OWNER'S & INSTALLATION MANUAL

AIR CONDITIONER

Please read this installation manual completely before installing the product.
Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
Please retain this installation manual for future reference after reading it thoroughly.

Branch Distributor

EN English FR Français ES Español

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www.lghvac.com
www.lg.com

Branch Distributor Air-Source System Install Tips

The following pages present an overview of Branch Distributor installation concepts and is intended to supplement the technical and installation information provided with each product.
The review of basic operation and maintenance skills must reinforce industry established practices and provide helpful tips to make equipment operation successful.

NOTE

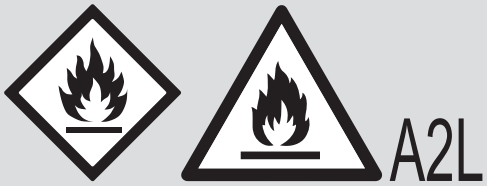
⃠ The installation guide is NOT intended to be a replacement for LG installation manuals, nor is it intended to cover ALL the logistics of operating and maintenance of systems.
For detailed information on the procedures mentioned here, refer to the installation manual specific to your product. Always comply with applicable local, state, and federal codes.

The following safety guidelines are intended to prevent unforeseen risks or damage from unsafe or incorrect operation of the appliance.
The guidelines are separated into 'WARNING' and 'CAUTION' as described below.

⚠ This symbol is displayed to indicate matters and operations that can cause risk.
Read the part with this symbol carefully and follow the instructions in order to avoid risk.

⚠ WARNING
This indicates that the failure to follow the instructions can cause serious injury or death.

⚠ CAUTION
This indicates that the failure to follow the instructions can cause the minor injury or damage to the product.

	Read the precautions in this manual carefully before operating the unit.
	This symbol indicates that the Operation Manual should be read carefully.
	This appliance is filled with flammable refrigerant
	This symbol indicates that a service personnel should be handling this equipment with reference to the Installation Manual.

Safety Instructions - Installation

⚠ CAUTION

- Be very careful when transporting the product. There is a risk of the product falling and causing physical injury.
  - Use appropriate moving equipment to transport each frame; ensure the equipment is capable of supporting the weight of the equipment.
- The Limited Warranty is void and of no effect, and LG will have no liability hereunder to any Customer or third party, to the extent any of the following occur: acts, omissions, and conduct of any and all third parties including, but not limited to, the installing contractor and any repairs, service or maintenance by unauthorized or unqualified persons.
- Do not insert a drain hose in drain pipe or sewer pipe.
  - Bad smells can occur and it results in a corrosion of a heat exchanger or pipe.
- Do not install the unit in potentially explosive atmospheres.
- The installation of pipe-work shall be kept to a minimum
- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
- When mechanical connectors are reused indoors, sealing parts shall be renewed.
- When flared joints are reused indoors, the flare part shall be re-fabricated.
- Keep level even when installing the product.
  - To avoid vibration or water leakage.
- Always check for gas (refrigerant) leakage after installation or repair of product.
  - Low refrigerant levels may cause failure of product.
- Do not step on or put anyting on the product. (outdoor units)
  - There is risk of personal injury and failure of product.

⚠ WARNING

- An authorized, trained technician licensed locally and at the state level must install the unit.
  - Improper installation by the user may result in fire, explosion, electric shock, physical injury or death.
- Wear protective gloves when handling equipment. Sharp edges may cause personal injury.

- 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.
- Dispose 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.
- Install the unit considering the potential for strong winds or earthquakes.
  - Improper installation may cause the unit to fall over, resulting in physical injury or death.
- Install the unit in a safe location where nobody can step on or fall onto it. ⃠ Do not install the unit on a defective stand.
  - It may result in an accident that causes physical injury or death.
- Properly insulate all cold surfaces to prevent "sweating."
  - Cold surfaces such as uninsulated piping can generate condensate that could drip, causing a slippery surface that creates a risk of slipping, falling, and personal injury.
- Do not store or use flammable gas or combustibles near the unit.
  - There is risk of fire, explosion, and physical injury or death.
- For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.
  - Do not disassemble or repair the product. There is risk of fire or electric shock.
- Be cautious when unpacking and installing the product.
  - Sharp edges could cause injury. Be especially careful of the case edges and the fins on the condenser and evaporator.
- Install the panel and the cover of control box securely.
  - There is risk of fire or electric shock.
- Do not place anything on the power cable.
  - There is risk of fire or electric shock.
- Take care to ensure that power cable could not be pulled out or damaged during operation.
  - There is risk of fire or electric shock.
- Do not place a heater or other appliances near the power cable.
  - There is risk of fire and electric shock.
- Always ground the product.
  - There is risk of fire or electric shock
- Do not install, remove, or re-install the unit by yourself (customer).
  - There is risk of fire, electric shock, explosion, or injury.
- Do not allow water to run into electric parts.
  - It may cause there is risk of fire, failure of the product, or electric shock.
- For installation, always contact the dealer or an Authorized Service Center.
  - There is risk of fire, electric shock, explosion, or injury
- Do not modify or extend the power cable.
  - There is risk of fire or electric shock.
- Do not install the product on a defective installation stand.
  - It may cause injury, accident, or damage to the product.
- If strange sound, or smell or smoke comes from product.
  - urn the breaker off or disconnect the power supply cable. There is risk of electric shock or fire
- Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.
  - Moisture may condense and wet or damage furniture.

[For add on heat pumps with flammable refrigerants]

1) Instruction for installation of the critical-to-safety wiring connection of the leak detection sensor or leak detection system to the furnace assembly.
   - The wiring shall be not less than 18 AWG with a minimum insulation thickness of 1.58 mm or protected from damage. Critical-to-safety wiring is any field installed wiring necessary to fulfill the requirements of flammable refrigerant in the event of detection of a leak.
2) Shall not be installed on furnaces with an inductive electrical greater than Le
   - Le = 5 when breaking alll phases of a three phase load
   - Le = 2.5 all others
3) Detection of a leak shall turn on the indoor fan at the highest available speed or turn it on to not less minimum air flow rate (Consult furnace manufacturer.)

- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- The appliance shall be stored in a room without continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater.)
- Do not pierce or burn.
- Be aware that refrigerants may not contain an odour.
- The manufacturer may provide other suitable examples or may provide additional information about the refrigerant odour.
- Pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52.All field joints shall be accessible for inspection prior to being covered or enclosed.
- An unventilated area where the appliance using flammable refrigerants is installed shall be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.
- Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected;
- If appliances connected via an air duct system to one or more rooms with A2L REFRIGERANTS are installed in a room with an area less than Amin as determined in standard, that room shall be without continuously operating open flames (e.g. an operating gas appliance) or other POTENTIAL IGNITION SOURCES (for e.g., an operating electric heater, hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest.
- After completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements:
  - The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system, cannot be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.
  - The test pressure after removal of pressure source shall be maintained for at least 1 h with no decrease of pressure indicated by the test gauge, with test gauge resolution not exceeding 5% of the test pressure.

- During the evacuation test, after achieving a vacuum level specified in the manual or less, the refrigeration system shall be isolated from the vacuum pump and the pressure shall not rise above 1500 microns within 10 min. The vacuum pressure level shall be specified in the manual, and shall be the lessor of 500 microns or the value required for compliance with national and local codes and standards, which may vary between residential, commercial, and industrial buildings.

Qualification of workers

The manual shall contain specific information about the required qualification of the working personnel for maintenance, service and repair operations. Every working procedure that affects safety means shall only be carried out by qualified person by manufacturer.

Examples for such working procedures are:
- Breaking into the refrigerating circuit;
- Opening of sealed components;
- Opening of ventilated enclosures.

- Refrigerant tubing shall be protected or enclosed to avoid damage.
- Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that may be displaced during normal operations shall be protected against mechanical damage.
- A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts.
- Keep any required ventilation openings clear of obstruction.
- Mechanical connections (mechanical connectors or flared joints) shall be accessible for maintenance purposes
- Flexible pipe elements shall be protected against mechanical damage, excessive stress by torsion, or other forces. They should be checked for mechanical damage annually.
- Protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
- Precautions shall be taken to avoid excessive vibration or pulsation to refrigerating piping.
- Piping in refrigerating systems shall be so designed and installed to minimize the likelihood hydraulic shock damaging the system.
  ⃠ Do not install indoor units in laundry rooms.
- Provision shall be made for expansion and contraction of long runs of piping.
- Steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation.
- Auxiliary devices which can be potential ignition source shall not be installed in connecting ductwork. Examples of potential ignition sources are UV lights, electric heaters with a temperature exceeding 700 °C, pilot flames, brushed motors and similar devices.

NOTE
- ⃠ Do not install the product where it is exposed directly to ocean winds.
  - Sea salt in the air may cause the product to corrode. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.
- Properly insulate all cold surfaces to prevent “sweating”.
  - Cold surfaces such as uninsulated piping can generate condensate that may drip and cause a slippery surface condition and / or water damage to interior surfaces.
- Always check for system refrigerant leaks after the unit has been installed.
  - Low refrigerant levels may cause product failure.
- ⃠ Do not make refrigerant substitutions. Use R32 only.
  - If a different refrigerant is used, or air mixes with original refrigerant, the unit will malfunction and be damaged.
- Keep the unit upright during installation to avoid vibration or water leakage.
- When connecting refrigerant tubing, remember to allow for pipe expansion.
  - Improper piping may cause refrigerant leaks and system malfunction.
- ⃠ Do not install the outdoor unit in a noise-sensitive area. Periodically check that the outdoor frame is not damaged.
  - There is a risk of equipment damage.
- Install the unit in a safe location where nobody can step on or fall onto it. ⃠ Do not install the unit on a defective stand.
  - There is a risk of unit and property damage.
- Install the drain hose to ensure adequate drainage.
  - There is a risk of water leakage and property damage.
- ⃠ Do not store or use flammable gas / combustibles near the unit.
  - There is a risk of product failure.

Safety Instructions - Wiring

⚠ WARNING
- High voltage electricity is required to operate this system. Adhere to applicable building codes: National Electrical Code (NEC) for U.S. and Mexico, Canada Electrical Code (CE) for Canada 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 Codes.
  - There is risk of fire, electric shock, and physical injury or death.
- Properly size all circuit breakers or fuses.
  - There is risk of fire, electric shock, explosion, physical injury or death.
- The information contained in this manual is intended for use by an industry-qualified, experienced, certified electrician familiar with NEC for U.S. and Mexico, or CE for Canada 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.
- 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.
- All electric work must be performed by a licensed electrician and conform to local building codes or, in the absence of local codes, with NEC for U.S. and Mexico, or CE for Canada, and the instructions given in this manual.
  - 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.
- 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 lugs.
  - Loose wiring may overheat at connection points, causing a fire, physical injury or death.
- ⃠ Do not change the settings of the protection devices.
  - If the pressure switch, thermal switch, or other protection devices are bypassed or forced to work improperly, or parts other than those specified by LG are used, there is risk of fire, electric shock, explosion, and physical injury or death.
- The appliance shall be installed in accordance with national wiring regulations.
- Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

! NOTE

⃠ Do not supply power to the unit until all electrical wiring, controls wiring, piping, installation, and refrigerant system evacuation are completed.

Safety Instructions – Operation

⚠ CAUTION

- This appliance is not intended for the purposes of cooling INFORMATION TECHNOLOGY EQUIPMENT
- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.

⚠ WARNING

- The appliance shall be stored so as to prevent mechanical damage from occurring.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- LEAK DETECTION SYSTEM installed. Unit must be powered except for service.
  This unit is equipped with a refrigerant leak detector for safety. To be effective, the unit must be electrically powered at all times after installation, other than when servicing.

Safety Instructions - Service & Installation

⚠ CAUTION

- Servicing shall be performed only as recommended by the manufacturer.

⚠ WARNING

Checks to the area

Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimised. For repair to the refrigerating system, the following precautions shall be complied with prior to conducting work on the system.

Work procedure

Work shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

General work area

All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

Checking for presence of refrigerant

The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with flammable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

Presence of fire extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

No ignition sources

No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion.

All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out.

The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

Checks to the refrigerating equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification.

At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt consult the manufacturer’s technical department for assistance.

The following checks shall be applied to installations using flammable refrigerants:

- The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed
- The ventilation machinery and outlets are operating adequately and are not obstructed
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected
- Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Checks to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- Capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking.
- No live electrical components and wiring are exposed while charging, recovering or purging the system.
- Continuity of earth bonding

Repairs to sealed components

Sealed electrical components shall be replaced.

Repair to intrinsically safe components

Intrinsically safe components must be replaced.

Cabling

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

Leak detection methods

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

NOTE

Examples of leak detection fluids are

- Bubble method
- Fluorescent method agents

If a leak is suspected, all naked flames shall be removed / extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to removal and evacuation procedure.

Removal and evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration.

The following procedure shall be adhered to:

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

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times.

Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed.

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

Prior to recharging the system, it shall be pressure tested with the appropriate purging gas.

The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail.

It is recommended good practice that all refrigerants are recovered safely.

Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant.

It is essential that electrical power is available before the task is commenced.

a) Become familiar with the equipment and its operation.

b) Isolate system electrically.

c) Before attempting the procedure ensure that:
- Mechanical handling equipment is available, if required, for handling refrigerant cylinders
- All personal protective equipment is available and being used correctly
- The recovery process is supervised at all times by a competent person
- Recovery equipment and cylinders conform to the appropriate standards.

d) Pump down refrigerant system, if possible.

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

f) Make sure that cylinder is situated on the scales before recovery takes place.

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

h) Do not overfill cylinders. (No more than 80 % volume liquid charge).

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

j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k) Recovered refrigerant shall not be charged into another refrigerating system unless it has been cleaned and checked.

Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant.

The label shall be dated and signed.

Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed.

Ensure that the correct number of cylinders for holding the total system charge is available.

All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant).

Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order.

Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant.

If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order.

Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged.

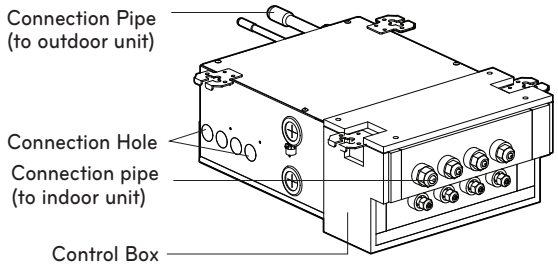
Do not mix refrigerants in recovery units and especially not in cylinders .

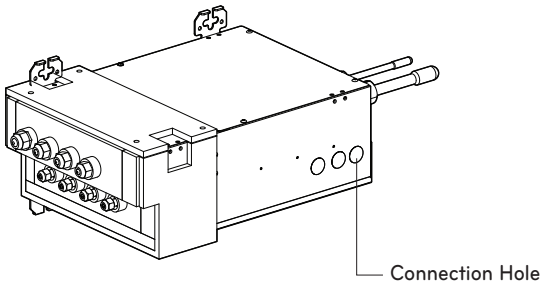
If compressor or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant.

The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process.

When oil is drained from a system, it shall be carried out safely.

Features





Type of BD unit			2 Room	3 Room	4 Room	4 Room
Number of the Indoor units(ea)			1~2	1~3	1~4	1~4
Max. connectable Capacity of Indoor units(Btu/h)			48,000	72,000	73,000	73,000
Net Weight		kg	7.9	8.3	8.8	8.9
		lbs	17.4	18.3	19.4	19.6
Dimensions (W x H x D)		mm	438.8 x 162.7 x 308.5	438.8 x 162.7 x 308.5	438.8 x 162.7 x 308.5	438.8 x 162.7 x 308.5
		inch	17-1/4 x 6-7/16 x 12-1/8	17-1/4 x 6-7/16 x 12-1/8	17-1/4 x 6-7/16 x 12-1/8	17-1/4 x 6-7/16 x 12-1/8
Connecting Pipes	Indoor side	Liquid (mm(inch))	Ø6.35(1/4) x 2EA	Ø6.35(1/4) x 3EA	Ø6.35(1/4) x 4EA	Ø6.35(1/4) x 4EA
		Gas (mm(inch))	Ø9.52(3/8) x 2EA	Ø9.52(3/8) x 3EA	Ø9.52(3/8) x 4EA	Ø9.52(3/8) x 3EA, Ø12.7(1/2) x 1EA
	Outdoor side	Liquid(mm(inch))	Ø9.52(3/8)	Ø9.52(3/8)	Ø9.52(3/8)	Ø9.52(3/8)
		Gas(mm(inch))	Ø19.05(3/4)	Ø19.05(3/4)	Ø19.05(3/4)	Ø19.05(3/4)
Running current		A	0.34	0.36	0.4	0.4
Power supply			208/230V 60Hz 1ph			

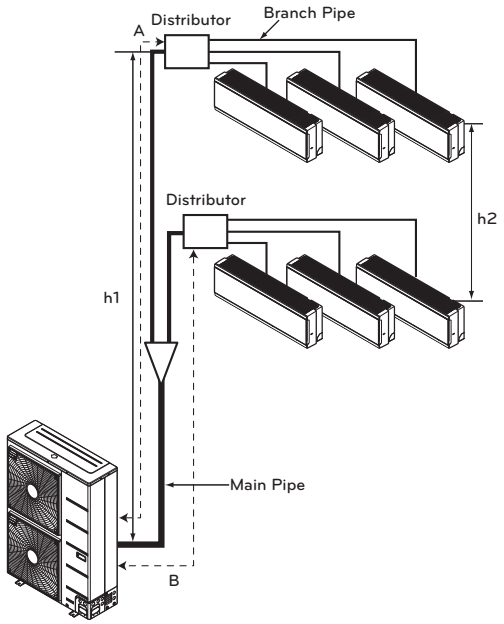
System Layout

For installation of the indoor units. Follow the instructions in the installation manual for each unit.

Distributor Unit

Rooms \ Refrigerant	R32
2	PMBD3620ZR
3	PMBD3630ZR
4	PMBD3640ZR, PMBD3641ZR

Do not connect more than 8 indoor units together choose the distributor unit type (2rooms, 3rooms or 4rooms) according to the installation pattern



⚠ CAUTION

Precautions For Selecting The Location

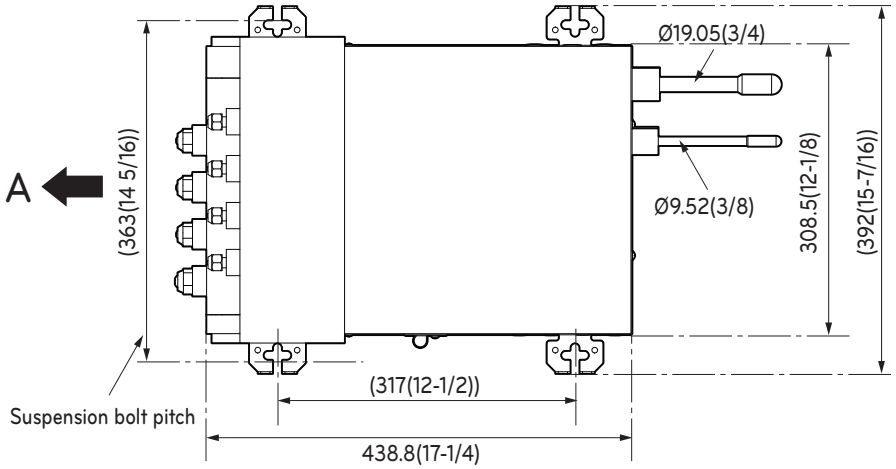
The BD unit is for indoor use. Install in a location such as above a ceiling or behind a wall in accordance with the following condition.

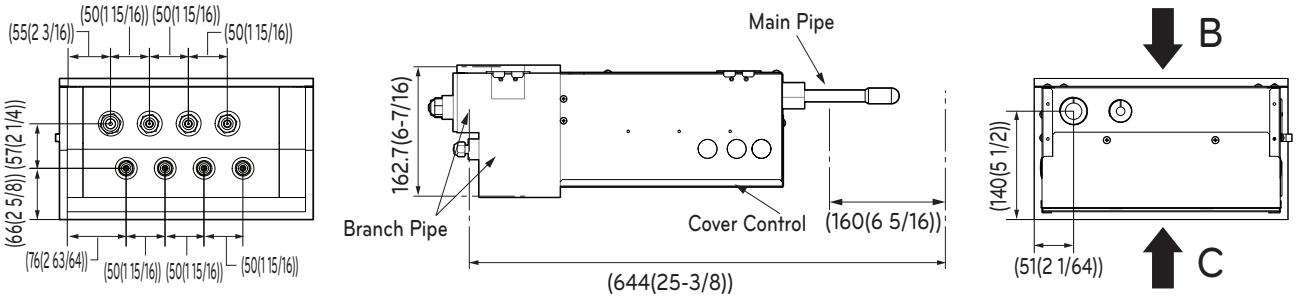
- That the unit is fully supported, and is in a location with little or no vibration.
- That the refrigerant pipes for the indoor and outdoor units can be repaired with ease, and that the units are placed well within the distance from each other allowed by the pipe length.
- That there is nothing nearby that produces heat or steam(gas).
- When installing, that there is enough carity for servicing the unit.
- Do not install in location that is hot or humid for long periods of time.
- A well-ventilated area.
- Do not install near bedrooms. The sound of refrigerant flowing through the piping may sometimes be audible. For restrictions on installation, refer to "INSTALLATION".

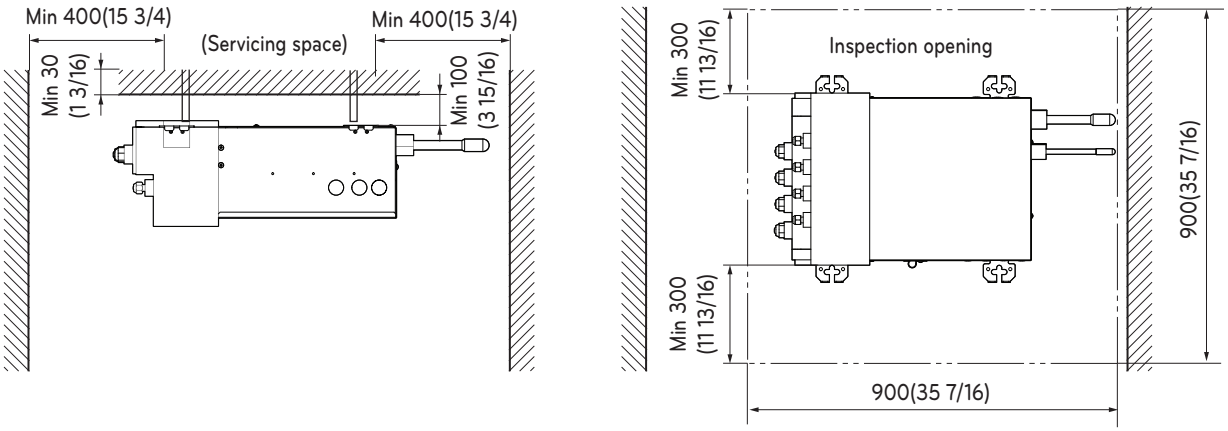
Installation

- This unit may be installed suspended from the ceiling or mounted on the wall.
- This unit may only be installed horizontally , as shown in the diagram below.(Side B is facing up)
  However, it may be freely installed in any direction forward or back, and to the sides.
- Be sure to leave a 600mm(2ft) square opening for service and inspection as shown in the diagram below, for both ceiling - suspended installation and wall-mounted installation.
- This unit "does not require drain treatment" as it uses internal foam treatment as low-pressure piping insulation.
- Service direction is the side B and C
- The piping for the indoor unit may be led around in direction A
- The inclination of side B must be within ±5 degrees forward or back or to the sides.

Unit : mm(inch)

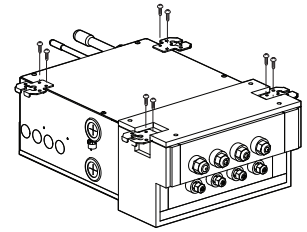


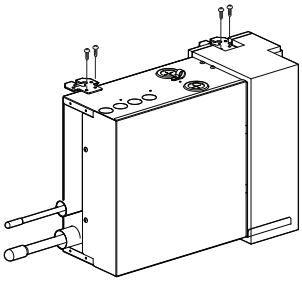




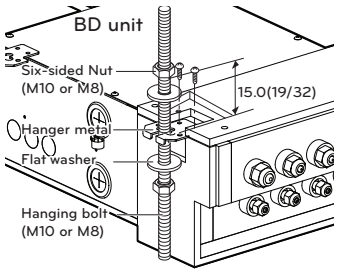
Ceiling-suspended type

- Fix the fumished hanger metal with two screws.(4 locations in total).
- Using an insert-hole-in- anchor, hang the hanging bolt.
- Install a hexagon nut and a flat washer (locally-procured)to the hanging bolt as shown in the figure in the left, and ift the main unit to hang on the hanger metal.





- After checking with a level that the unit is level, tighten the hexagon nut.

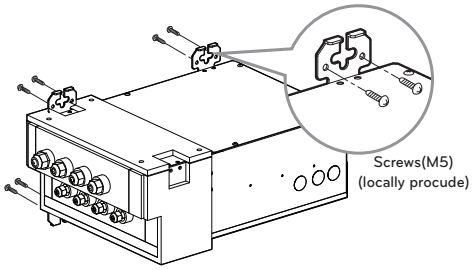


Unit : mm(inch)

* The tilt of the unit should be within ±5° in front/back and left/right.

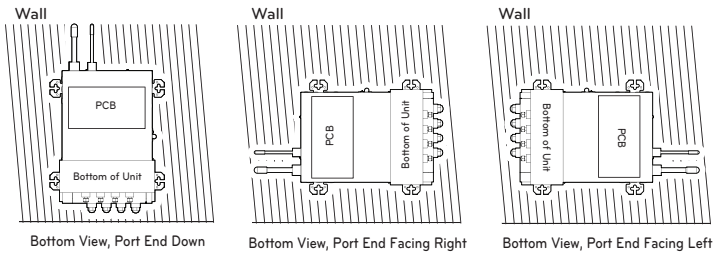
Wall-mounted type

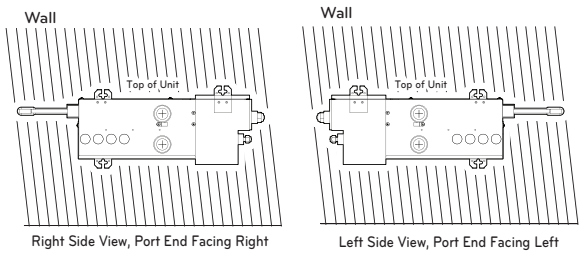
- Fix the fumished hanger metal with two screws. (3 locations in total).
- After checking with a level that the unit is level, fix the unit with the furnished wood screws.



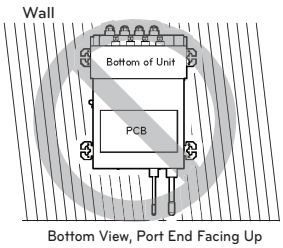
* The tilt of the unit should be within ±5° in front/back and left/right.
* Block up the parts of hanger holes (2 places) by using insulation PE after installing the hanger.

<Good Example>





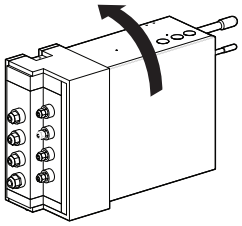
<Bad Example>



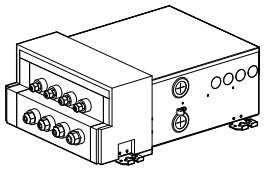
NOTE

- This unit has two different installation types:
  - Ceiling-suspended type and
  - Wall-mounted type.
- Choose the proper installation pattern according to the location of installation.
- The installation location for printed wiring board can be changed. Follow the procedure specified in the "CONNECTING THE WIRING" section to change the location.

Ceiling-suspended type



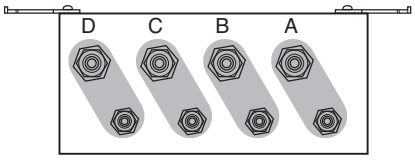
Wall-mounted type



CAUTION

- Once a screw-hole on the main unit has had a screw hammered in, make sure to either hammer it again or cover it with alumium tape. (This is to prevent condensation)
- Be sure to install the unit with the ceiling-sie up.
- Do not install near bedrooms. the sound of refrigerant flowing through the piping may sometimes be audible.

- When connecting indoor units, make sure to connect refrigerant pipes and connection wires to the appropriate connection ports maked with matching alphabets. (A, B, C, D)
- Be sure to mark all the local refrigerant piping(liquid pipes, gas pipes, etc.) for each indoor unit designating clearly which room it belongs in.(A, B, C, D)

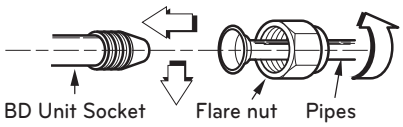


NOTE

- For flaring work the piping, follow the instructions in the installation manual to each unit.

Connecting the pipings to the indoor unit and drain hose to drain pipe

Align the center of the pipings and sufficiently tighten the flare nut by hand.

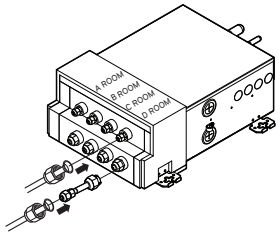


BD Unit (R32)	Refrigerant Connections Pipe Size [Unit : inch (mm)]		Connectable Indoor Unit Capacity (Btu/h class)
	Liquid	Gas	
PMBD3620ZR	1/4 (Ø6.35) x 2EA	3/8 (Ø9.52) x 2EA	7/9/12/15/18/24k
PMBD3630ZR	1/4 (Ø6.35) x 3EA	3/8 (Ø9.52) x 3EA	7/9/12/15/18/24k
PMBD3640ZR	1/4 (Ø6.35) x 4EA	3/8 (Ø9.52) x 4EA	7/9/12/15/18/24k
PMBD3641ZR	1/4 (Ø6.35) x 4EA	3/8 (Ø9.52) x 3EA	7/9/12/15/18/24k(A/B/C room)
		1/2 (Ø12.7) x 1EA	30/36k(D room)

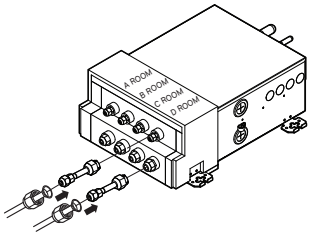
※ BD Unit(PMBD3641ZR) is included the socket.
(Ø12.7 → Ø15.88 x 1EA, Ø6.35 → Ø9.52 x 1EA)

Indoor Unit Capacity (Btu/h class)	Refrigerant Connections Pipe size (Unit : inch(mm))	
	Liquid	Gas
9 / 12k	1/4 (Ø6.35)	3/8 (Ø9.52)
18 / 24k	1/4 (Ø6.35)	1/2 (Ø12.7)
30 / 36k	3/8 (Ø9.52)	5/8 (Ø15.88)

Only indoor units 18/24 kBtu/h class



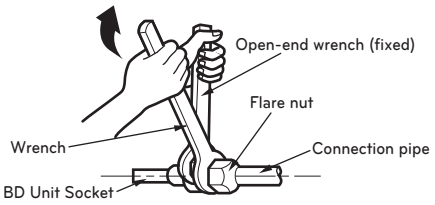
Only indoor units 30/36kBtu/h class- connect "D ROOM"



(BD Unit : PMBD3641)

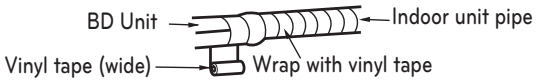
Tighten the flare nut with a wrench.

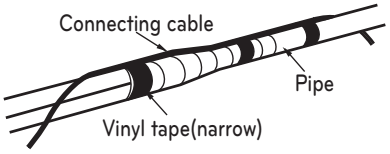
Outside diameter		Torque		
mm	inch	kgf·cm	N·m	lbf.ft
Ø6.35	Ø1/4	180~250	17.6~24.5	13~18
Ø9.52	Ø3/8	340~420	33.3~41.2	25~30
Ø12.7	Ø1/2	550~660	53.9~64.7	40~48
Ø15.88	Ø5/8	630~820	61.7~80.4	45~59
Ø19.05	Ø3/4	990~1210	97.0~118.7	71~87



Wrap the insulation material around the connecting portion

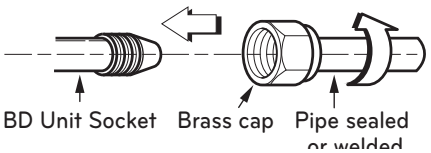
- Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there is no gap.
- Wrap the area which accommodates the rear piping housing section with vinyl tape.





Close up a socket for unoccupied room with a brass cap

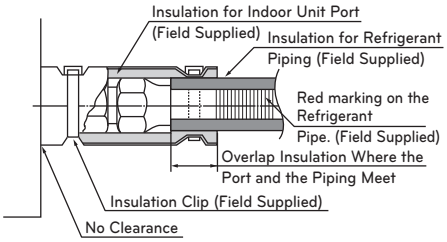
- Align the center of the piping and sufficiently tighten the brass cap by hand.
- Tighten the brass cap with a wrench.
- Wrap the joint part with insulation.



CAUTION

- Never use the plastic cap for sealing.
- Make sure to use brass cap with the end of pipe sealed or welded tightly.

Typical Refrigerant Line Flare Fitting Insulation Detail



Checking the safe handling

Mark refrigerant pipes with red Pantone® Matching System (PMS) #185 or RAL 3020 after flare fittings or brazing. This marking must extend a minimum of 1 inch (25mm) in both directions and shall be replaced if removed. Return all labels, especially red marking, to their original condition to ensure the next consumer or servicer is aware of the presence of a flammable refrigerant.

Ensure that the red marking for flammable refrigerant identification in the process tube area is visible following servicing.

Nitrogen substitution method

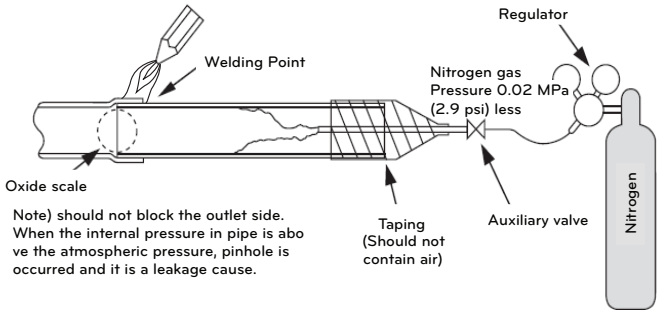
Welding, as when heating without nitrogen substitution a large amount of the oxide film is formed on the internal piping.

The oxide film is a caused by clogging EEV, Capillary, oil hole of accumulator and suction hole of oil pump in compressor.

It prevents normal operation of the compressor.

In order to avoid this problem, Welding should be done after replacing air by nitrogen gas.

When welding plumbing pipe, the work is required.

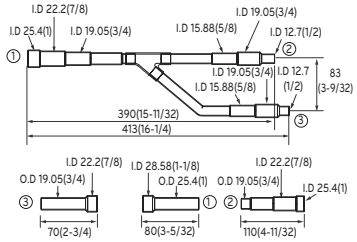
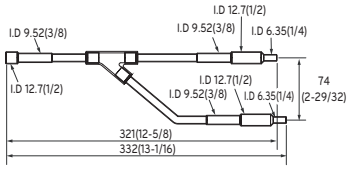


⚠ CAUTION

- Always use the nitrogen.(not use oxygen, carbon dioxide, and a Chevron gas): Please use the following nitrogen pressure 0.02 MPa (2.9 psi) Oxygen - Promotes oxidative degradation of refrigerant oil. Because it is flammable, it is strictly prohibited to use Carbon dioxide - Degrade the drying characteristics of gas Chevron Gas - Toxic gas occurs when exposed to direct flame.
- Always use a pressure reducing valve.
- Please do not use commercially available antioxidant. The residual material seems to be the oxide scale is observed. In fact, due to the organic acids generated by oxidation of the alcohol contained in the anti-oxidants, ants nest corrosion occurs. (causes of organic acid ⟶ alcohol + copper + water + temperature)

Y branch pipe

[Unit : mm]

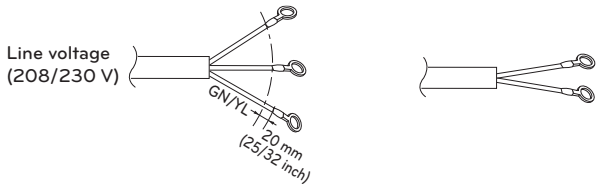
Models	Gas pipe
ARBLN03321	
	Liquid pipe
	

RECOMMENDATION

The power and communication connecting cable between the outdoor and indoor units must comply with the following specifications:
NRTL Recognized (for example, UL or ETL recognized and CSA certified).

AWG 18 is the minimum recommended wire size, however, the selected conductors must comply with local codes and be suitable for installation in wet locations.

[Connecting cable]



Power supply cable

Communication cable

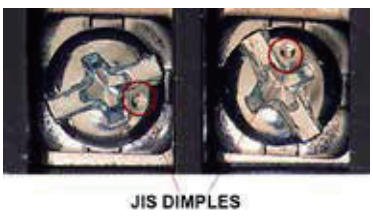
NOTE

- Ensure the power wiring / communication cable shield (if shielded) from the outdoor unit to the indoor units / branch distribution units is properly grounded to the outdoor unit chassis only. ⃠ Do not ground at any other point. Wiring must comply with all applicable local and national codes.
- Use a conduit for the communications / connection (power) cable from the outdoor unit to the indoor units and branch distribution unit(s). Electrical interference my cause product malfunction.
- The communications / connection (power) cable from the outdoor unit to the indoor units / branch distribution unit(s) must be separated and isolated from power wiring to the outdoor unit, computers, radio and television broadcasting facilities, as well as medical imaging equipment. Electrical interference my cause product malfunction.
- Pipes and wires should be purchased separately for installation of the product.
- All communication and power wiring must be connected to the terminals using connectors certified or recognized according to UL and CSA standard.
- Details of fuses or circuit breakers are indicated in installation manual of outdoor unit.

Wiring Connections

LG uses a "JIS" type of screw for all terminals; use a JIS screwdriver to tighten and loosen these screws and avoid damaging the terminal. Use a solderless ring or fork connection when possible. ⃠ Do not over tighten the connections — over tightening may damage the terminals — but firmly and securely attach the wiring in a way to prevent external forces from being imparted on the terminal block.

JIS Screws



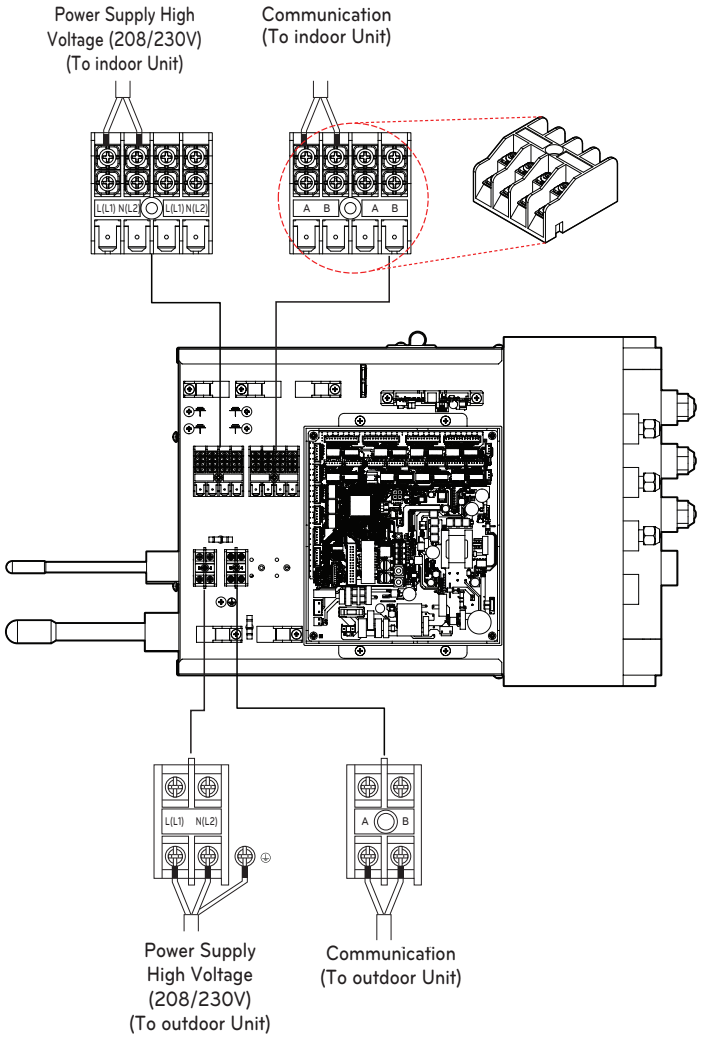
NOTE

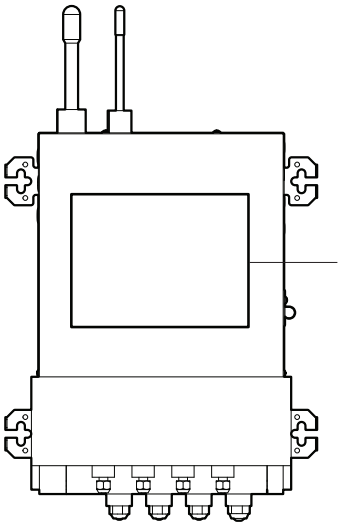
- The terminals labeled "GND" are NOT ground terminals. The terminals labeled ⏚ ARE ground terminals.
- Polarity matters. Always connect "A" to "A" and "B" to "B."
- Always create a wiring diagram that contains the exact sequence in which all the indoor units and branch distribution units (Multi F MAX systems onlyare wired in relation to the outdoor unit.
- ⃠ Do not include splices or wire nuts in the communication cable.

Wiring Connection

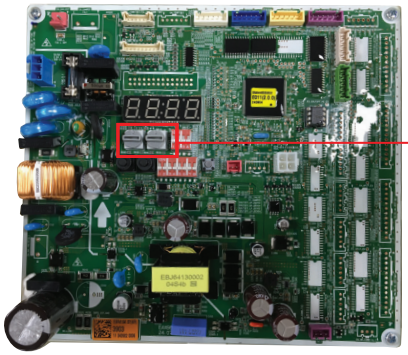
Connect the wires to the terminals on the control board individually according to the outdoor unit connection.

- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of BD Unit respectively.





Main PCB (Master)



* Number from left in sequence for less-than-4 branch model.

Setup the switch of BD Unit

SW			Function
Rotary SW		SW01C (Right)	- Manual addressing of zoning indoor units - Setting to address BD units

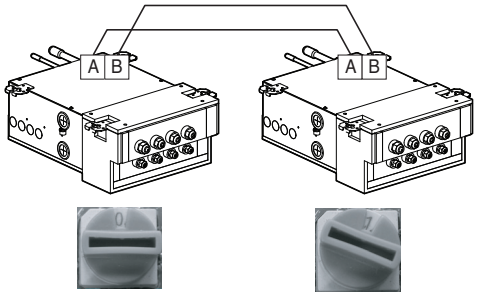
SW01C (Rotary S/W for addressing BD unit)

Must be set to '0' when installing only one BD unit.

When installing multiple BD units, address the BD units with sequentially increasing numbers starting from '0'.
Maximum 2 BD Units can be installed.

Ex) Installation of 2 BD units

* Master Only



To access the complete Installation Manual, see :
www.lghvac.com

US	Please call the installing contractor of your product, as warranty service will be provided by them.
CANADA	Service call Number # : (888) LG Canada, (888) 542-2623 Numéro pour les appels de service : LG Canada, 1-888-542-2623