LG
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ENGLISH
FRANÇAIS
ESPAÑOL

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.

Vertical Air Handling Unit

MFL65003108
Rev.00_010320

www.lghvac.com
www.lg.com

IMPORTANT!

Please read this instruction sheet completely before installing the product.

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

⚠ WARNING

- Installation or repairs made by unqualified persons can result in hazards to you and others. Installation of all field wiring and components MUST conform with local building codes or, in the absence of local codes, with the National Electrical Code 70 and the National Building Construction and Safety Code or Canadian Electrical code and National Building Code of Canada.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

CAUTION: Improper installation, adjustment, alteration, service or maintenance can void the warranty. The weight of the condensing unit requires caution and proper handling procedures when lifting or moving to avoid personal injury. Use care to avoid contact with sharp or pointed edges.

Safety Precautions

- Always wear safety eye wear and work gloves when installing equipment.
- Never assume electrical power is disconnected. Check with meter and equipment.
- Keep hands out of fan areas when power is connected to equipment.
- R-410A causes frostbite burns.
- R-410A is toxic when burned.

NOTE TO INSTALLING DEALER: The Owners Instructions and Warranty are to be given to the owner or prominently displayed near the indoor Furnace/Air Handler Unit.

⚠ Special warnings

When wiring:

Electrical shock can cause severe personal injury or death. Only a qualified, experienced electrician should attempt to wire this system.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause accidental injury or death.
- Ground the unit following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.
- The choice of materials and installations must comply with the applicable local/national or international standards.

When transporting:

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your finger.

When installing...

... in a wall: Make sure the wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.

... in a room: Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to wall and floors.

... in moist or uneven locatinons: Use a raised concrete pad or concrete blocks provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

... in an area with high winds: Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

... in a snowy area(for Heat Pump Model): Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

When connecting refrigerant tubing

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Check carefully for leaks before starting the test run.

When servicing

- Turn the power OFF at the main power box(mains) before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.

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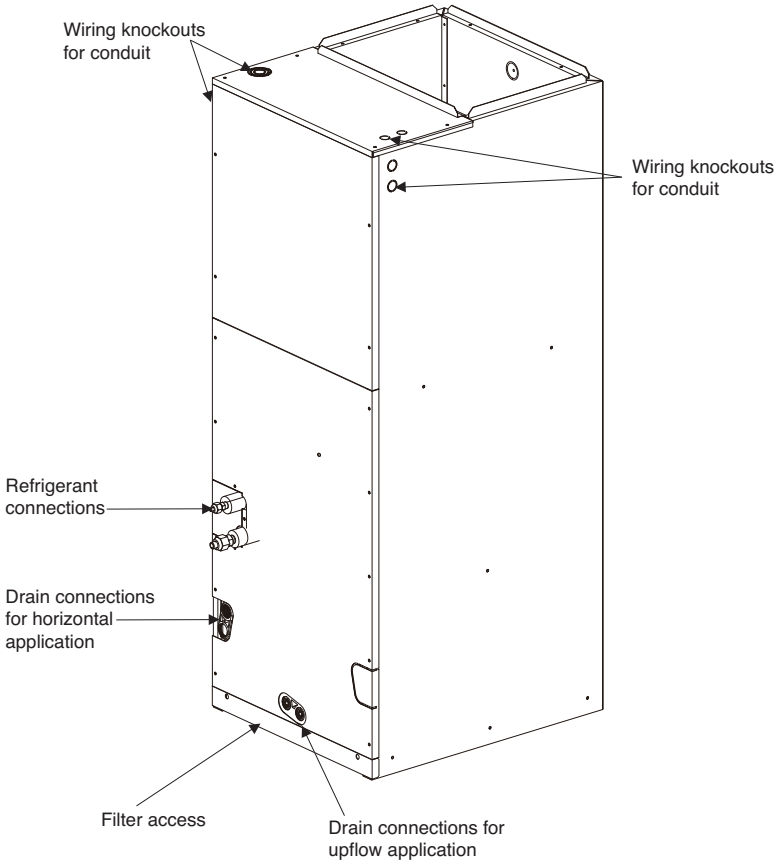
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Wiring knockouts
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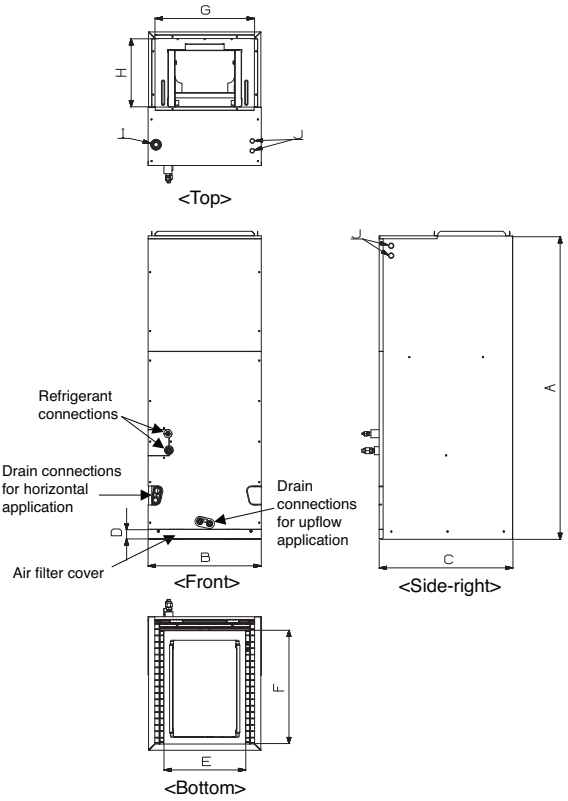


(Unit: inch(mm))

Capacity (kBtu/h (RT))	Dimensions								Wiring Knock out		Refrigerant Connections Pipe size	
	A	B	C	D	E	F	G	H	I	J		
	Height	Width	Depth						Power	Communication	Liquid	Gas
12(1.0) 18(1.5)	48-5/8 (1236)	18 (457)	21-3/8 (540)	1-9/16 (40)	17-1/2 (445)	20 (530)	17 (432)	12-1/8 (308)	1-11/16 (43)	7/8 (22)	1/4 (6.35)	1/2 (12.7)
24(2.0) 30(2.5) 36(3.0)	48-5/8 (1236)	18 (457)	21-3/8 (540)	1-9/16 (40)	17-1/2 (445)	20 (530)	17 (432)	12-1/8 (308)	1-11/16 (43)	7/8 (22)	3/8 (9.52)	5/8 (15.88)
42(3.5) 48(4.0) 54(4.5)	55-1/8 (1401)	25 (635)	21-3/8 (540)	1-9/16 (40)	24-1/2 (623)	20 (530)	24 (610)	12-1/8 (308)	1-11/16 (43)	7/8 (22)	3/8 (9.52)	5/8 (15.88)

Safety Precautions

To prevent injury to the user or other people and property damage, the following instructions must be followed.

■ Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠**WARNING**	This symbol indicates the possibility of death or serious injury.
⚠**CAUTION**	This symbol indicates the possibility of injury or damage to properties only.

■ Meanings of symbols used in this manual are as shown below.

	**Be sure not to do.**
	**Be sure to follow the instruction.**

⚠WARNING

Installation

- Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.
  - There is risk of fire or electric shock.
- 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.
- Always ground the product.
  - There is risk of fire or electric shock.
- Install the panel and the cover of control box securely.
  - There is risk of fire or electric shock.
- Always install a dedicated circuit and breaker.
  - Improper wiring or installation may cause fire or electric shock.
- Use the correctly rated breaker or fuse.
  - There is risk of fire or electric shock.
- Do not modify or extend the power cable.
  - 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.
- 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.
- For installation, always contact the dealer or an Authorized Service Center.
  - There is risk of fire, electric shock, explosion, or injury.
- Do not install the product on a defective installation stand.
  - It may cause injury, accident, or damage to the product.
- Be sure the installation area does not deteriorate with age.
  - If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.
- Do not turn on the breaker or power under condition that front panel, cabinet, top cover, control box cover are removed or opened.
  - Otherwise, it may cause fire, electric shock, explosion or death.

• Use a vacuum pump or Inert (nitrogen) gas when doing leakage test or air purge. Do not compress air or Oxygen and Do not use Flammable gases. Otherwise, it may cause fire or explosion.
 - There is the risk of death, injury, fire or explosion.

Operation

• 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.

• 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 anything on the power cable.
 - There is risk of fire or electric shock.

• Do not plug or unplug the power supply plug during operation.
 - There is risk of fire or electric shock.

• Do not touch(operate) the product with wet hands.
 - There is risk of fire or electrical shock.

• Do not place a heater or other appliances near the power cable.
 - There is risk of fire and electric shock.

• Do not allow water to run into electric parts.
 - It may cause There is risk of fire, failure of the product, or electric shock.

• Do not store or use flammable gas or combustibles near the product.
 - There is risk of fire or failure of product.

• Do not use the product in a tightly closed space for a long time.
 - Oxygen deficiency could occur.

• When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.
 - Do not use the telephone or turn switches on or off. There is risk of explosion or fire.

• If strange sounds, or smell or smoke comes from product. Turn the breaker off or disconnect the power supply cable.
 - There is risk of electric shock or fire.

• Stop operation and close the window in storm or hurricane. If possible, remove the product from the window before the hurricane arrives.
 - There is risk of property damage, failure of product, or electric shock.

• Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)
 - There is risk of physical injury, electric shock, or product failure.

• When the product is soaked (flooded or submerged), contact an Authorized Service Center.
 - There is risk of fire or electric shock.

• Be cautious that water could not enter the product.
 - There is risk of fire, electric shock, or product damage.

• Ventilate the product from time to time when operating it together with a stove, etc.
 - There is risk of fire or electric shock.

• Turn the main power off when cleaning or maintaining the product.
 - There is risk of electric shock.

• When the product is not be used for a long time, disconnect the power supply plug or turn off the breaker.
 - There is risk of product damage or failure, or unintended operation.

• Take care to ensure that nobody could step on or fall onto the outdoor unit.
 - This could result in personal injury and product damage.

⚠CAUTION

Installation

- Always check for gas (refrigerant) leakage after installation or repair of product.
  - Low refrigerant levels may cause failure of product.
- Install the drain hose to ensure that water is drained away properly.
  - A bad connection may cause water leakage.
- Keep level even when installing the product.
  - To avoid vibration or water leakage.
- Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.
  - It may cause a problem for your neighbors.
- Use two or more people to lift and transport the product.
  - Avoid personal injury.
- Do not install the product where it will be exposed to sea wind (salt spray) directly.
  - It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

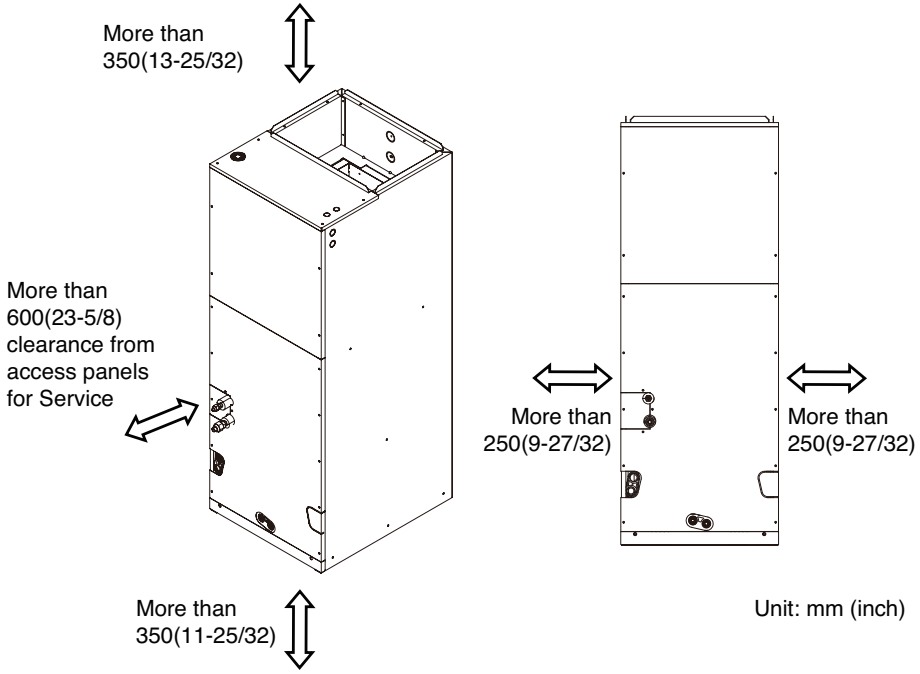
Operation

- Do not expose the skin directly to cool air for long periods of time. (Don't sit in the draft.)
  - This could harm to your health.
- Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigeration system.
  - There is risk of damage or loss of property.
- Do not block the inlet or outlet of air flow.
  - It may cause product failure.
- Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.
  - There is risk of fire, electric shock, or damage to the plastic parts of the product.
- Do not touch the metal parts of the product when removing the air filter. They are very sharp!
  - There is risk of personal injury.
- Do not step on or put anything on the product. (outdoor units)
  - There is risk of personal injury and failure of product.
- Always insert the filter securely. Clean the filter every two weeks or more often if necessary.
  - A dirty filter reduces the efficiency of the air conditioner and could cause product malfunction or damage.
- Do not insert hands or other objects through the air inlet or outlet while the product is operated.
  - There are sharp and moving parts that could cause personal injury.
- Do not drink the water drained from the product.
  - It is not sanitary and could cause serious health issues.
- Use a firm stool or ladder when cleaning or maintaining the product.
  - Be careful and avoid personal injury.
- Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries.
  - There is risk of fire or explosion.
- Do not recharge or disassemble the batteries. Do not dispose of batteries in a fire.
  - They may burn or explode.
- If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote if the batteries have leaked.
  - The chemicals in batteries could cause burns or other health hazards.
- If you eat the liquid from the batteries, brush your teeth and see doctor. Do not use the remote if the batteries have leaked.
  - The chemicals in batteries could cause burns or other health hazards.

Installation

Selection of the best location

- Where optimum air distribution can be ensured.
- Where nothing blocks air passage and install the duct work.
- Where condensate can be properly drained.
- Where the ceiling is strong enough to bear the indoor unit weight.
- Where the false ceiling is not noticeably on an incline.
- Where sufficient clearance for maintenance and service can be ensured.
- Where piping between indoor and outdoor units is possible within the allowable limit. Refer to the installation manual for the outdoor unit.
- Vertical Air Handling Unit can be installed for upflow and horizontal-left positions.



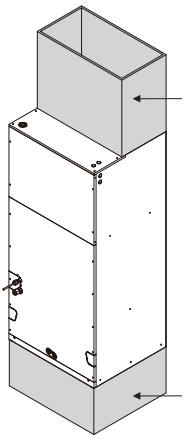
NOTE : The primary and secondary drain line must be trapped to allow proper drainage of condensate water, If the secondary drain line is not used, it must be capped.

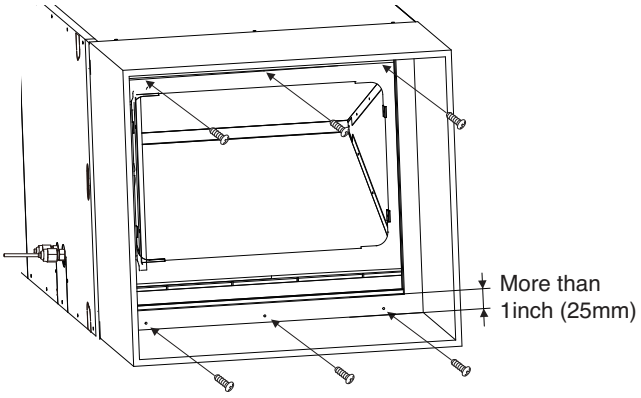
⚠CAUTION

In the case of sea coast installation, salt residue may cause corrosion of cabinet and component parts. Please take appropriate anti-corrosion measures.

Upflow Installation

- Position unit for plenum installation.
- The plenum should be secured in order to support the installation of adapter callers accommodate the installation of any duct work.
- Seal all duct work according to local codes to prevent air leakage. Ensure that filter access is unobstructed.
- The air handler support platform should be sturdy enough to support the cabinet plus any accessory components including filter box.
- The minimum height clearance is 14inches(350mm) to maintain proper air flow.
- Vibration isolators (purchased locally) must be placed between the unit and the pedestal.
- An illustration showing an example of where a vibration isolator should be added would clarify what the installing contractor should do to properly position the isolator.





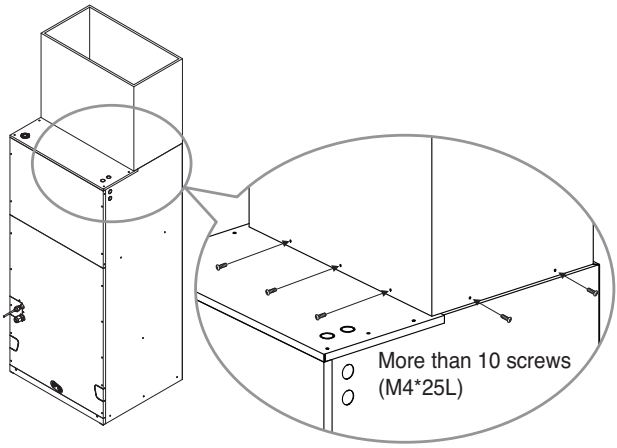
More than 6 screws (M4*25L)

⚠CAUTION

Do not connect the screws on Front and Rear side, it may cause the filter can not be mounted.

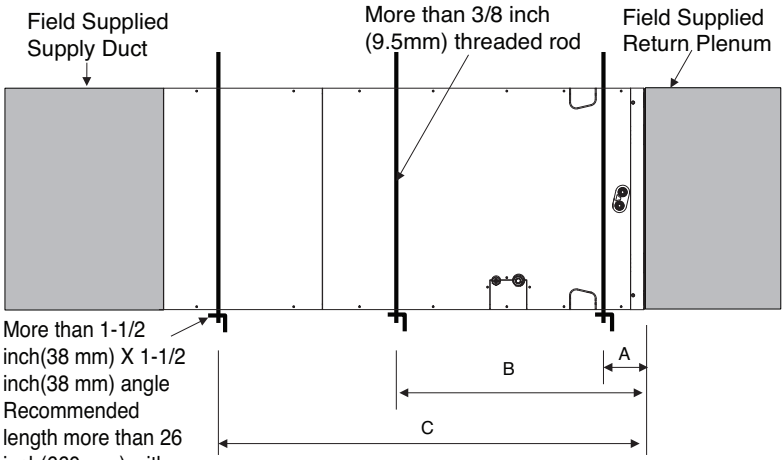
Duct work

- Over 10 screws should be used for joining supply duct with the unit.
- To prevent vibration transmission, exploit flexible connectors between duct and the unit. It is mandatory that the flexible connector between unit and duct at discharge connection should be made off heat resistive material when electric heater is installed.
- Duct work must be insulated and covered with vapor barrier when routed through unconditioned space.
- Internal acoustical insulation lining may necessary for the metal duct system if it do not have 90° elbow and 10ft. of main duct to first branch takeoff.
- It is advised that a fibrous duct work could be used as a substitute if built and installed in accordance with the most recent edition of SMACNA construction standard on fibrous glass ducts.
- Collectively fibrous duct work and acoustical lining shall obey National Fire Protection Association standards 90A or B as tested by UL standard 181 for class 1 air ducts.
- Seal around the delivery duct subsequent to when the duct is secured so that to facilitate prevention of air leakage.



Horizontal-left Installation

- It is particular that the units should not be installed in such a manner that the access panels facing up or down
- It should be confirmed that the installation is in accordance with all relevant building codes that may necessitate installation of external condensate pan.
  -Set up a support for unit by locating it in or above external condensate pan.
- Angle steel support brackets with threaded rods which supporting the units from the underside should be used as shown in the figure below if the units are suspended.
- If not suspended then also it should be supported as same as mentioned above and also carefully isolated to avoid sound transmission. The size of the support should comparatively bigger than the unit and the unit must be place at centre of the support.
- Locally available vibration isolators must be placed between the unit and the support.
- The same installation method of up flow type has to be used in the case of Return Plenum and supply duct.



Suspension support locations

(Unit : inch(mm))

Caapcity (kBtu(RT))	Dimension		
	A	B	C
12(1.0) 18(1.5) 24(2.0) 30(2.5) 36(3.0)	4(100)	23(580)	41-1/2 (1050)
42(3.5) 48(4.0) 54(4.5)	4(100)	29(730)	48(1220)

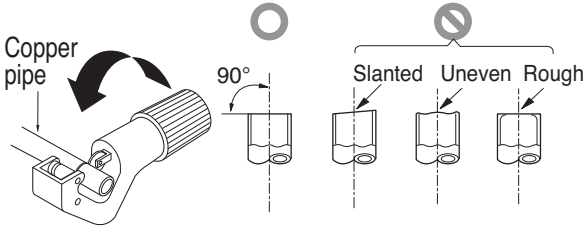
⚠CAUTION

To ensure proper drainage for horizontal installations, unit must be installed so it is within 1/8” level of the length and width of unit.

Preparation of Piping

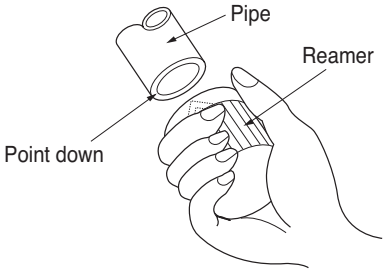
Cut the pipes

1. Use the pipes purchased locally.
2. Measure the distance between the indoor and the outdoor unit.
3. Cut the pipes a little longer than measured distance.

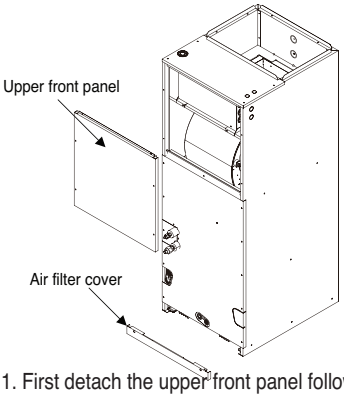


Burrs removal

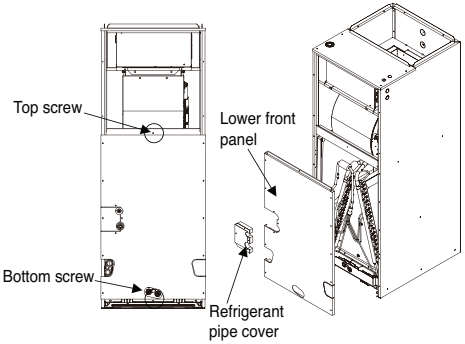
1. Completely remove all burrs from the cut cross section of pipe/tube.
2. While removing burrs put the end of the copper tube/pipe in a downward direction while removing burrs location is also changed in order to avoid dropping burrs into the tubing.



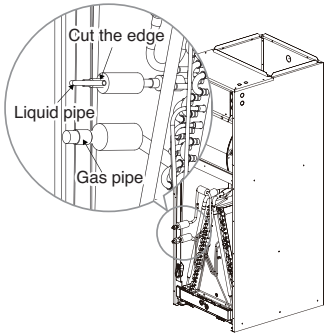
Connecting Pipes to the Indoor Unit

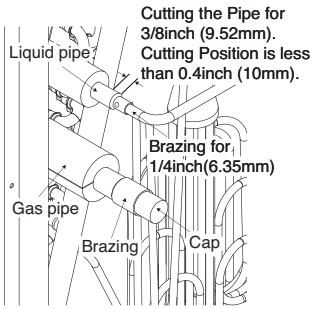


1. First detach the upper front panel followed by air filter cover from the body.



2. Detach the lower front panel and refrigerant pipe cover from the body.
   Note: While detaching the lower front panel, remember to remove the top and bottom screws.



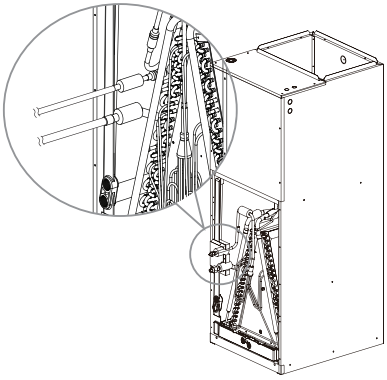


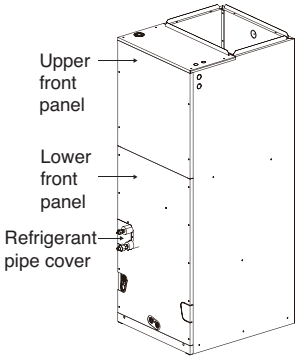
3. Cut the refrigerant pipe (Liquid Pipe edge) and make sure the factory charged refrigerant is emerging out. (This confirms there is no leakage.)

4. Detach Liquid and Gas Pipe
   - Gas Pipe: Remove the Cap by Brazing
   - Liquid Pipe: There are 2 kinds of Liquid Pipe.

Liquid Pipe	Detach Pipe
1/4 (6.35)	Brazing
3/8 (9.52)	Cutting

   - If you do not use proper cutter size when cutting liquid pipe, it would make damage to the gas pipe.





5. Connect the field piping by brazing.
   - Wrap the gas and liquid pipe with wet towel. (If not wrapped with a wet towel, there may be damages drain pan or pipe insulations.)

6. Attach the two panels to the body.

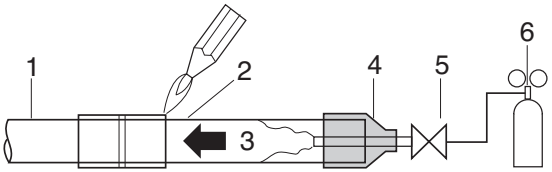
⚠CAUTION

Completely remove the refrigerant and then do brazing. Otherwise, high pressure is a risk of injury due to explosions

Note: Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there may be no gap.

⚠CAUTION

Always blow nitrogen into pipe which is brazed. Always use a non-oxidizing brazing material for brazing the parts and do not use flux. If not, oxidized film can cause clogging or damage to the compressor unit and flux can harm the copper piping or refrigerant oil.

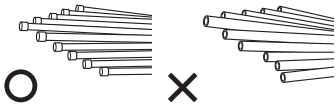


1	Refrigerant piping	4	Taping
2	Pipe to be brazed	5	Valve
3	Nitrogen	6	Pressure-reducing valve

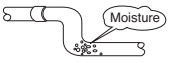
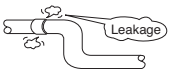
Note : The torch tip should be positioned at the opposite angle to shop the correct way to apply heat on the pipe coupling.

Plumbing materials and storage methods

Pipe must be able to obtain the specified thickness and should be used with low impurities.
Also when handling storage, pipe must be careful to prevent a fracture, deformity and wound.
Should not be mixed with contaminations such as dust, moisture.



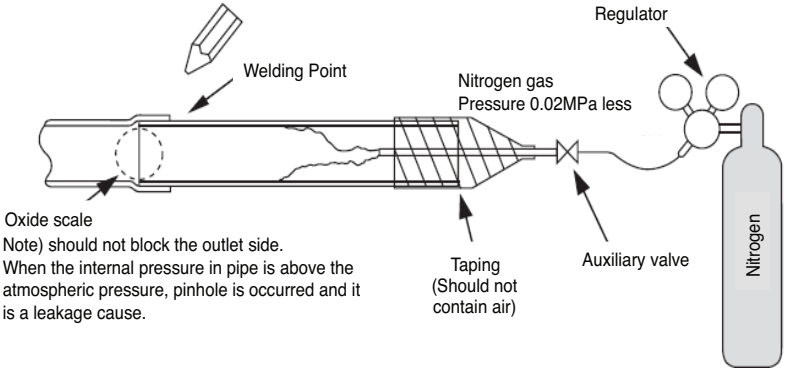
Refrigerant piping on three principles

	Drying	Cleanliness	Airtight
	Should be no moisture inside	No dust inside.	There is no refrigerant leakage
Items			
Cause failure	- Significant hydrolysis of refrigerant oil - Degradation of refrigerant oil - Poor insulation of the compressor - Do not cold and warm - Clogging of EEV, Capillary	- Degradation of refrigerant oil - Poor insulation of the compressor - Do not cold and warm - Clogging of EEV, Capillary	- Gas shortages - Degradation of refrigerant oil - Poor insulation of the compressor - Do not cold and warm
Countermeasure	- No moisture in the pipe - Until the connection is completed, the plumbing pipe entrance should be strictly controlled. - Stop plumbing at rainy day. - Pipe entrance should be taken side or bottom. - When removal burr after cutting pipe, pipe entrance should be taken down. - Pipe entrance should be fitted cap when pass through the walls.	- No dust in the pipe. - Until the connection is completed, the plumbing pipe entrance should be strictly controlled. - Pipe entrance should be taken side or bottom. - When removal burr after cutting pipe, pipe entrance should be taken down. - Pipe entrance should be fitted cap when pass through the walls.	- Airtightness test should be. - Brazing operations to comply with standards. - Flare to comply with standards. - Flange connections to comply with standards.

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.

◆How to work



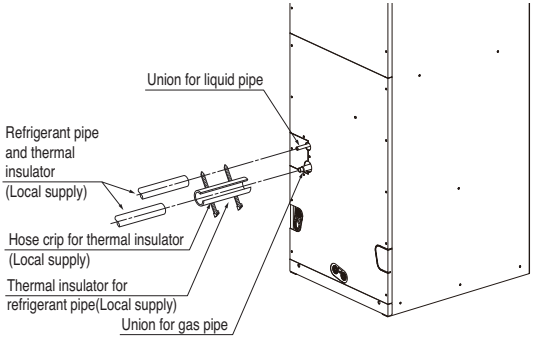
⚠CAUTION

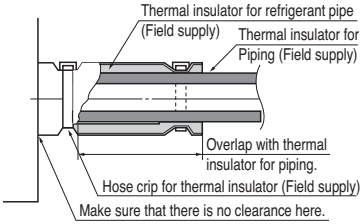
1. Always use the nitrogen.(not use oxygen, carbon dioxide, and a Chevron gas):
   Please use the following nitrogen pressure 0.02MPa
   Oxygen --------- Promotes oxidative degradation of refrigerant oil.
   Because it is flammable, it is strictly prohibited to use
   Carbon dioxide --- Degrade the drying characteristics of gas
   Chevron Gas ---- Toxic gas occurs when exposed to direct flame.
2. Always use a pressure reducing valve.
3. 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)

Insulation

Insulate the joint and tubes completely.

Thermal insullaton : All thermal insulation must comply with local requirement.





Recommend

Classification		Air conditioned location		Non-air conditioned location	
		Note1) General location	Note2) Special location	Note3) General location	Note4) Negative condition
Liquid Pipe	Ø1/4(6.35)	Above t 3/8 (9.52)	Above t 3/8 (9.52)	Above t 3/8 (9.52)	Above t 3/8 (9.52)
	Ø3/8(9.52)				
	Above Ø1/2 (12.7)	Above t 1/2 (12.7)	Above t 1/2 (12.7)	Above t 1/2 (12.7)	Above t 1/2 (12.7)
Gas Pipe	Ø3/8(9.52)	Above t 1/2 (12.7)	Above t 3/4 (19.05)	Above t 3/4 (19.05)	Above t 1 (25)
	Ø1/2 (12.7)				
	Ø5/8(15.88)				
	Ø3/4(19.05)				
	Ø7/8(22.22)				
	Ø1(25.4)				
	Ø1-1/8(28.58)	Above t 3/4 (19.05)			
	Ø1-1/4(31.75)		Above t 1 (25)	Above t 1 (25)	
	Ø1-3/8(34.9)				
	Ø1-1/2(38.1)				
	Ø44.45(1-3/4)				

* Note 1) General location: When the pipe passes through indoors in which the indoor unit is operated
  - Apartment, classroom, office, mall, hospital, office-tel etc.

Note 2) Special location

1. When the location is air conditioned but has severe temperature/humidity difference due to high ceiling
   - Church, auditorium, theater, lobby etc.
2. When the location is air conditioned but the internal temperature/humidity of the ceiling finishing is high
   - Bathroom/swimming pool locker room etc. (Building with roof ceiling of sandwich assembly type)

Note 3) General location: When the pipe passes indoors where the indoor unit is not operated
- Hall way etc. (Dormitory, school, office-tel)

Note 4) Negative condition: When below conditions 1 and 2 are met.

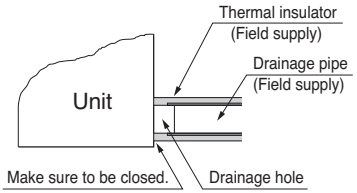
1. When the pipe passes indoors where the indoor unit is not operated
2. When the humidity is high, regionally, and there is no air flow in the pipe passing area
   - When installing the outside unit within the outside pipe tray or at a location where it is ok to have freezes, apply 13t.
   - If you are not sure with the selection of heat insulation material, coordinate with the supervision or HQ.
   - The thickness of the above heat insulation material is based on the heat conductivity of 0.088W/m°C.

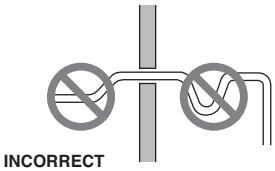
Condensate Drain

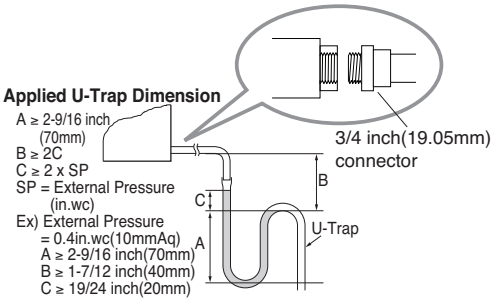
- The drainage performance has to be optimized by installing both primary and secondary drain lines along with properly sized condensate traps in order to prevent property damage.
- Care should be taken to avoid the blocking of filter access panel while connecting condensate drain lines. The primary and secondary condensate traps has to be primed after connecting to the drain pan.
- A field supplied external condensate pan has to be installed underneath the entire unit if the unit is above the living space . Other wise damage may result due to condensate over flow. Also a additional external condensate line should run from unit in to the pan.
- The entire condensate should be drained from the external condensate pan to some noticeable area. It is advised to install traps in condensate lines as near to the coil as possible. The outlet of each trap should be below its connection to the condensate pan avert condensate from overflowing drain pan.
- If located above the living area then all traps should be prime and insulated and also tested for leakage.
- PVC 3/4 inch(19.05mm) male pipe thread fitting is advised to use at condensate pan with gentle tight.
- For easy drain flow the drain hose has to be pointed downward.
- Care should be taken to not use pipe joint connection or PVC/CPVC for units drain line connection. Use only Teflon tape.
- For preventing winter freeze up on condensate line special means should be provided for drainage.

GRADIENT OF UNIT AND DRAIN PIPING

- Alway lay the drain with downward inclination(1/50 to 1/100).
  Prevent any upward flow or reverse flow in any part.
- 5/24 inch(5mm) or thicker formed thermal insulator shall always be provided for the drain pipe.



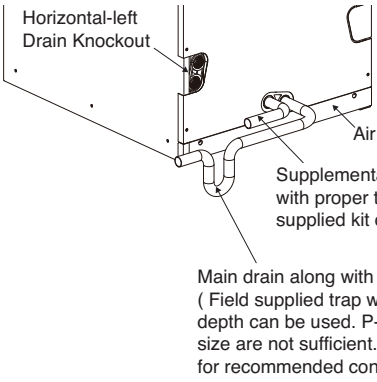




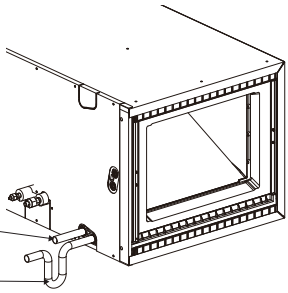
CORRECT

- Install the U-Trap to prevent a water leakage caused by the blocking of intake air filter.

Upflow Drain



Horizontal-left Drain



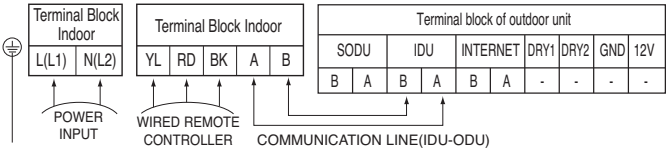
⚠CAUTION

The supplied flexible drain hose should not be strained.
A strained hose may cause leakage of water.

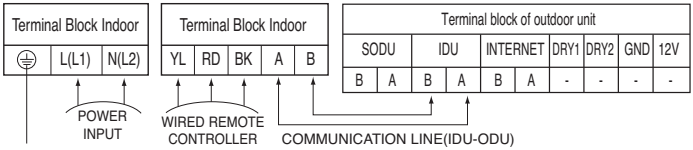
Wiring Connection

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 indoor unit respectively.

NJ Chassis



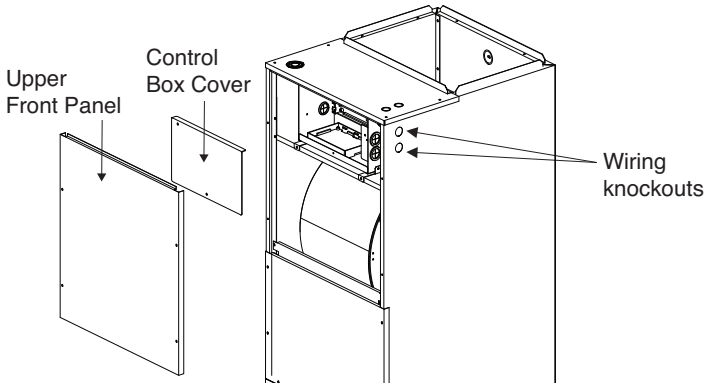
NK Chassis



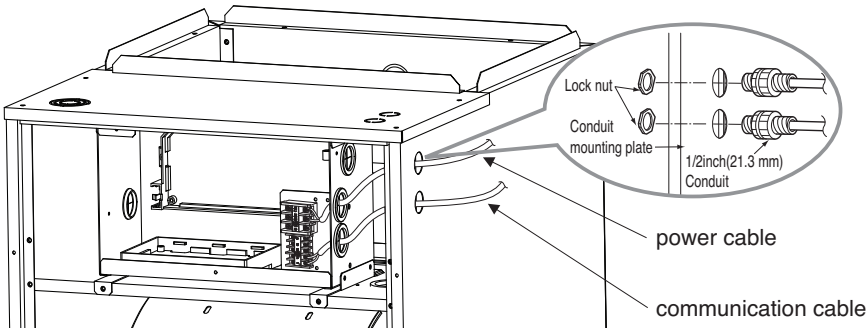
Unit : inch(mm)

	Min wire size (AWG)	Size of conduit (inch(mm))	Knockout diameter (inch(mm))
Power cable	22	1/2 (21.3)	7/8 (22.2)
Communication cable	22	1/2 (21.3)	7/8 (22.2)

* Copper wire should be used.



1. Detach the upper panel & control box cover.
   And remove two wiring Knockouts.



2. Install conduit to the wiring knockouts.
   Connect power/communication cable to terminal block through the wiring knockouts.

NOTE :
1. Separately wire power supply cord and connecting cable.
2. Use heat-proof electrical wiring capable of withstanding temperature up to 75°C(167°F).
3. Use outdoor and waterproof connection cable NRTL(UL, ETL, CSA...) listed and rated more than 300V for the connection between indoor and outdoor unit. and this cable should be enclosed in conduit.

⚠CAUTION

After the confirmation of the above conditions, prepare the wiring as follows:

1) Never fail to have individual power specialized for the air conditioner. As for the method of wiring, follow by the circuit diagram posted on the inside of control box cover.
2) Provide a circuit breaker switch between power source and the unit.
3) The screws which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)
4) Specification of power source
5) Confirm that electrical capacity is sufficient.
6) Be sure that the starting voltage is within 10% plus or minus of nameplate voltage rating.
7) Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)
8) Never fail to equip GFCI breaker when installing the air handler near wet or moist locations.
9) The following troubles would be caused by voltage drop-down.
- Vibration of a magnetic switch, damage on the contact point, fuse breaking, disturbance by the normal function of an overload protection device.
- Proper starting power is not given to the compressor.

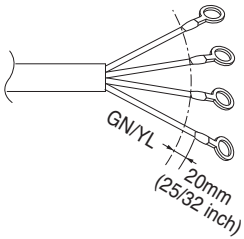
HAND OVER

Teach the customer the operation and maintenance procedures, using the operation manual.
(air filter cleaning, temperature control, etc.)

NOTE : Openings where field wiring enters the cabinet must be completely sealed.

CAUTION :

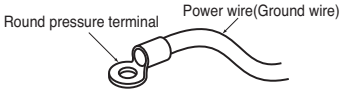
The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (This equipment shall be provided with a cord set complying with the national regulation).



If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent.

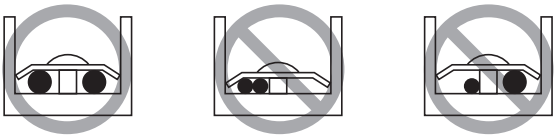
◆ Precautions when laying power and ground wiring

Use round pressure terminals for connections to the power terminal block.
When laying ground wiring, you must use round pressure terminals.



When none are available, follow the instructions below.

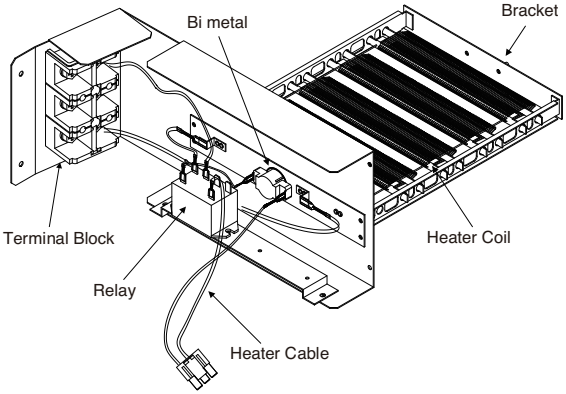
- Do not connect wiring of different thicknesses to the power terminal block. (Slack in the power wiring may cause abnormal heat.)
- When connecting wiring which is the same thickness, do as shown in the figure below.



- For wiring, use the designated power wire and connect firmly, then secure to prevent outside pressure being exerted on the terminal block.
- Use an appropriate screwdriver for tightening the terinal screws. A screwdriver with a small head will strip the head and make proper tighterning impossible.
- Over-tightening the terminal screws may break them.

Electric Heater

Feature (Example: 5kW)



* Note: Image shown above may vary depends on model capacity.

Available heater in model

Capacity (kBtu/h (RT))	Heater Capacity (kW)			
	5	10	15	20
12(1.0)	○	Not available	Not available	Not available
18(1.5)	○	Not available	Not available	Not available
24(2.0)	○	○	Not available	Not available
30(2.5)	○	○	Not available	Not available
36(3.0)	○	○	Not available	Not available
42(3.5)	○	○	○	○
48(4.0)	○	○	○	○
54(4.5)	○	○	○	○

※ If you want to know more optional operation, please refer to the Electric Heater Manual.

※ Heater Model
5kW: ANEH053B1
10kW: ANEH103B2
15kW: ANEH153B2
20kW: ANEH203B2

Dip Switch Setting

1. Indoor Unit

	Function	Description	Setting Off	Setting On	Default
SW1	Communication	N/A (Default)	-	-	Off
SW2	Cycle	N/A (Default)	-	-	Off
SW3	Group Control	Selection of Master or Slave	Master	Slave	Off
SW4	Dry Contact Mode	Selection of Dry Contact Mode	Wired/Wireless remote controller selection of Manual or Auto operation Mode	Auto	Off
SW5	Installation	Fan continuous operation	Continuous operation Removal	-	Off
SW6	Heater linkage	N/A	-	-	Off
SW7	Ventilator linkage	Selection of Ventilator linkage	Linkage Removal	Working	Off
	Vane selection (Console)	Selection of up/down side Vane	Up side + Down side Vane	Up side Vane Only	
	Region selection	Selection tropical region	General model	Tropical model	
SW8	Etc.	Spare	-	-	Off

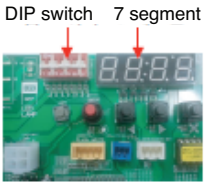
⚠ CAUTION

For Multi V Models, DIP switch 1, 2, 6, 8 must be set OFF.

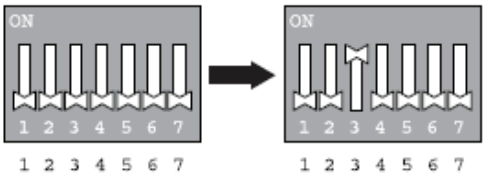
2. Outdoor Unit

In case that the products meet specific conditions, “Auto addressing” function can start automatically with the improved speed by turning the DIP switch #3 of the outdoor unit and resetting the power.

※ Specific conditions:
- All names of the indoor units are ARNU****4.
- The serial number of Multi V super IV (outdoor units) is after October 2013.



Outdoor Unit PCB

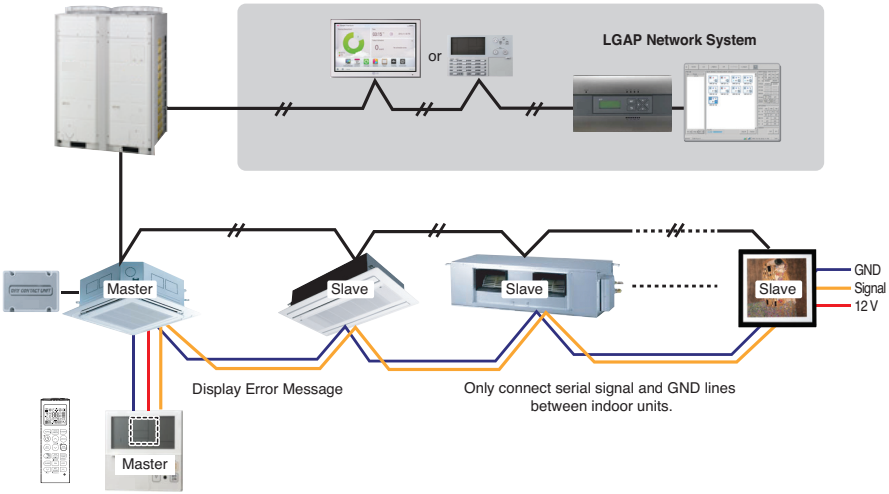


Outdoor Unit DIP Switch

Group Control Setting

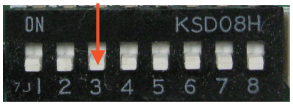
1. Group Control 1

■ Wired remote controller 1 + Standard Indoor Units

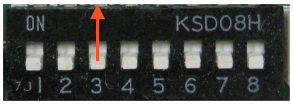


■ DIP Switch in PCB

① Master Setting
- No. 3 Off



② Slave Setting
- No. 3 On



Indoor Unit DIP Switch

Some products have no DIP switch on PCB. It is possible to set indoor units to Master or Slave by using the wireless remote controller instead of DIP switch.
For the details of the setting, please refer to the manual of the wireless remote controller.

1. **It is possible to 16 indoor units(Max.) by one wired remote controller.**
   Set only one indoor unit to Master, set the others to Slave.
2. **It is possible to connect with every type of indoor units.**
3. **It is possible to use wireless remote controller at the same time.**
4. **It is possible to connect with Dry Contact and Central controller at the same time.**
   - The Master indoor unit is possible to recognize Dry Contact and Central Controller only.
5. **In case that any error occurs at indoor unit, the error code is displayed on the wired remote controller.**
   It is possible to control the other indoor units except the error units.

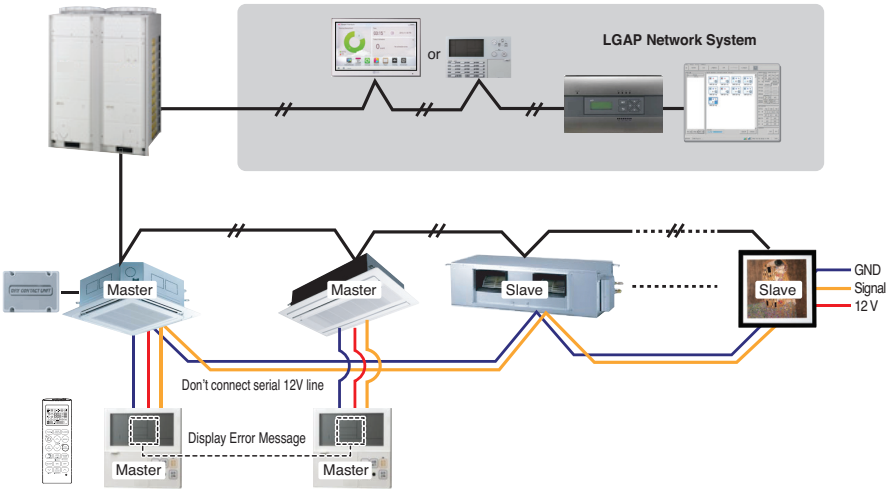
❉ It is possible to connect indoor units since Feb. 2009.
❉ It can be the cause of malfuctions when there is no setting of master and slave.

❉ In case of Group Control, it is possible to use following functions.
- Selection of operation, stop or mode
- Temperature setting and room temperature check
- Current time change
- Control of flow rate (High/Middle/Low)
- Reservation settings

It is not possible to use some functions.

2. Group Control 2

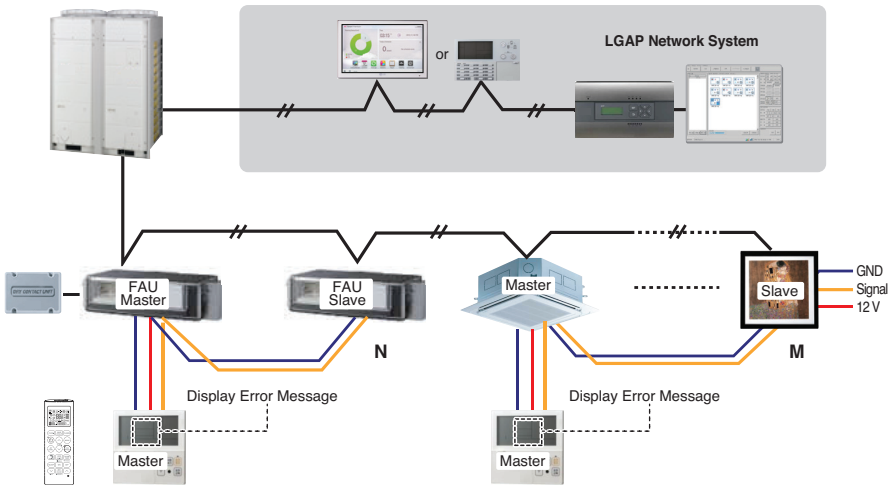
■ Wired remote controllers + Standard Indoor Units



❉ It is possible to control 16 indoor units(Max.) with the master wired remote control.
❉ Other than those, it is same with the Group Control 1.

3. Group Control 3

■ Mixture connection with indoor units and Fresh Air Intake Unit



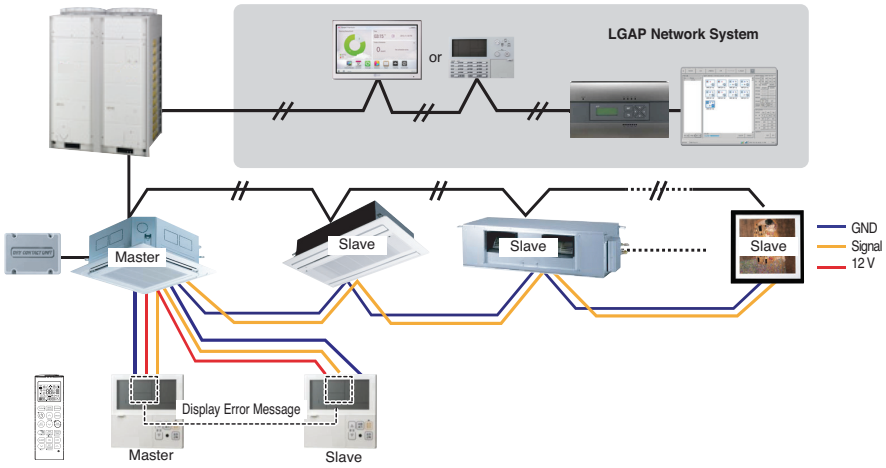
❉ In case of connecting with standard indoor unit and Fresh Air Intake Unit, separate Fresh Air Intake Unit with standard units. (N, M ≤ 16) (Because setting temperature are different.)

❉ Other than those, it is same with Group Control 1.

* FAU : Fresh Air Intake Unit
Standard: Standard Indoor Unit

4. 2 Remote Control

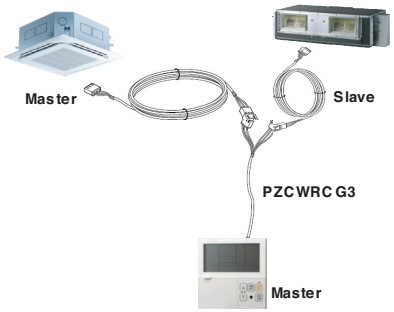
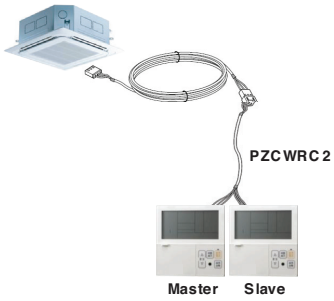
■ Wired remote controller 2 + Indoor unit 1



1. It is possible to connect two wired remote controllers (Max.) with one indoor unit.
Set only one indoor unit to Master, set the others to Slave.
Set only one wired remote controller to Master, set the others to Slave.
2. Every types of indoor unit is possible to connect two remote controller.
3. It is possible to use wireless remote controller at the same time.
4. It is possible to connect with Dry Contact and Central controller at the same time.
5. In case that any error occurs at indoor unit, the error code is displayed on the wired remote controller.
6. There isn't limits of indoor unit function.

5. Accessories for group control setting

It is possible to set group control by using below accessories.

Indoor unit 2 EA +Wired remote controller	Indoor unit 1 EA +Wired remote controller 2EA
❊ PZCWRCG3 cable used for connection	❊ PZCWRC2 cable used for connection
	

CAUTION

- **Apply totally enclosed noncombustible conduit in case of local building code Requiring plenum cable usage.**

Airborne Noise Emission

The A-weighted sound pressure emitted by this product is below 70 dB.
** The noise level can vary depending on the site.

The figures quoted are emission level and are not necessarily safe working levels. Whilst there is a correlation between the emission and exposure levels, this cannot be used reliably to determine whether or not further precautions are required. Factor that influence the actual level of exposure of the workforce include the characteristics of the work room and the other sources of noise, i.e. the number of equipment and other adjacent processes and the length of time for which an operator exposed to the noise. Also, the permissible exposure level can vary from country to country. This information, however, will enable the user of the equipment to make a better evaluation of the hazard and risk.

Limiting concentration

Limiting concentration is the limit of Freon gas concentration where immediate measures can be taken without hurting human body when refrigerant leaks in the air. The limiting concentration shall be described in the unit of kg/m^3 (Freon gas weight per unit air volume) for facilitating calculation

Limiting concentration: 0.44kg/m^3(R410A)

■ **Calculate refrigerant concentration**

$$\text{Refrigerant concentration} = \frac{\text{Total amount of replenished refrigerant in refrigerant facility (kg)}}{\text{Capacity of smallest room where indoor unit is installed (m}^3\text{)}}$$

Product Data

External Static Pressure & Air Flow

Capacity (kBtu/h(RT))	Flow rate (CFM)	Setting Value @ ESP(in.wc)									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
54(4.5)	High(1475)	77	82	87	93	98	102	110	115	115	115
	Middle(1400)	74	79	84	91	96	102	110	115	115	115
	Low(1260)	67	75	80	87	90	98	102	110	115	115
48(4.0)	High(1400)	74	79	84	91	96	102	110	115	115	115
	Middle(1260)	67	75	80	87	90	98	102	110	115	115
	Low(1000)	56	65	72	77	84	90	98	105	108	115
42(3.5)	High(1250)	67	75	80	87	90	98	102	110	115	115
	Middle(1100)	61	67	75	80	87	92	100	108	110	115
	Low(1000)	56	65	72	77	84	90	98	105	108	115
36(3.0)	High(990)	80	85	90	95	100	103	103	103	103	103
	Middle(880)	65	72	80	85	92	98	103	103	103	103
	Low(800)	65	69	77	82	90	96	101	101	101	101
30(2.5)	High(880)	65	72	80	85	92	98	103	103	103	103
	Middle(800)	62	69	77	82	90	96	101	101	101	101
	Low(630)	53	65	70	75	85	91	96	96	96	96
24(2.0)	High(710)	56	67	74	78	87	94	98	98	98	98
	Middle(640)	53	65	70	75	85	91	96	96	96	96
	Low(480)	53	55	64	70	79	84	92	92	92	92
18(1.5)	High(580)	53	60	68	74	84	85	95	95	95	95
	Middle(530)	53	58	66	72	82	84	92	92	92	92
	Low(480)	53	55	64	70	79	83	92	92	92	92
12(1.0)	High(530)	53	58	66	72	82	84	92	92	92	92
	Middle(480)	53	56	64	70	79	83	92	92	92	92
	Low(380)	53	54	62	69	77	83	92	92	92	92

Air handler units are UL Listed up to 0.5 in.wc external static pressure, including air filter, set coil, and largest kW size heater, unless otherwise noted.

- Flow rate(CFM) is decreased by 3% per 0.1in.wc from 0.8 in.wc to 1.0 in.wc
- If flow rate(CFM) is increased by 400CFM/ton from 1.5RT to 2.5RT of capacity, the ESP value should be increased by 4.
- If flow rate(CFM) is increased by 400CFM/ton from 3.0RT to 4.5RT of capacity, the ESP value should be increased by 5.
- in.wc = inch Water Column, inAq
- Factory Default: High Static Pressure,
  High static pressure is 0.5 in.wc,
  Low static pressure is 0.3 in.wc

If you set ESP incorrectly, the air conditioner may cause cooling & heating capacity down or malfunction.

Minimum airflow by heater capacity

(Unit : CFM)

Capacity (kBtu/h (RT))	Heater Capacity (kW)			
	5	10	15	20
12(1.0)	380	Not available	Not available	Not available
18(1.5)	380	Not available	Not available	Not available
24(2.0)	480	480	Not available	Not available
30(2.5)	630	630	Not available	Not available
36(3.0)	780	780	Not available	Not available
42(3.5)	1000	1000	1000	1000
48(4.0)	1000	1000	1000	1000
54(4.5)	1300	1300	1300	1300

⚠ CAUTION

Do not use less than minimum airflow.
There is risk of fire or damage to the product.

Electric Heater Static pressure drop factors

Heater Capacity(kW)	Static pressure drop (in.wc)
0	0
5	– 0.01
10	– 0.02
15	– 0.04
20	– 0.06

If the electric heater has been installed, then the ESP value has to be set.
For every increase in static pressure by 0.01 inWC, the ESP value should be increased by 1.
If the setting ESP value is inappropriate, the provided safety device will turn off the heater according to the airflow.
* in.wc = inch Water Column, inAq

Air Filter (Field supply) Static pressure drop factors

Capacity(kBtu/h(RT))	Flow Rate(CFM)	Static pressure drop (in.WC)
12 (1.0)	High(530)	-0.02
	Middle(480)	-0.02
	Low (380)	-0.01
18 (1.5)	High(580)	-0.03
	Middle(530)	-0.02
	Low(480)	-0.02
24 (2.0)	High(710)	-0.04
	Middle(640)	-0.03
	Low(480)	-0.02
30 (2.5)	High(880)	-0.05
	Middle(800)	-0.05
	Low(630)	-0.03
36 (3.0)	High(990)	-0.07
	Middle(880)	-0.05
	Low(800)	-0.05
42 (3.5)	High(1250)	-0.11
	Middle(1100)	-0.09
	Low(1000)	-0.07
48 (4.0)	High(1400)	-0.14
	Middle(1260)	-0.11
	Low(1000)	-0.07
54 (4.5)	High(1475)	-0.18
	Middle(1400)	-0.16
	Low(1260)	-0.12

If the air filter has been installed, then the ESP value has to be set.
For every increase in static pressure by 0.01 inWC, the ESP value should be increased by 1.

Note : Filters should be used a rating of MERV 4 or less.
If you use filters that has a rating MERV 5 or above, it can cause cooling & heating capacity down.

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