



ENGLISH

العربية

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.

Convertible

Original instruction



MFL68800317
Rev.00_042718

www.lg.com

Copyright © 2018 LG Electronics Inc. All Rights Reserved.

TABLE OF CONTENTS

3 Safety Precautions

6 Introduction

- 6 Symbols used in this Manual
- 6 Features

7 Installation

- 7 Installation Parts
- 7 Installation Tools
- 8 Wired remote controller installation
- 9 Installation Map
- 10 Select the best Location
- 10 Preparing Work for Installation
- 11 Mounting the installation plate(Wall Mounting)
- 11 Mounting the anchor Nut & Bolt(Ceiling Mounting)
- 13 Checking the Drainage
- 13 Panel Front Assembly
- 14 Flaring Work
- 15 Drill a Hole in the Wall
- 15 Connecting the Piping
- 17 Precautions when laying power wiring
- 17 Wiring Connection
- 19 Dip Switch Setting
- 20 Group Control Setting
- 25 Model Designation
- 25 Airborne Noise Emission
- 25 Limiting concentration

Safety Precautions

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

- Be sure to read before installing the air conditioner.
- Be sure to observe the cautions specified here as they include important items related to safety.
- 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.
- Do not turn on the breaker or power under condition that front panel, cabinet, top cover, controlbox 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.
 - 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 small 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.
- 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.
- This equipment shall be provided with a supply conductor complying with the national regulation.

Introduction

Symbols used in this Manual



This symbol alerts you to the risk of electric shock.

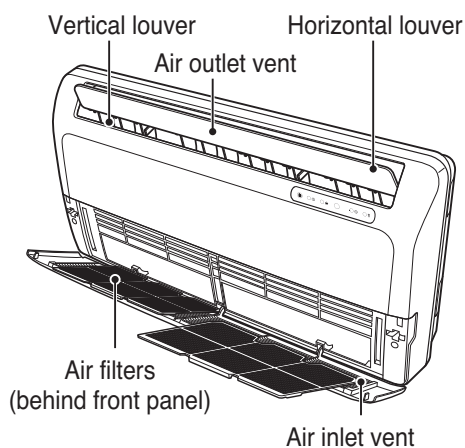


This symbol alerts you to hazards that may cause harm to the air conditioner.

NOTICE

This symbol indicates special notes.

Features

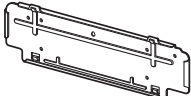
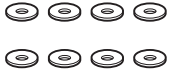


Installation

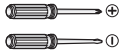
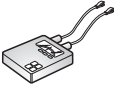
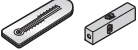
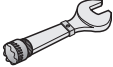
Read carefully, and then follow step by step.

Installation Parts

Standard Accessories

Name	Installation plate	Type "A" screw and plastic anchor	Flat washer	(Other)
Quantity	1EA	6EA	8EA	
Shape				
				• Owner's manual • Installation manual • Drain Hose • Wood screw for indoor

Installation Tools

Figure	Name	Figure	Name
	Screw driver		Multi-meter
	Electric drill		Hexagonal wrench
	Measuring tape, Knife		Ammeter
	Hole core drill		Gas-leak detector
	Spanner		Thermometer, Level
	Torque wrench		Flaring tool set

Wired remote controller installation

- Since the room temperature sensor is in the remote controller, the remote controller box should be installed in a place away from direct sunlight, high humidity and direct supply of cold air to maintain proper space temperature. Install the remote controller about 5ft(1.5m) above the floor in an area with good air circulation at an average temperature.

Do not install the remote controller where it can be affected by:

- Drafts, or dead spots behind doors and in corners.
- Hot or cold air from ducts.
- Radiant heat from sun or appliances.
- Concealed pipes and chimneys.
- Uncontrolled areas such as an outside wall behind the remote controller.
- This remote controller is equipped with a seven segment LED. display. For proper display of the remote controller LED's, the remote controller should be installed properly as shown in Fig.1.
(The standard height is 1.2~1.5 m from floor level.)

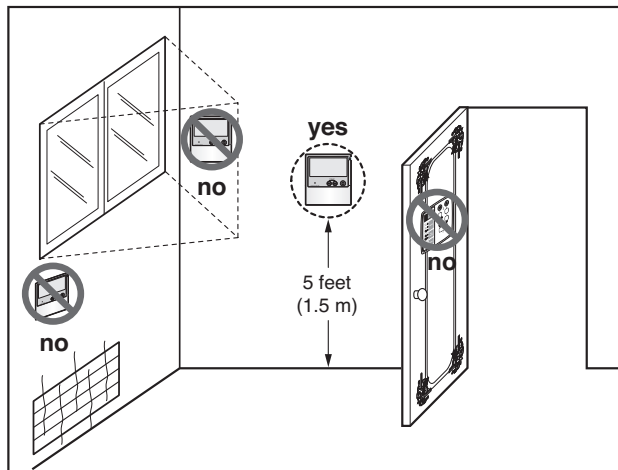
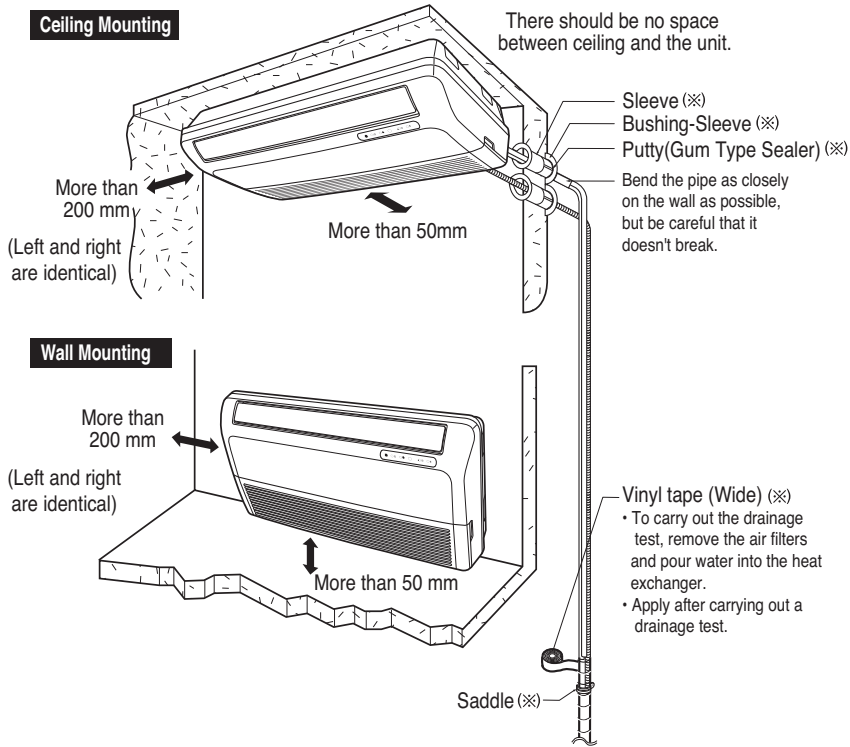


Fig.1 Typical locations for remote controller

Installation Map

NOTICE Installation parts you should purchase. (※)



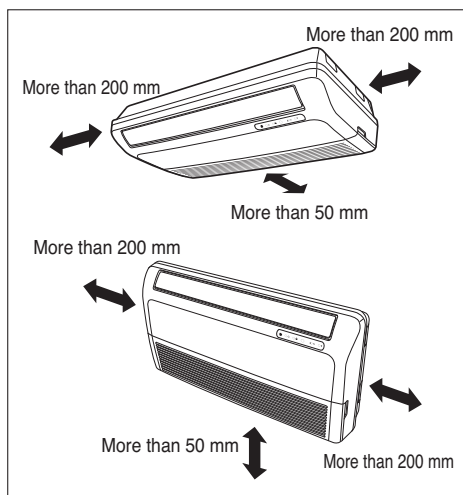
⚠ CAUTION

The Power cord connected to the unit should be selected according to the following specifications.

Select the best Location

Indoor unit

1. Do not have any heat or steam near the unit.
2. Select a place where there are no obstacles in front of the unit.
3. Make sure that condensation drainage can be conveniently routed away.
4. Do not install near a doorway.
5. Ensure that the interval between a wall and the left (or right) of the unit is more than 200 mm. The unit should be installed as low as possible on the wall, allowing a minimum of 50 mm from floor.
6. Use a stud finder to locate studs to prevent unnecessary damage to the wall.



Preparing Work for Installation

Open panel front

1. Remove the five screws.
2. Release the claws in the 3 places indicated.
3. Pull up the Front Panel.

Cover pipe and cover side remove

1. Pull up the side cover of desired connecting direction, then cover side is separated.
2. Pick the pipe hole of the side cover.

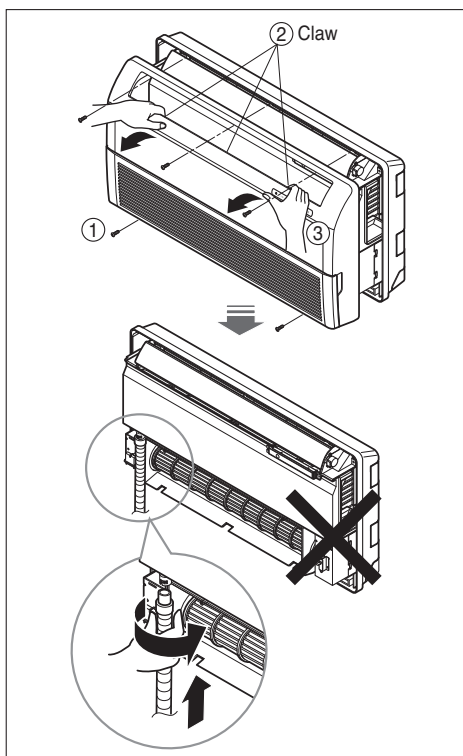
⚠ CAUTION

After removing the pipe hole, cut the burr for safety.

NOTICE When making pipe path through rear wall, you don't need to pick the pipe hole.

Drain hose junction

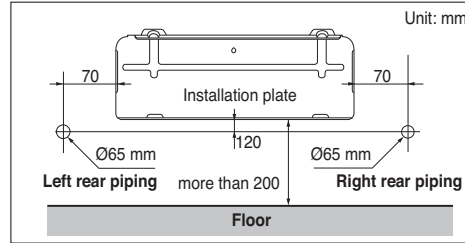
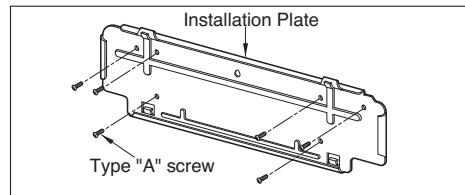
1. Remove the rubber stopple in the left side drain hole. (Do not use the right side drain hole)
2. Insert drain hose into the handle of drain pan, and join drain hose and connecting hose according to the figure by.



Mounting the installation plate(Wall Mounting)

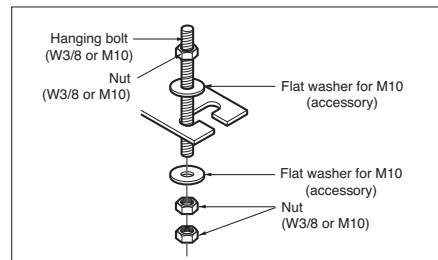
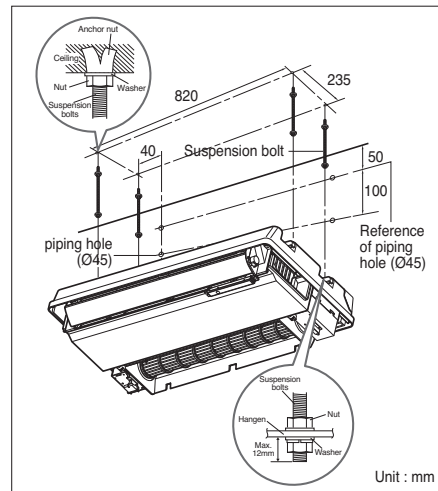
The wall you select should be strong and solid enough to prevent vibration

1. Mount the installation plate on the wall with type "A" screws. If mounting the unit on a concrete wall, use anchor bolts.
- Mount the installation plate horizontally by aligning the centerline using a level.
2. Measure the wall and mark the centerline. It is also important to use caution concerning the location of the installation plate-routing of the wiring to power outlets is through the walls typically. Drilling the hole through the wall for piping connections must be done safely.



Mounting the anchor Nut & Bolt(Ceiling Mounting)

- Prepare 4 suspension bolts. (Each bolts length should be same.)
- Measure and mark the position for the Suspension bolts and the piping hole.
- Drill the hole for anchor nut on the ceiling.
- Insert the nuts and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
- Mount the suspension bolts to the anchor-nuts firmly.
- Secure the hangers onto the Suspension bolts (adjust level roughly.) using nuts, washers.
- Adjust a level with a level gauge on the direction of left-right, back-forth by adjusting suspension bolts.
- Adjust a level on the direction of top-bottom by adjusting suspension bolts. Then the unit will be declined to the bottomsides so as to drain well.



⚠ CAUTION

Tighten the nut and bolt to prevent unit falling.

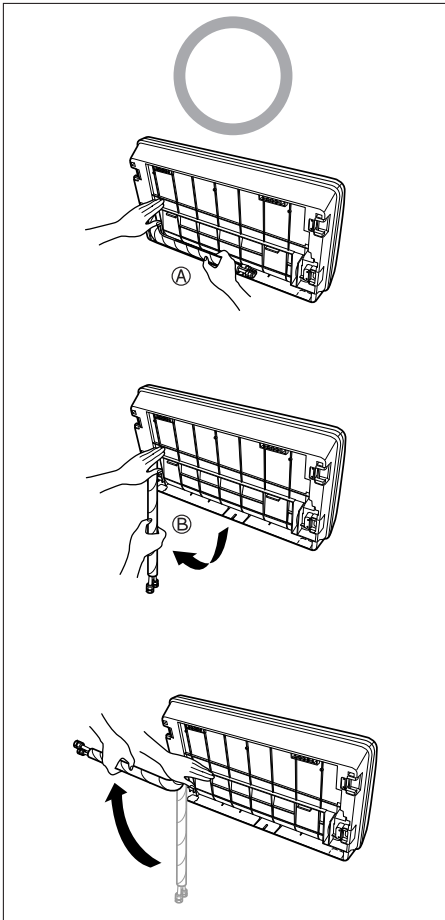
⚠ CAUTION

: Installation Information For right piping. Follow the instruction below.

Good case

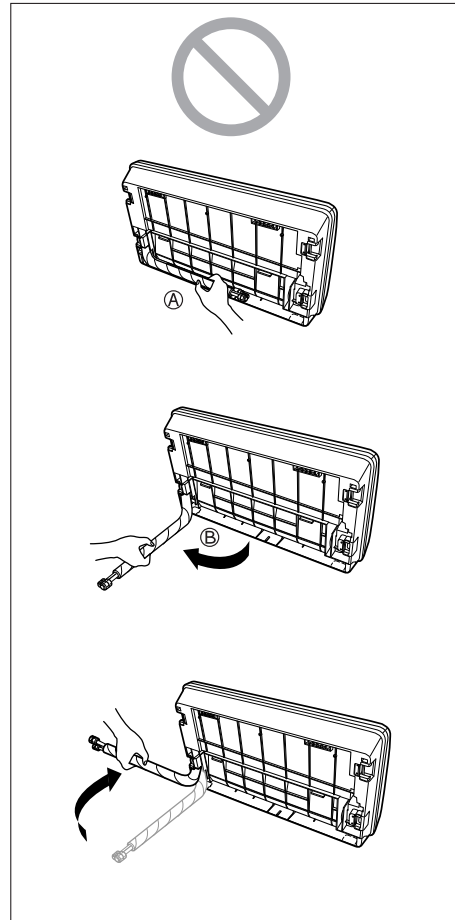
For left piping. Follow the instruction below.

1. Press on the upper side of clamp. (A)
2. Unfold the tubing to downward slowly. (B)
3. Bend the tubing to the left side of chassis.



Bad case

1. Following bending type from right to left could cause problem of pipe damage.



Checking the Drainage

1. Set the air direction louvers up-and-down to the position(horizontally) by hand.

To check the drainage.

1. Pour a glass of water on the evaporator.
2. Ensure the water flows through the drain hose of the indoor unit without any leakage and goes out the drain exit.

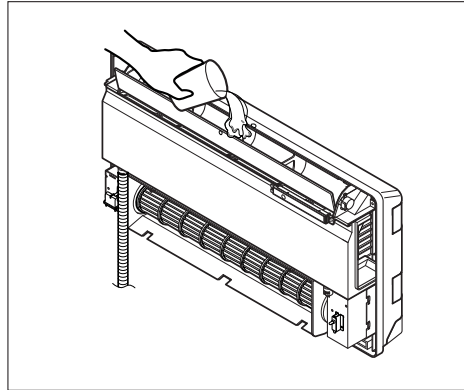
■ Checking the Drainage

1. Remove the Air Filter.

- To remove air filter, take hold of tab and pull slightly upwards.

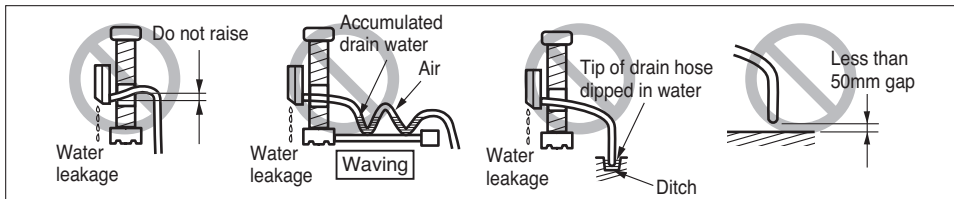
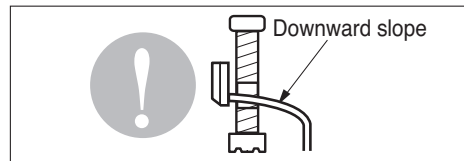
2. Check the drainage.

- Spray one or two glasses of water upon the evaporator.
- Ensure that water flows drain hose of indoor unit without any leakage.



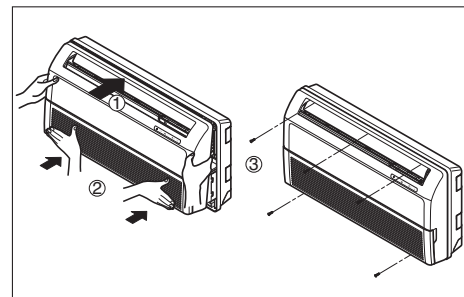
Drain piping

1. The drain hose should point downward for easy drain flow.
2. Do not make drain piping like the following.



Panel Front Assembly

1. Suspend the hook of panel front in the groove.
2. Press the panel front.
3. Screw up panel front.

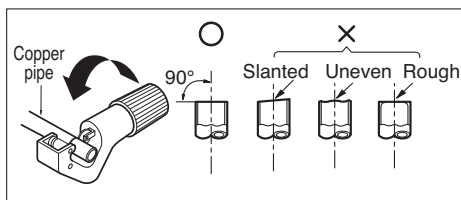


Flaring Work

Main cause for gas leakage is due to defect in flaring work. Carry out correct flaring work in the following procedure.

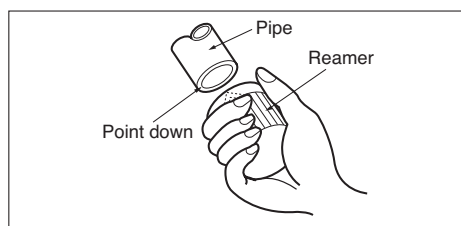
Cutting the pipes and the cable.

1. Use the piping kit accessory or 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.
4. Cut the cable 1.5m longer than the pipe length.



Removing burrs

1. Completely remove all burrs from the cut cross section of pipe/tube.
2. Put the end of the copper tube/pipe in a downward direction as you remove burrs in order to avoid dropping burrs into the tubing.



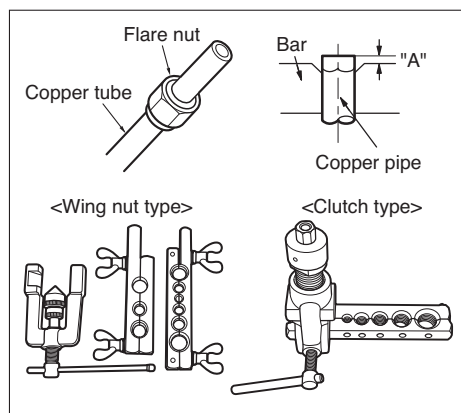
Putting nut on

- Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal.
(not possible to put them on after flaring work)

Flaring work

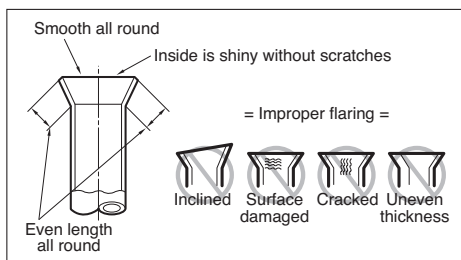
1. Firmly hold copper pipe in a die in the dimension shown in the table below.
2. Carry out flaring work with the flaring tool.

Pipe diameter Inch (mm)	A inch (mm)	
	Wing nut type	Clutch type
Ø1/4 (Ø6.35)	0.04~0.07 (1.1~1.8)	0~0.02 (0~0.5)
Ø3/8 (Ø9.52)		
Ø1/2 (Ø12.7)		
Ø5/8 (Ø15.88)		



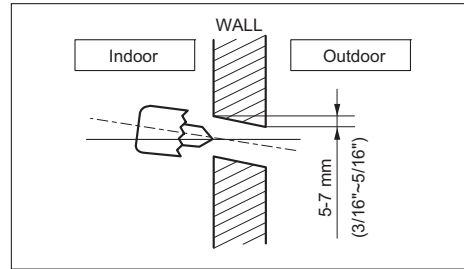
Check

1. Compare the flared work with the figure by.
2. If a flared section is defective, cut it off and do flaring work again.



Drill a Hole in the Wall

- Drill the piping hole with a $\phi 65$ mm hole core drill. Drill the piping hole at either the right or the left with the hole slightly slanted to the outdoor side.

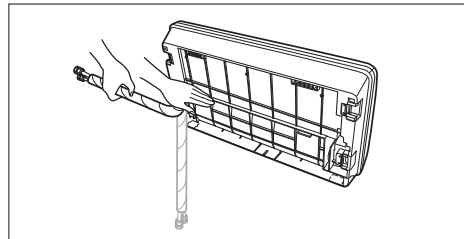


Connecting the Piping

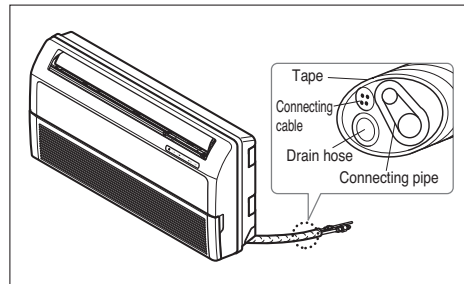
Indoor

Preparing the indoor unit's piping and drain hose for installation through the wall.

1. Route the indoor tubing and the drain hose in the direction of rear left or right



2. Tape the tubing, drain hose and the connecting cable. Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.



⚠ CAUTION

If the drain hose is routed inside the room, insulate the hose with an insulation material* so that dripping from "sweating"(condensation) will not damage furniture or floors.

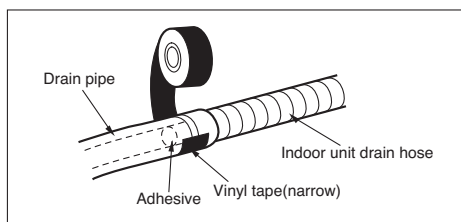
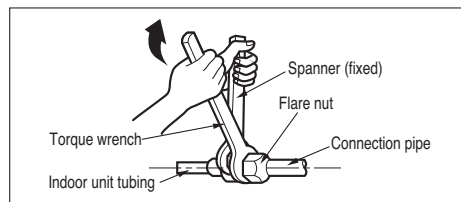
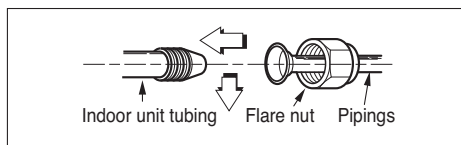
*Foamed polyethylene or equivalent is recommended.

Connecting the piping with the indoor unit and drain hose with drain pipe

1. Align the center of the pipings and sufficiently tighten the flare nut by hand.
2. Tighten the flare nut with a wrench.

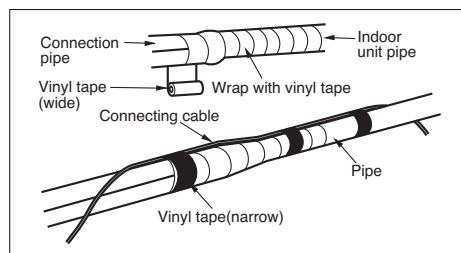
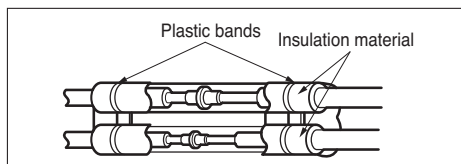
Outside diameter		Torque
mm	inch	kgf·m
Ø6.35	1/4	1.8~2.5
Ø9.52	3/8	3.4~4.2
Ø12.7	1/2	5.5~6.6
Ø15.88	5/8	6.3~8.2
Ø19.05	3/4	9.9~12.1

3. When extending the drain hose at the indoor unit, install the drain pipe.

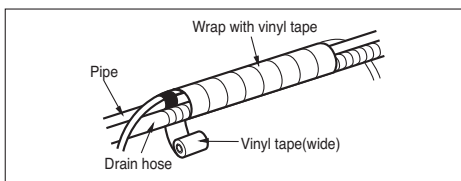


Wrap the insulation material around the connecting portion.

1. 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.
2. Wrap the area which accommodates the rear piping housing section with vinyl tape.

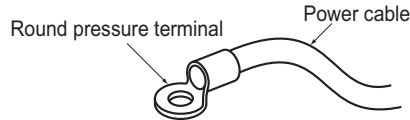


3. Bundle the piping and drain hose together by wrapping them with vinyl tape over the range within which they fit into the rear piping housing section.



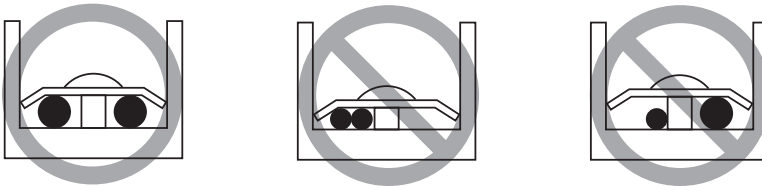
Precautions when laying power wiring

Use round pressure terminals for connections to the power terminal block.



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.

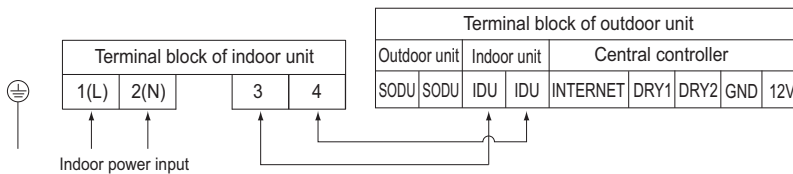


⚠ CAUTION

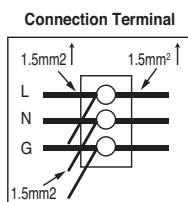
Make sure that the screws of the terminal are free from looseness.

Wiring Connection

- **Connect the cable to the indoor unit by connecting the wires to the terminals on the control board individually according to the outdoor unit connection.** (Ensure that the color of the wires of the outdoor unit and the terminal No. are the same as those of the indoor unit.)
The earth wire should be longer than the common wires.



- When installing, refer to the circuit diagram on the Control Box of Indoor Unit.
- When installing, refer to the wiring diagram on the Control Cover Inside Outdoor Unit.



Please consider the all connected capacity of indoor units.

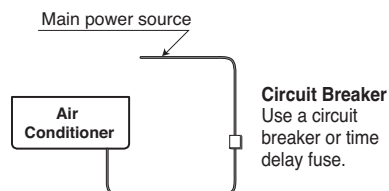
- The capacity of connection terminal should be over 250V 20A. And when connecting the power line and communication line between indoor units, you are advised to use the connection terminal.
- When you are not able to use the connection terminal, fix each power line/communication line by using the clamp cord attached in the product, together with the clamp cord and screw in the accessories.

⚠ CAUTION

- The above circuit diagram is subject to change without notice.
- Be sure to connect wires according to the wiring diagram.
- Connect the wires firmly, so that not to be pulled out easily.
- Connect the wires according to color codes by referring the wiring diagram.

⚠ CAUTION

If a power plug is not to be used, provide a circuit breaker between power source and the unit as shown below.



⚠ CAUTION

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

- 1) Never fail to have an individual power circuit specifically for the air conditioner. As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.
- 2) 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 cause burn-out of the wires.)
- 3) Specification of power source.
- 4) Confirm that electrical capacity is sufficient.
- 5) See to that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
- 6) Confirm that the cable thickness is as specified in the power source specification. (Particularly note the relation between cable length and thickness.)
- 7) Always install an earth leakage circuit breaker where it is wet or moist.
- 8) The following would be caused by voltage drop.
 - Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload protection device.
- 9) The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.

Dip Switch Setting

BLDC	Function	Description	Setting Off	Setting On	Default
SW1	Communication	Selection of Communication or Non-communication	Communication	Non-communication	Off
SW2	Cycle	Selection of C/O or H/P	Heat Pump	Cooling Only	Off
SW3	Group Control	Selection of Master or Slave	Master	Slave	Off
SW4	Dry Contact Mode	Selection of Dry Contact Mode	Variable	Auto	Off
SW5	Install	Selection of Ceiling or Floor	Ceiling	Floor	Off
SW6	Heater linkage	Selection of Heater linkage	Linkage Removal	Working	Off
SW7	Ventilator linkage	Selection of Ventilator linkage	Linkage Removal	Working	Off
SW8	-	-	-	-	Off

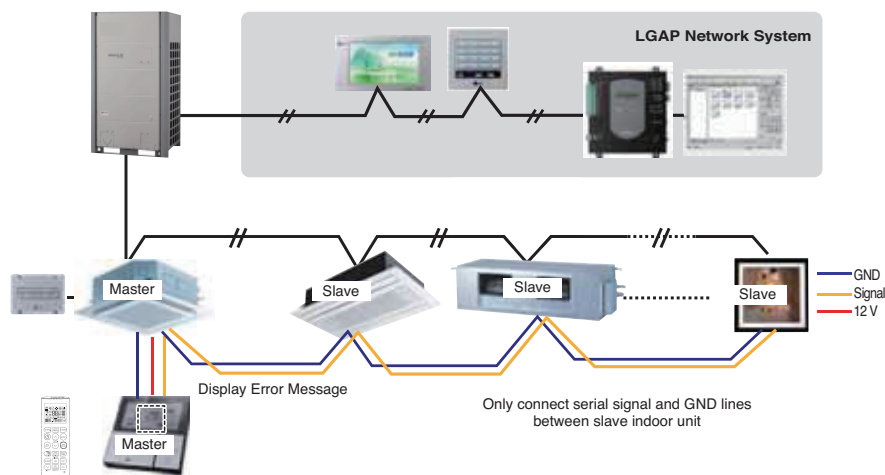
CAUTION

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

Group Control Setting

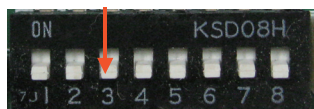
1. Group Control 1

■ Wired remote controller 1 + Indoor units

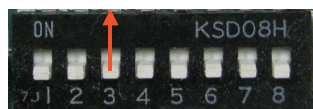


■ Dip Switch in PCB (Cassette and Duct Type indoor units)

① Master Setting - No. 3 Off



② Slave Setting - No. 3 On



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.
- In case of Central controller and Group controller at the same time, it is possible to connect standard 2series indoor units or later since Feb. 2009.
- In case of Central controller setting, the Central controller can control indoor units after setting only the address of master indoor unit.
- Slave indoor unit will be operated like master indoor unit.
- Slave indoor unit can not be individually controlled by Central controller.
- Some remote controller can't perform with Dry Contact and Central controller at the same time. So contact us further information about it.

- 5. In case of any error occurs at indoor unit, display on the wired remote controller.**

Exception of the error indoor unit, an individual indoor unit control possibility.

- 6. In case of Group Control, it is possible to use following functions.**

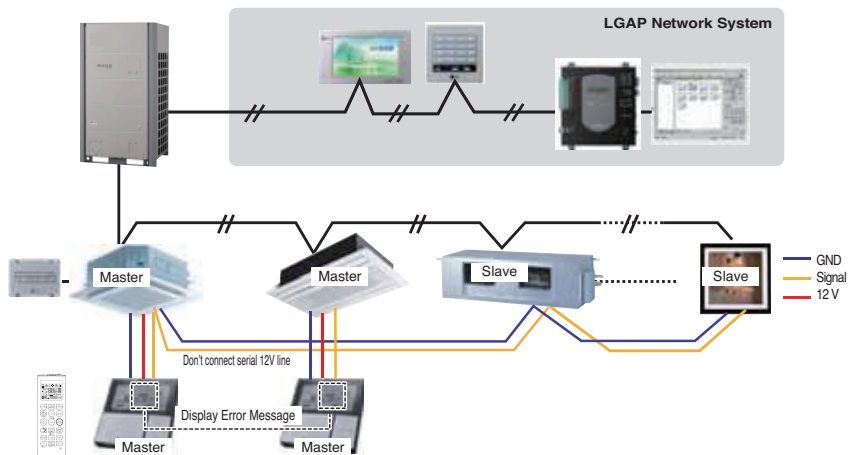
- Selection of operation options (operation/stop/mode/set temperature)
- Control of flow rate (High/Middle/Low)
- It is not possible at some functions.

* Master/Slave setting of indoor units be set possible using a PCB Dip Switch.

* It is possible to connect indoor units since Feb. 2009. In the other cases, please contact LGE.

* It can be the cause of malfunctions when there is no setting of master and slave.

2. Group Control 2

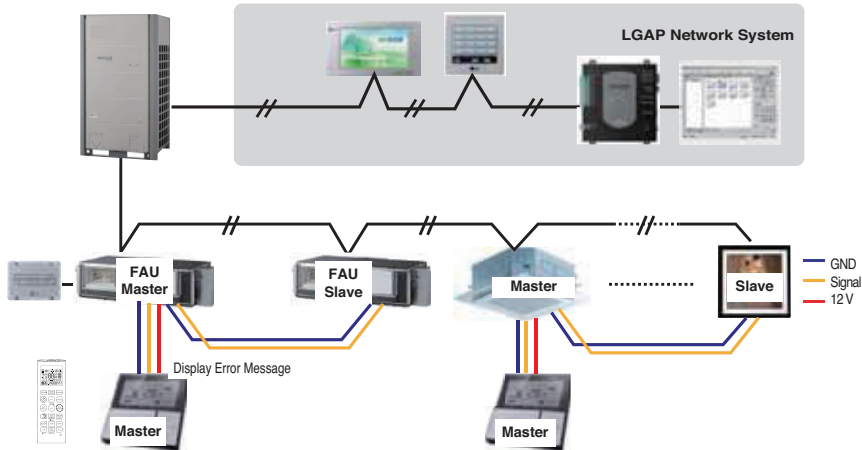


- ✱ It is possible to control N indoor units by wired remote controller M units. ($M + N \leq 17$ Units)

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

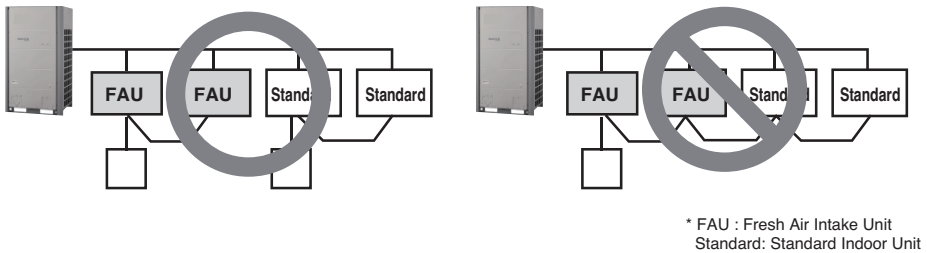
3. Group Control 3

■ Mixture connection with indoor units and Fresh Air Intake Unit



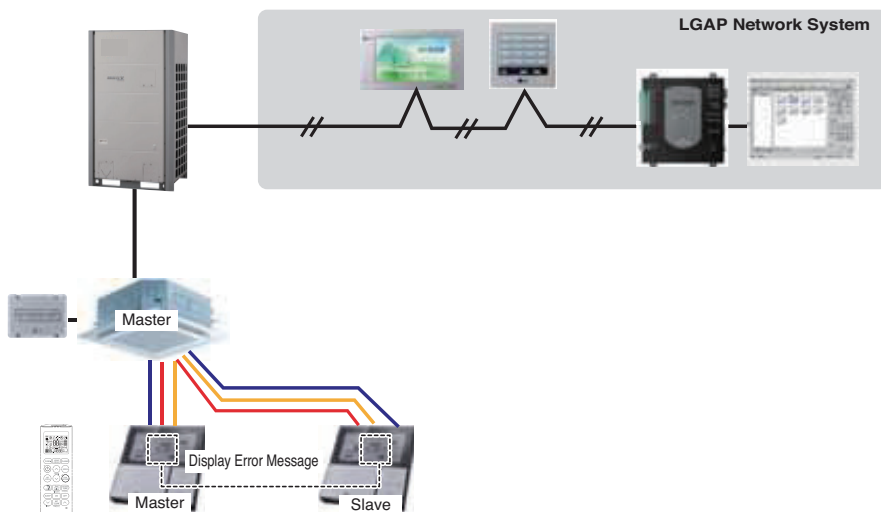
※ In case of connecting with standard indoor unit and Fresh Intake Unit, separate Fresh Air Intake Unit with standard units. (Because setting temperature are different.)

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



4. 2 Remote Control

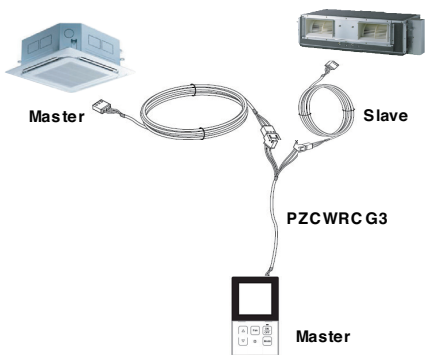
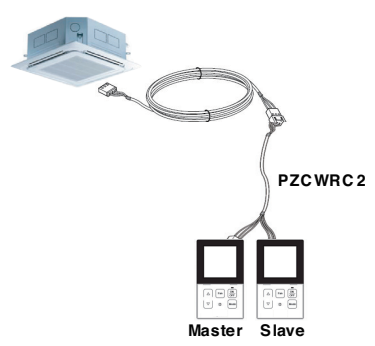
■ Wired remote controller 2 + Indoor unit 1



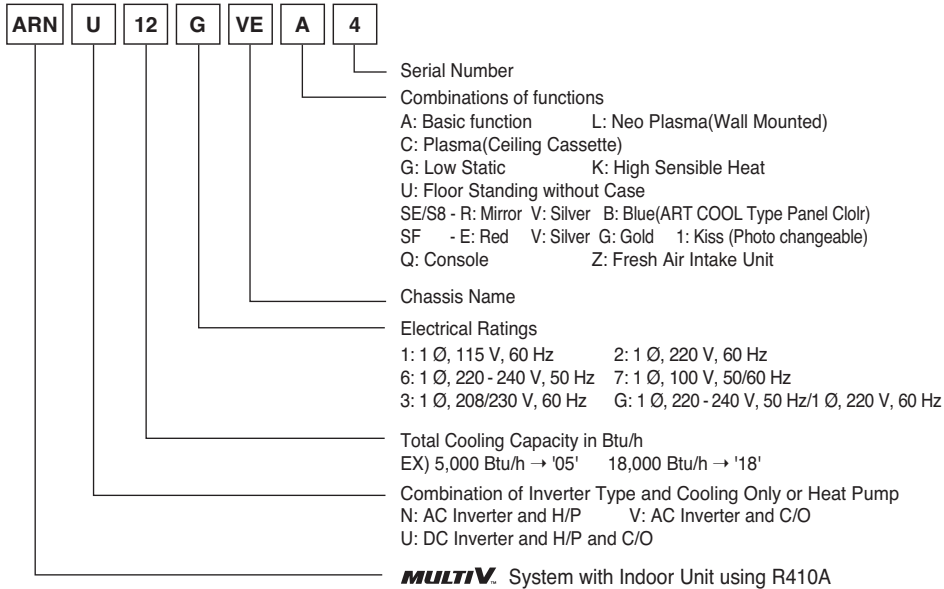
1. It is possible to connect two wired remote controllers with one indoor unit.
 2. Every types of indoor unit is possible to connect two remote controller.
 3. It is possible to use wireless remote controller at the same time.
 4. It is possible to connect with Dry Contact and Central controller at the same time.
 5. In case of any error occurs at indoor unit, display on the wired remote controller.
 6. There isn't limits of indoor unit function.
- ※ Maximum 2wired remote controllers can be connected with 1 indoor unit.

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  The diagram illustrates the connection for two indoor units. A ceiling-mounted indoor unit is connected to a Master remote controller (a square device with buttons) using a PZCWRCG3 cable. A Slave remote controller (a rectangular device with a screen) is also shown, connected to the same cable system.	※ PZCWRC2 cable used for connection  The diagram illustrates the connection for one indoor unit and two remote controllers. A ceiling-mounted indoor unit is connected to two remote controllers, labeled Master and Slave, using a PZCWRC2 cable. Both remote controllers are square devices with buttons.

Model Designation



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. Factors 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 is 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/m³ (Freon gas weight per unit air volume) for facilitating calculation

Limiting concentration: 0.44 kg/m³(R410A)

■ Calculate refrigerant concentration

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

