of the remote controller LEDs, the remote controller should be installed properly as shown below. The standard height is 4 - 5 ft from floor level.

1. Pull communications cable between the zone controller handy box (if used) and the indoor unit. The wall-mounted zone controller comes with a thirty (33) foot length of cable.
2. Store a minimal amount of cable in the handy box. Any additional cable should be coiled and stored near the indoor unit control panel.
3. If additional cable length is needed, order a thirty-three (33) foot LG Wired Remote Group Control Extension cable (Model No. PZCWRC1).
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.

Figure 51: Wired Remote Controller Installation



## Controlling the Indoor Unit

The method and configuration of controlling the indoor unit will vary according to your system's requirements.

- It is possible to control up to 16 indoor units with one wired remote controller.
- Set only one indoor unit in a group to master; set the others to slave.
- This indoor unit can be connected in a control group with any other types of LG indoor units.
- It is possible to use a wireless remote controller at the same time as the wall controller.
- It is possible to connect a dry contact and central controller at the same time (to a master indoor unit only).
- A central controller can control all indoor units in a group by controlling the master unit of the group.
- Slave indoor units can not be individually controlled by the central controller.

## DIP Switch Settings

Refer to Figure 52. If the indoor unit is a master, set switch 3 of the indoor unit's DIP switch to Off. If the indoor unit is a slave, set switch 3 of the indoor unit's DIP switch to On.

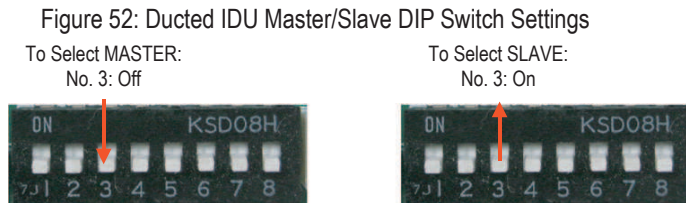


Table 39: Ducted IDUs DIP Switch Settings

Switch	Function name	Off	On	Remarks
3	Group Control	Master	Slave	Group control setting using 7-Day Programmable Controller; selects Master/Slave on each indoor unit
4	Dry Contact Mode	Variable	Auto	Sets operation mode for optional Dry Contact accessory: 1. Variable: Auto or Manual Mode can be set through 7-Day Programmable Controller or Wireless Remote Controller (factory default setting is Auto if there is no setting) 2. Auto: For Dry Contact, it is always Auto mode
5	Continuous Fan	Off	On	Selects continuous fan for ducted indoor units: 1. On: Indoor unit fan will always operate at a set fan speed, except when the system is off, or the outdoor unit is in defrost mode (when the outdoor unit is in defrost mode, the fan will operate at super low fan speed) 2. Off: Indoor unit fan speed can be changed by on/off

Table 40: NJ, NK Frame Additional DIP Switch Settings.

DIP Switch Setting		Off	On	Remarks
SW6	HEATER INTERLOCK	Off	On	Selects heater interlock function for vertical air handler units 1. On: Automatic (heater will automatically operate during heating mode) 2. Off: Manual (heater needs to be manually turned on during heating mode)

\*For use with Multi V systems, switches 1, 2, 6, 7, and 8 MUST be set to Off for ducted IDUs.

\*\*To enable Generation 4 features, outdoor unit DIP Switch No. 3 must be set to ON. Please refer to the Multi V IV, Multi V Water IV Engineering Manual for additional information. Please refer to the Multi V IV, Multi V Water IV, Multi V S Engineering Manual for additional information.

Group Control

Figure 53, Figure 54, and Figure 55 show examples of typical control configurations. Figure 53 shows one wired remote controller configured as a Master to control a group of indoor units. Figure 54 shows two wired remote controllers, one configured as a Master and the other as a Slave. Figure 55 shows a system with indoor units and fresh air units configured as two groups, each with a Master wired controller. Configure the fresh air units as one group and the standard indoor units as another group. Figure 56 shows both a correct and an incorrect control configuration for this type of mixed unit system.

Figure 53: Group Control - Method 1

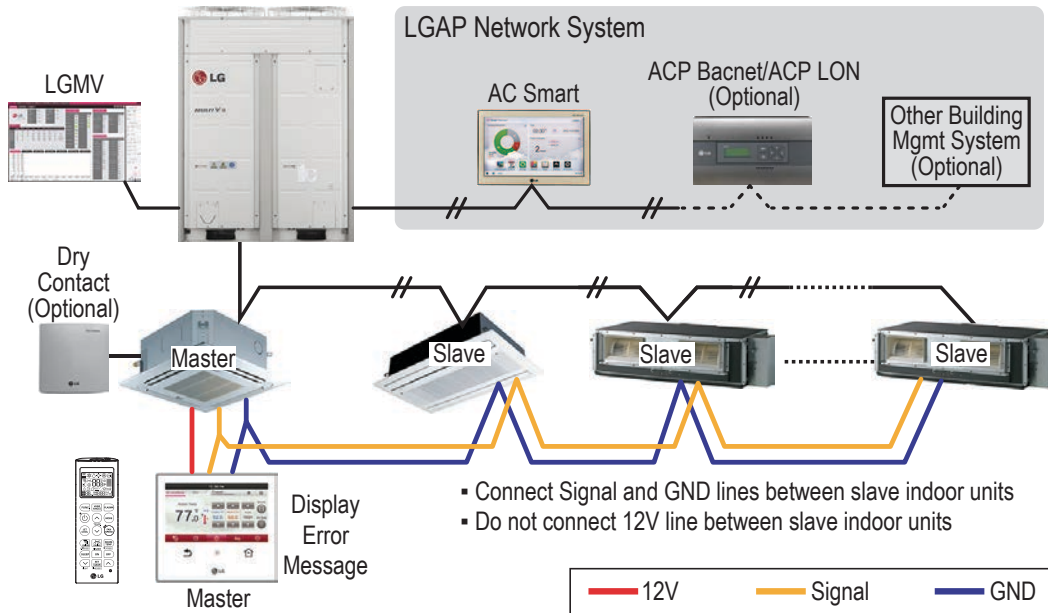


Figure 54: Group Control - Method 2

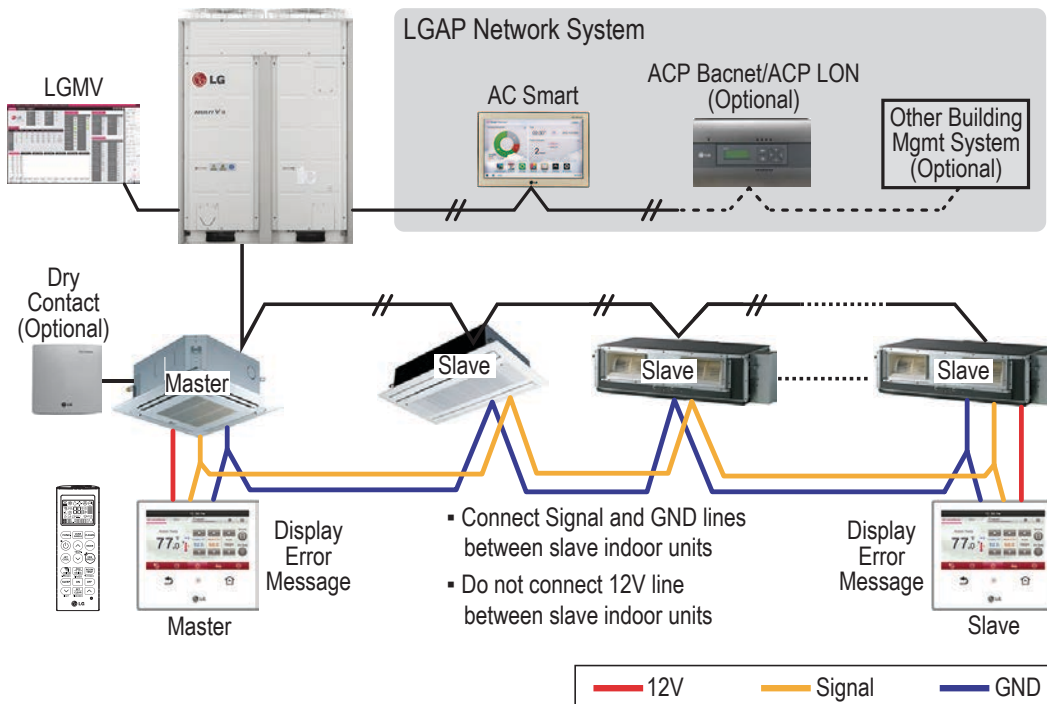


Figure 55: Group Control - Method 3

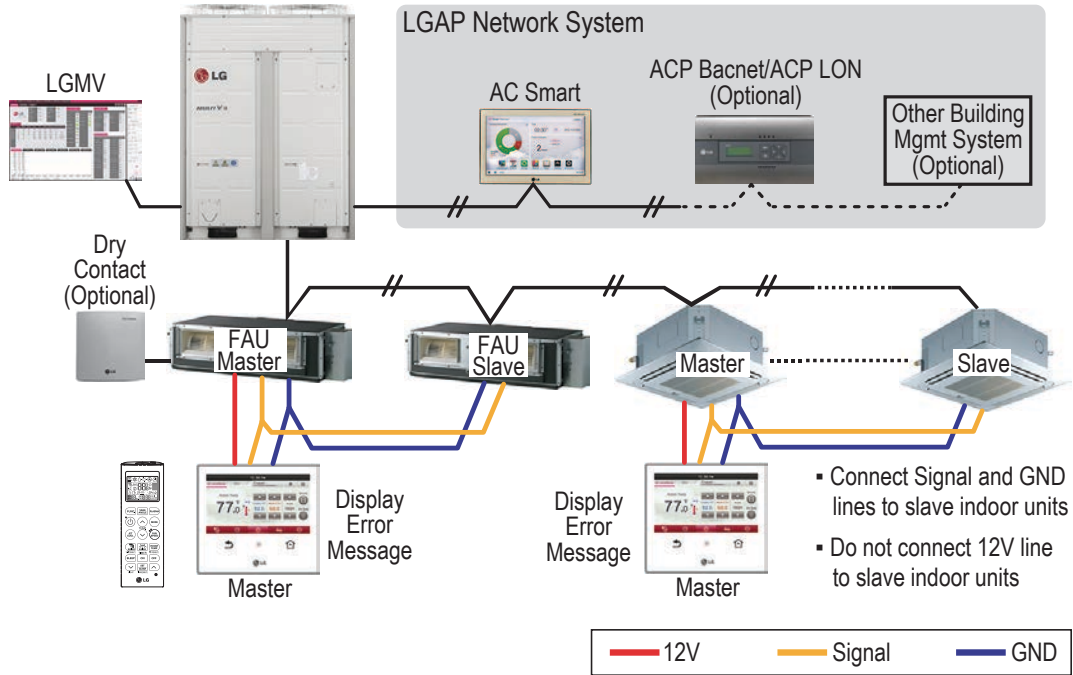
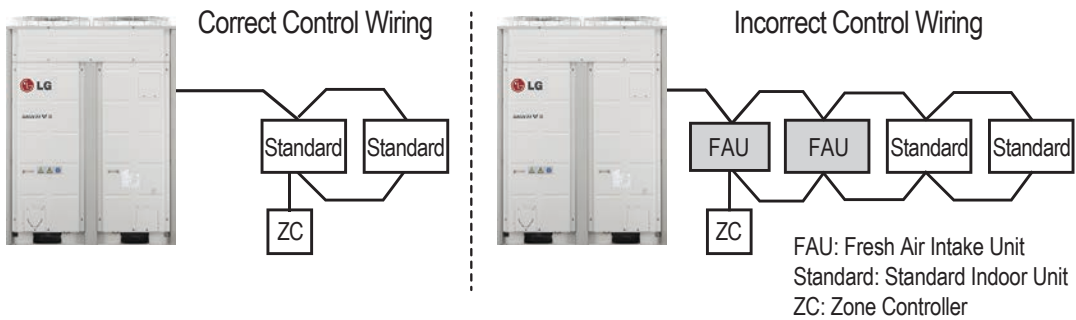


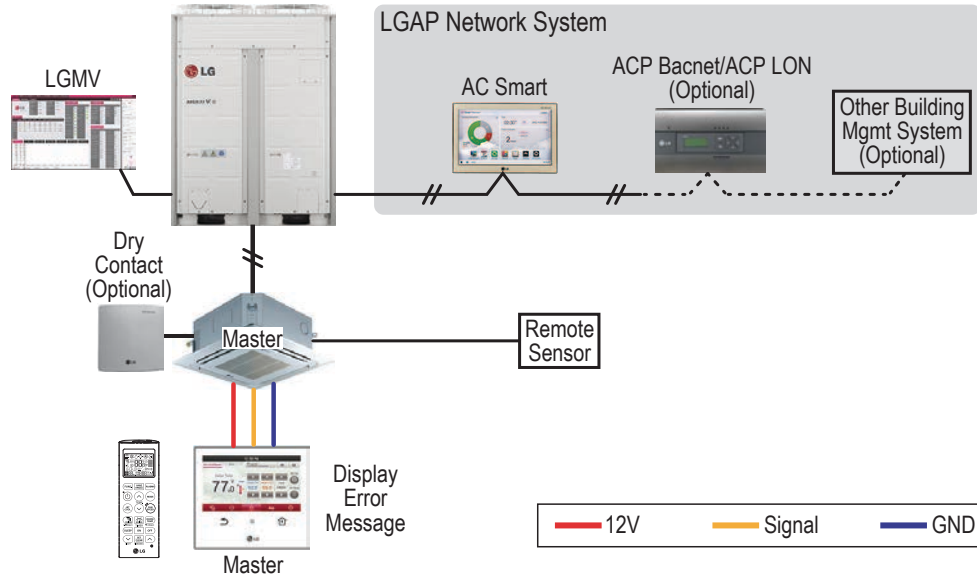
Figure 56: Control Wiring with Standard IDU and Fresh Air Unit



**Remote Control**

Figure 57 shows an example of a remote control configuration.

Figure 57: Remote Control



# INSTALLATION CHECKLIST



PAGE 1 of 2

System ID No.: \_\_\_\_\_ Indoor Unit ID.: \_\_\_\_\_

Checked by: \_\_\_\_\_ Date: \_\_\_\_\_ Signature: \_\_\_\_\_

4-Way Cassette Indoor Unit

<b>Rough-In</b>	<b>N/A</b>	<b>Not Complete</b>	<b>Complete</b>
Packing materials and literature removed from fan discharge.			
Airflow direction correct.			
Fan wheels spin without obstruction.			
Unit is properly supported – mounting bolts tight.			
Unit is level (condensate pump installations).			
Unit is canted 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 indoor unit? Is a secondary drain line connected to the pan?			
<b>Ductwork</b>	<b>N/A</b>	<b>Not Complete</b>	<b>Complete</b>
All seams sealed – no air leaks.			
High-static models only – minimum external static pressure requirements met.			
Ductwork is properly sized considering the available external static pressure rating of the indoor unit fan.			
No kinks present in the flexible ductwork. Ductwork is properly supported.			
Ductwork balancing dampers have been installed and are correctly adjusted or open.			
Grilles and registers are properly sized and installed.			
<b>Refrigerant Piping</b>	<b>N/A</b>	<b>Not Complete</b>	<b>Complete</b>
A dry nitrogen purge rate of three (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 were 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).			
Shutoff valves have the same internal pipe diameter as the connected pipe (option).			
Two shutoff valves were installed; one (1) high pressure liquid, one (1) low pressure vapor (option).			
Shutoff valves installed with Schrader port between the indoor unit and the ball of the valve (option).			
<b>Condensate System</b>	<b>N/A</b>	<b>Not Complete</b>	<b>Complete</b>
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"/100' of pipe away from the indoor unit.			
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 indoor unit bottom and high point of the line does not exceed 27-1/2".			
Condensate pump power has been disconnected (High-Static indoor unit gravity-drain installations only).			
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 of a ±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)?			
<b>Insulation</b>	<b>N/A</b>	<b>Not Complete</b>	<b>Complete</b>
Additional housing, refrigerant and condensate pipe insulation has been supplemented to prevent sweating while operating if indoor unit installed in abnormal environmental conditions. (Optional - job condition 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.			



System ID No.: \_\_\_\_\_ Indoor Unit ID.: \_\_\_\_\_

Checked by: \_\_\_\_\_ Date: \_\_\_\_\_ Signature: \_\_\_\_\_

Electrical	N/A	Not Complete	Complete
Power provided is single phase, ±10% of indoor unit nameplate specifications.			
Power wires properly sized and protected per NEC and local codes. Indoor unit 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.			
(Optional) Smoke detector is properly installed and wired. 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.			
Outdoor unit / Indoor unit communications cable (terminals 3[A] and 4[B]).			
Field provided communications cable is 18-2 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 is grounded at only ONE end.			
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 indoor unit circuit board.			
If an optional remote temperature sensor was installed, the associated cable is plugged into socket CN-ROOM (the factory return air thermistor has been unplugged).			
Indoor unit DIP switches have been adjusted for application (group control-master/slave; continuous fan operation; dry contact).			
If a gravity drain primary condensate system is used (condensate pipe ONLY connected to the lowest nipple) the CN-D / Pump plugged has been removed from the socket on the control board (High-Static models only).			
All plugs are properly seated in the sockets on the control board.			
Power and communications cables are properly restrained and separated.			



**Who to call for assistance**

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

**For warranty information, visit [www.lghvac.com](http://www.lghvac.com).**

*Inverter*



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[www.lghvac.com](http://www.lghvac.com)

LG Customer Information Center, Commercial Products  
1-888-865-3026 USA

Follow the prompts for commercial A/C products and parts.

IM\_MultiV\_Ducted\_IDU\_5\_16  
Supersedes: IM-MultiV-DuctedIDU-08-14