LG
Life's Good

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.

TYPE :Ceiling Concealed Duct

www.lg.com

TABLE OF CONTENTS

TIPS FOR SAVING ENERGY

Here are some tips that will help you minimize the power consumption when you use the air conditioner. You can use your air conditioner more efficiently by referring to the instructions below:

- Do not cool excessively indoors. This may be harmful for your health and may consume more electricity.
- Block sunlight with blinds or curtains while you are operating the air conditioner.
- Keep doors or windows closed tightly while you are operating the air conditioner.
- Adjust the direction of the air flow vertically or horizontally to circulate indoor air.
- Speed up the fan to cool or warm indoor air quickly, in a short period of time.
- Open windows regularly for ventilation as the indoor air quality may deteriorate if the air conditioner is used for many hours.
- Clean the air filter once every 2 weeks. Dust and impurities collected in the air filter may block the air flow or weaken the cooling / dehumidifying functions.

For your records

Staple your receipt to this page in case you need it to prove the date of purchase or for warranty purposes. Write the model number and the serial number here:

Model number :

Serial number :

You can find them on a label on the side of each unit.

Dealer's name :

Date of purchase :

IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.

Always comply with the following precautions to avoid dangerous situations and ensure peak performance of your product

⚠ WARNING

It can result in serious injury or death when the directions are ignored

⚠ CAUTION

It can result in minor injury or product damage when the directions are ignored

⚠ WARNING

- Installation or repairs made by unqualified persons can result in hazards to you and others.
- The product shall be installed according to the wiring regulations of the corresponding country.
- 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.

Installation

- Do not turn on the breaker or power under condition that front panel, cabinet, top cover, control box cover are removed or opened.
  - it may cause fire, electric shock, explosion or death.
- 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.
- 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 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.
• 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 store or use flammable gas or combustibles near the product.
   - There is risk of fire or failure of product.

⚠ 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.

Introduction

Symbols Used in this Manual

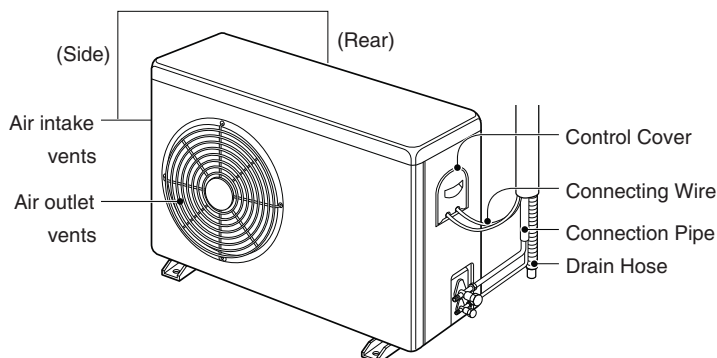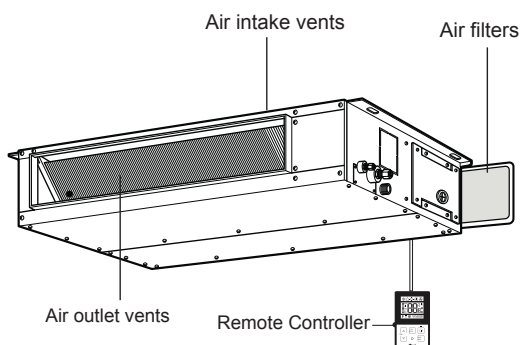⚡ **This symbol alerts you to the risk of electric shock.**

⚠ **This symbol alerts you to hazards that could cause harm to the air conditioner.**

`NOTICE` **This symbol indicates special notes.**

Features

Air intake vents   Air filters

Air outlet vents   Remote Controller

(Side)   (Rear)

Air intake vents

Air outlet vents

Control Cover

Connecting Wire

Connection Pipe

Drain Hose

Installation of Indoor, Outdoor Unit

## Selection of the best location

Indoor unit

Install the air conditioner in the location that satisfies the following conditions.

• The place shall easily bear a load exceeding four times the indoor unit's weight.

• The place shall be able to inspect the unit as the figure.

• The place where the unit shall be leveled.

• The place shall allow easy water drainage.(Suitable dimension "H" is necessary to get a slope to drain as figure.)

• The place shall easily connect with the outdoor unit.

• The place where the unit is not affected by an electrical noise.

• The place where air circulation in the room will be good .

• There should not be any heat source or steam near the unit
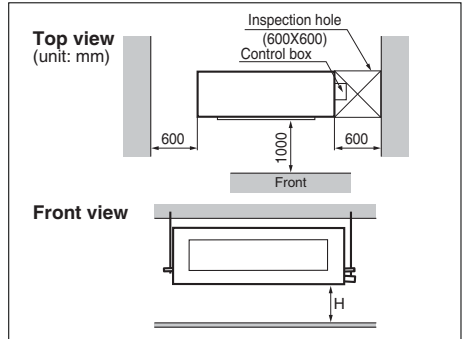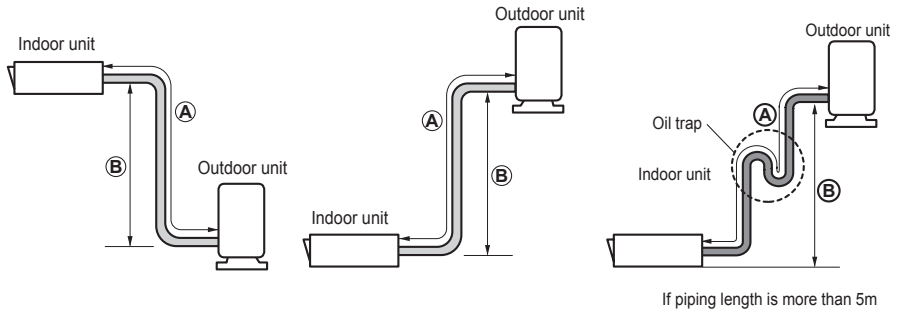

Outdoor unit

• If an awning is built over the unit to prevent direct sunlight or rain exposure, be careful that heat radiation from the condenser is not restricted.

• There should not be any animals or plants which could be affected by hot air discharged.

• Ensure the spaces indicated by arrows from the wall, ceiling, fence or other obstacles.

• Take the weight of the air conditioner into account and select a place where noise and vibration are minimum.

• Select a place where the warm air and noise from the air conditioner do not disturb neighbors.
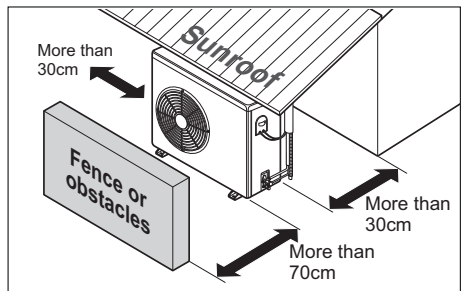
Piping length and the elevation

Pipe Size (Diameter:∅)		Length A(m)		Elevation B(m)	*Additional refrigerant(g/m)
Gas	Liquid	Standard	Max.	Max.	
∅12.7	∅6.35	7.5	15	7	20

Indoor unit

Ⓐ

Ⓑ

Outdoor unit

Outdoor unit

Ⓐ

Ⓑ

Indoor unit

Outdoor unit

Outdoor unit

Oil trap

Ⓐ

Indoor unit

Ⓑ

If piping length is more than 5m

CAUTION:

• If Model is installed at a distance of 15 m, 150 g of refrigerant should be added (15 m - 7.5 m) x 20 g/m = 150 g

• Capacity is based on standard length and maximun allowance length is on the basis of reliability.

• Improper refrigerant charge may result in abnormal cycle.

Installation of Unit

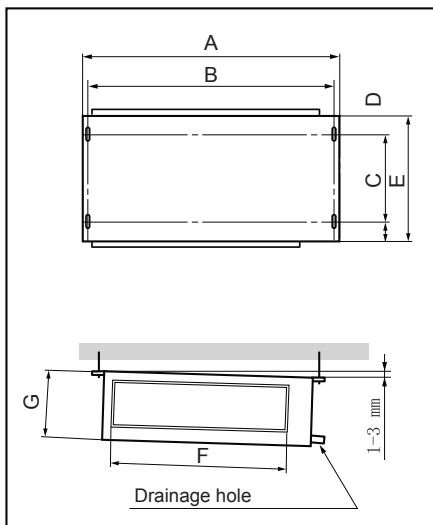Install the unit above the ceiling correctly.

CASE 1

POSITION OF SUSPENSION BOLT

• Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.

• Apply a filter Accessory at air return hole.

(Unit:mm)

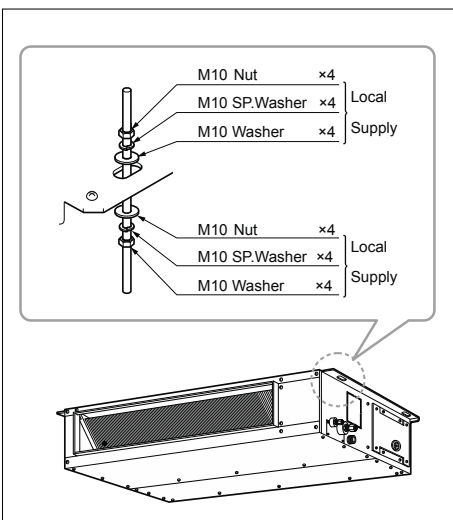| A	B	C	D	E	F	G
708	678	434	51	537	525	230

Drainage hole

CASE 2

POSITION OF CONSOLE BOLT

• Install the unit leaning to a drainage hole side as a figure for easy water drainage.

• A place where the unit will be leveled and that can support the weight of the unit.

• A place where the unit can withstand its vibration.

• A place where service can be easily performed.

M10 Nut ×4
M10 SP.Washer ×4 Local
M10 Washer ×4 Supply

M10 Nut ×4
M10 SP.Washer ×4 Local
M10 Washer ×4 Supply

• Select and mark the position for fixing bolts.
• Drill the hole for set anchor on the face of ceiling.
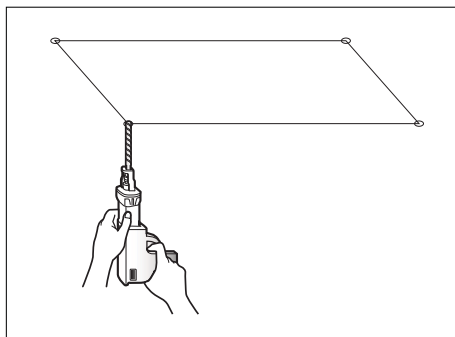
• Insert the set anchor and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
• Mount the suspension bolts to the set anchor firmly.
• Secure the installation plates onto the suspension bolts (adjust level roughly) using nuts, washers and spring washers.

Old building   **New building**

①Set anchor
②Plate washer
③Spring washer
④Nut
⑤Suspension bolts
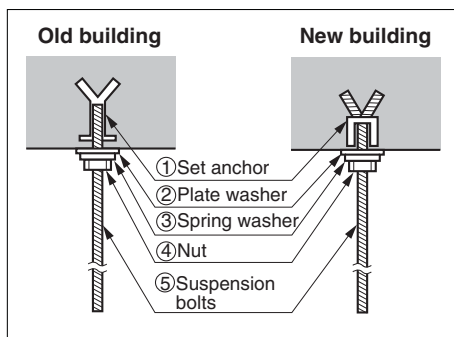
⚠ **CAUTION:**
Tighten the nut and bolt to prevent unit falling.

CAUTION

1. Install declination of the indoor unit is very important for the drain of the duct type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe shall be 7mm.
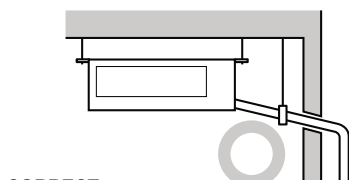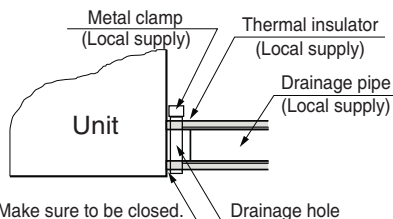
Front of view

• The unit must be horizontal or declined to the drain hose connected when finished installation.

Ceiling

1~3mm

CORRECT   Drainage hole

INCORRECT   Drainage hole
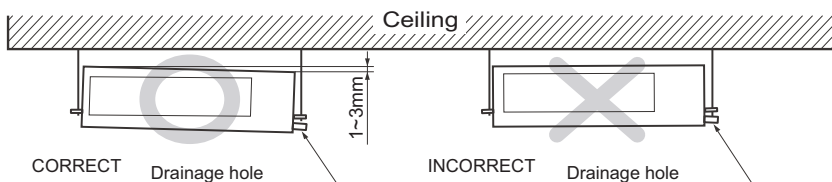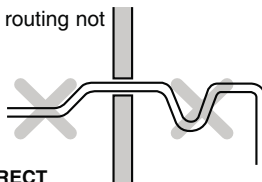
CAUTION FOR GRADIENT OF UNIT AND DRAIN PIPING

Lay the drain hose with a downward inclination so water will drain out.

• Always lay the drain with downward inclination (1/50 to 1/100).
Prevent any upward flow or reverse flow in any part.
• 5mm or thicker formed thermal insulator shall always be provided for the drain pipe.
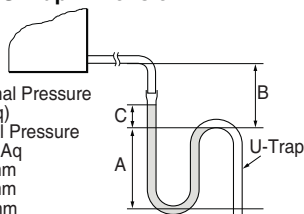• Tighten the drain hose and pipe with metal clamp

Metal clamp (Local supply)
Thermal insulator (Local supply)
Drainage pipe (Local supply)

Unit

Make sure to be closed.   Drainage hole

CORRECT

• Install the P-Trap (or U-Trap) to prevent a water leakage caused by the blocking of intake air filter.

• Upward routing not allowed

INCORRECT

Applied U-Trap Dimension

A $\geqslant$ 70mm
B $\geqslant$ 2C
C $\geqslant$ 2 x SP
SP = External Pressure (mmAq)
Ex) External Pressure
= 10mmAq
A $\geqslant$ 70mm
B $\geqslant$ 40mm
C $\geqslant$ 20mm

A   B   C   U-Trap

• Drill the piping hole with 70mm dia, hole core drill.

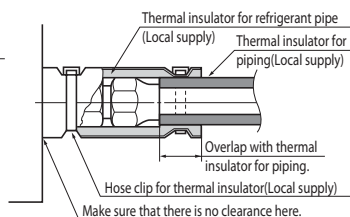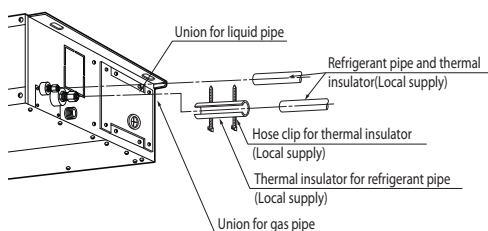• Piping hole should be slightly slant to the outdoor side.
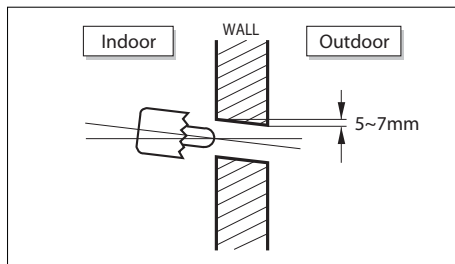
INSULATION, OTHERS | Insulate the joint and tubes completely.

(THERMAL INSULATION)   All thermal insulation must comply with local requirement.

INDOOR UNIT

Union for liquid pipe

Refrigerant pipe and thermal insulator(Local supply)

Hose clip for thermal insulator (Local supply)

Thermal insulator for refrigerant pipe (Local supply)

Union for gas pipe

Thermal insulator for refrigerant pipe (Local supply)

Thermal insulator for piping(Local supply)

Overlap with thermal insulator for piping.

Hose clip for thermal insulator(Local supply)

Make sure that there is no clearance here.

REFRIGERANT PIPE

• Insulate and tape the gas piping.

⚠ CAUTION: Cutting line of insulation must look upper direction. Thickness of insulation is 7mm or over.

NOTICE   Recommended Insulation material
Meterial: FOAM PE
Thickness : 10mm
Density : less than 0.032±0.005(g/cm^2)

Make sure insulate and tape gas and liquid side piping entirely.

Power cable

Liquid pipe

Tape

Gas pipe

Thermal insulator

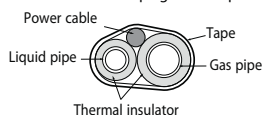Thermal conductivity : less than 0.03(kcal/m.hr. °C)

FILTER DRIER

• Filter Drier installation on the connecting pipe is not recommended.It can lead to capacity decreasing.

(TEST AND CHECK)

■ After all workings are finished, check the working and operation.

• Air distribution ——— Is the air circulation good?
• Drain ——————— Is the drainage smoothly and no sweating?
• Gas leakage ———— Is the piping connection correctly?
• Wiring ———————— Is the wiring connection correctly?
• Lock-bolt   Is the lock-bolt of compressor loosened?

Installation instruction

1. Please fix tightly using provided screw after placing remote controller setup board on the place where you like to setup.

- Please set it up not to bend because poor setup could take place if setup board bends.
Please set up remote controller board fit to the reclamation box if there is a reclamation box.
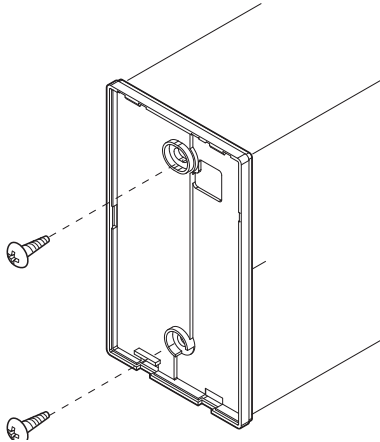
**2. Can set up Wired remote controller cable into three directions.**

- Setup direction: the surface of wall reclamation, upper, right

- If setting up remote controller cable into upper and right side, please set up after removing remote controller cable guide groove.

✼ Remove guide groove with long nose.

① **Reclamation to the surface of the wall**

② **Upper part guide groove**

③ **Right part guide groove**


<Wire guide grooves>
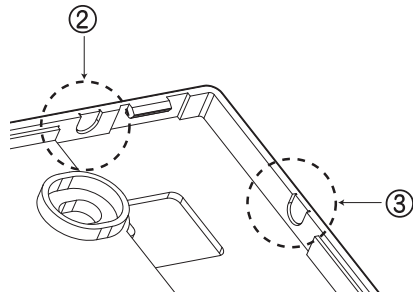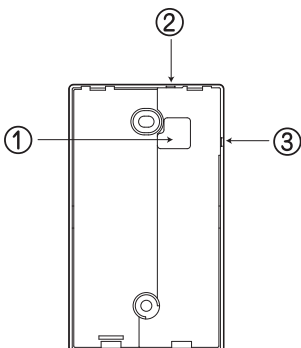
3. Please fix remote controller upper part into the backplate attached to the surface of the wall, as the picture below, and then, connect with backplate by pressing lower part.

- Please make sure to leave no gaps on the top, bottom, left or right sides between the remote controller and backplate.
- Before assembly with the backplate, arrange the Cable not to interfere with circuit parts.
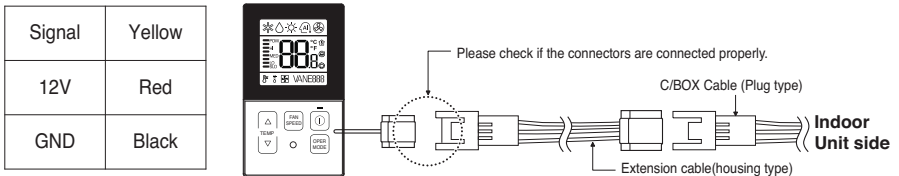
Remove remote controller by inserting a screwdriver into the lower separating holes and twisting to release the controller from backplate.

- There are two separating holes. Please individually separate one at a time.
- Please be careful not to damage the inside components when separating.

<Connecting order>

Wall Side   Wall Side

<Separating order>

Wall Side   Wall Side
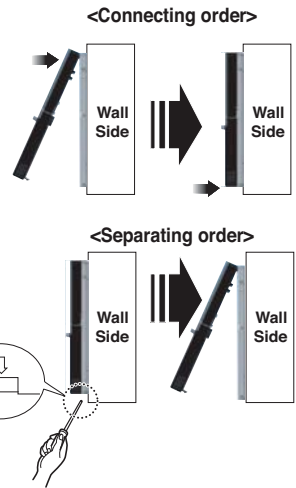
4. Please refer to the following directions when connecting the indoor unit and the wired remote controller together.

1) Please connect the cables as shown in the figure below when connecting the plug type cable from the indoor unit's C/BOX and the housing type of the extension cable.
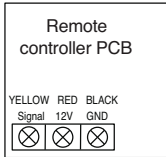
Signal	Yellow
12V	Red
GND	Black

Please check if the connectors are connected properly.

C/BOX Cable (Plug type)

Indoor Unit side

Extension cable(housing type)

⚠ CAUTION

· Specification of LG supplied extension cable: AWG#22, 3 core shielded. (Model : PZCWRC1)
❋ Apply enclosed noncombustible conduit(metal raceway) totally or use FT-6 rated cable or above level in case of local electric & building code that requires plenum (CMP) cable usage.

2) When connecting Terminal Blocks of the indoor C/BOX and the wired remote controller with the extension cable, refer to the steps below.

① Remove the screw on the cable which is fastened to the wired remote controller's Terminal Block by loosening with a screw driver.

② Remove the housing of the provided 32ft extension cable with a cutting nipper and peel it as shown in the figure below. (when purchasing the extension cable at the site directly, please peel it as shown in the figure below.)

0.394 inch(10mm) ± 0.118 inch(3mm)

1.378 inch(35mm) ±0.197 inch(5mm)
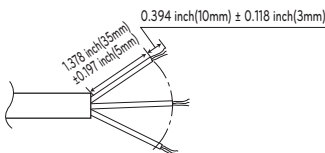
③ Make sure each wire is securely fastened under each screw terminal and the wires are not in contact with each other.

④ Please connect the Terminal blocks of indoor unit's C/BOX and wired remote controller by referring to the images and contents shown below.
Connect the yellow(signal) part of the wired remote controller's terminal block and the 'YL' part of the indoor unit's terminal block.
Connect the red(12V) part of the wired remote controller's terminal block and the 'RD' part of the indoor unit's terminal block.
Connect the black(GND) part of the wired remote controller's terminal block and the 'BK' part of the indoor unit's terminal block.
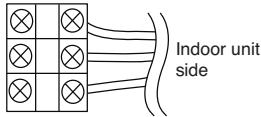
Remote controller PCB Terminal block Remark	Indoor Terminal block	Function
YELLOW	YL	Signal
RED	RD	12V
BLACK	BK	GND

<Remote controller>   <Indoor Terminal Block>

❊ In case of loosened screws or insufficient contact between the terminal and the wire, remote controller may not function properly.

❊ When the power is off on the remote controller, check the connection between the remote controller and Terminal Block.

❊ Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will strip the head and make proper tightening impossible.

❊ Over-tightening the terminal screws may break wires and terminal block structure.

⚠ CAUTION

- Installation work must be performed in accordance with the national wiring standards and local by authorized personnel only.
- Installations must comply with the applicable local/national or international standards.
- AWG#22, 3 core shielded is recommended when using the large hole in the center of the back plate.
- AWG#24, 3 core shielded is recommended when using the side or top knock-out of the back plate.

5. Please use an extension cable if the distance between the wired remote controller and the indoor unit is longer than 32ft(10m).

⚠ CAUTION

When installing the wired remote controller, do not bury it in the wall.
(It can cause damage in the temperature sensor.)
Do not install the cable to be 164ft(50m) or longer. (It can cause communication error.)

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.

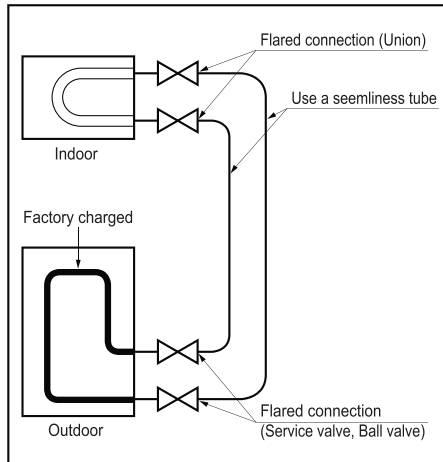**Do not install the remote controller where it can be affected by:**

- 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 LCD display. For proper display of the remote controller LCD's, the remote controller should be installed properly as shown in Fig.1. (The standard height is 4~5 ft (1.2~1.5 m) from floor level.)

Direct
Sun ray contact area

yes

no

no

5feet
(1.5meters)

no

(Fig. 1)
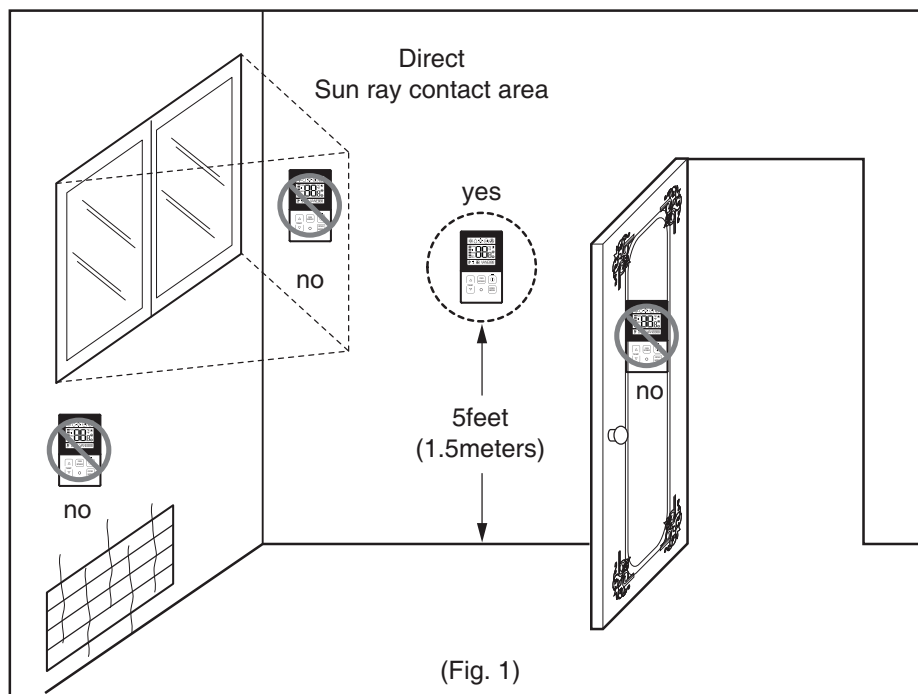
REFRIGERANT PIPING

Perform the work according to the Service Manual or Installation Guide.

• Use two spanners when connecting the refrigerant pipe to the unit.
• Make a bend with a radius as large as possible.
• Perform air purge with R-22 or vacuum drying.
• When piping work is finished, check all joints.

Flared connection (Union)

Use a seemliness tube

Indoor

Factory charged

Outdoor

Flared connection
(Service valve, Ball valve)

INSTALLATION OF OUT DOOR UNIT

Select a location that satisfies the following conditions. Install the unit firmly in place.

■ Select the following location
• A place where the air conditioner can get good ventilation.
• A place where it shall not annoy the neighbors.
• A place where the unit shall be leveled and that can support the weight of unit and withstand its vibrations.

■ Keep a maintenance space

* One side must be 90Cm for service.
 Two of the remaining three sides may be 30Cm.

Above 30Cm

Outdoor unit

Above 30Cm

Above 70Cm

Above 50Cm

Face of wall
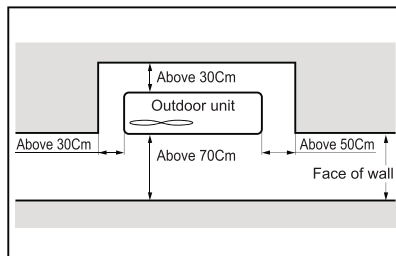
ELECTRICAL WIRING	Perform the electrical wiring work according to the electrical wiring connection.

• All wiring must comply with local requirements.
• Select a power source that is capable of supplying the current required by the air conditioner.
• Use a recognized circuit breaker between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.
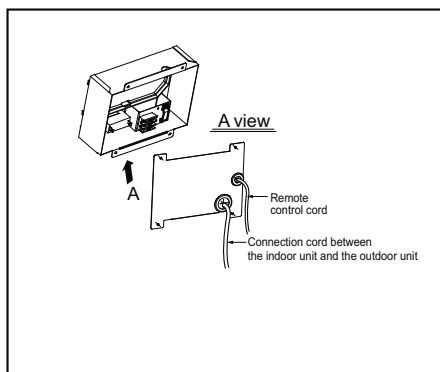• Capacity of circuit breaker

| Model	1 Phase
AB-C096TLA0 AB-C126TLA0	20 A
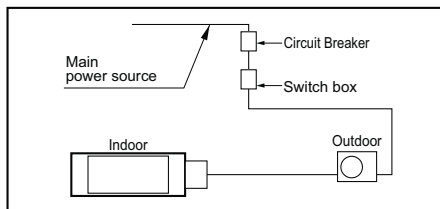
WIRING CONNECTION

Indoor unit

• Remove the control box cover for electrical connection between the indoor and outdoor unit.
  (Remove crews ①.)
• Use the cord clamper to fix the cord.

Outdoor unit

• Remove the control cover for wiring connection.

• Use the cord clamper to fix the cord.

• Earthing work
  Connect the cable of diameter 1,6mm² or more to the earthing terminal provided in the control box and do earthing.

※ Please check !!
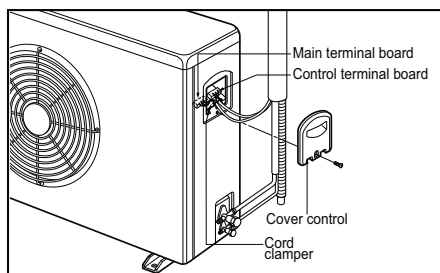
Connecting Pipes to the Indoor Unit

Preparation of Piping

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

Cut the pipes and the cable.

- Use the accessory piping kit or the pipes purchased locally.
- Measure the distance between the indoor and the outdoor unit.
- Cut the pipes a little longer than measured distance.
- Cut the cable 1,5m longer than the pipe length.

Burrs removal

- Completely remove all burrs from the cut cross section of pipe/tube.
- Put the end of the copper tube/pipe to downward direction as you remove burrs in order to avoid to let burrs drop in the tubing.

Putting nut on

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

Flaring work

- Carry out flaring work using flaring tool as shown below.

Outside Diameter	"A"
6,35 mm (1/4")	1,1~1,3 mm
9,52 mm (3/8")	1,5~1,7 mm
12,7 mm (1/2")	1,6~1,8 mm
15,88 mm (5/8")	1,6~1,8 mm
19,05 mm (3/4")	1,9~2,1 mm

Firmly hold copper tube in a bar(or die) as indicated dimension in the table above.

Check

- Compare the flared work with figure.
- If flare is noted to be defective, cut off the flared section and do flaring work again.
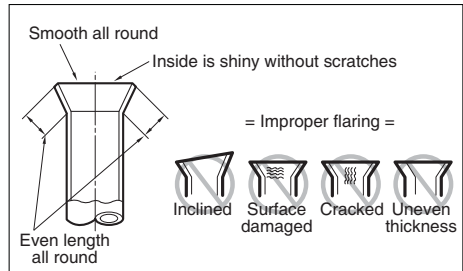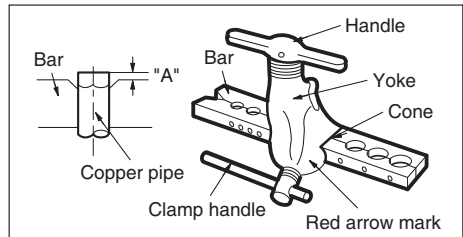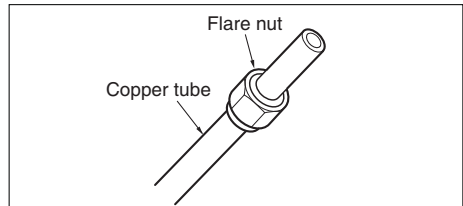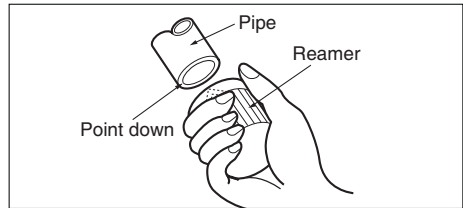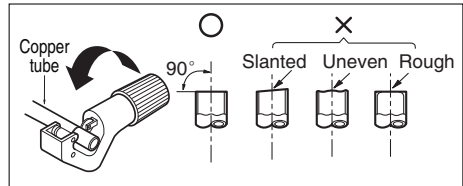
Pipe bending

Annealed copper pipe with small diameter (ø6,35 or ø9,52) can be easily bent manually. In this case, secure large R(radius) for the bend section and gradually bend pipe. If annealed copper pipe is large in diameter (ø15,88 or ø19 05), bend pipe with bender. Use bender appropriate for the pipe diameter.

Brazing

In refrigerant piping, bending (in particular, acute bending) must be minimized to reduce piping resistance. Bending is, however, necessary in some places by virtue of the installation position of devices auxiliary to the packaged air conditioner, or of the building structure, piping distance or finishing appearance. If a more acute bend is required than that attainable by pipe bender, perform brazing using ready-made elbow. Aside from this function, brazing also serves to connect straight pipes, generally using ready-made sockets. While brazing, protect piping against heat with wet cloth to avoid damaging valve packing or burning thermal insulator with burner heat. While brazing, blow inert gas (nitrogen gas or carbonic gas) to prevent formation of oxidation film in copper piping; otherwise, the refrigerant circuit will clog. The blowing of nitrogen gas (or carbonic gas) through 3-way valves is described in the following:

Refrigerant piping(Flare piping)

When connecting piping, be sure to keep piping dry(keep piping away from water), clean (keep piping away from dust) and airtight (avoid refrigerant leakage).
When connecting piping on rainy days or making a through-hole in wall, take due care to prevent water or plaster from entering piping.
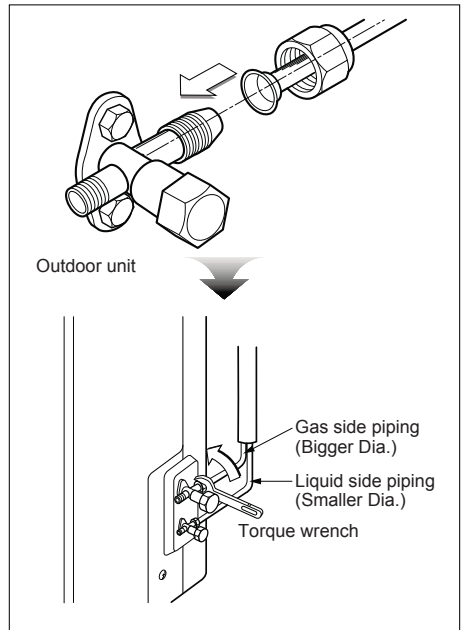

Water enters   Plaster enters
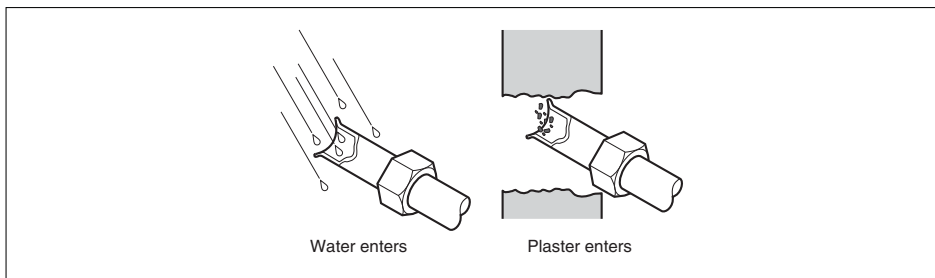
CAUTION:
• **This procedure is designed to prevent formation of oxidation film by filling piping with inert gas. Note that excessive gas pressure will generate pinholes at brazed points.**
(Nitrogen gas: Supply pressure 0,05~0,1kg/cm²G)
• **When supplying inert gas, be sure to open one end of piping.**

Connecting Pipes to the Outdoor Unit

Connecting the pipes to the Outdoor unit

• Align the center of the pipings and sufficiently tighten the flare nut with fingers.

• Finall y, tighten the flare nut with torque wrench until the wrench clicks.
  - When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.

Pipe size	kgf·m	N·m
6.35(1/4")	1.8~2.5	14~18
9.52(3/8")	3.4~4.2	34~42
12.70(1/2")	5.5~6.6	49~61
15.88(5/8")	6.3~8.2	68~82
19.05(3/4")	9.9~12.1	100~120

Outdoor unit

Gas side piping (Bigger Dia.)

Liquid side piping (Smaller Dia.)

Torque wrench

Checking the Drainage

Checking the Drainage

• Remove the Air Filter.

• 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.
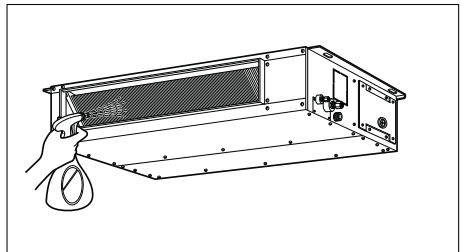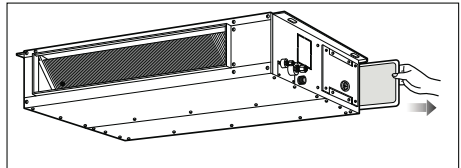
Connecting Cables between Indoor Unit and Outdoor Unit

Connecting cables to the Indoor Unit

■ Connect the wires to 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

■ Heat pump type

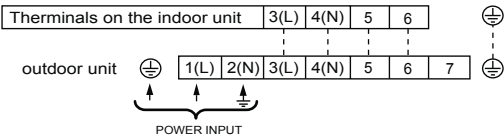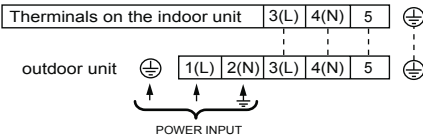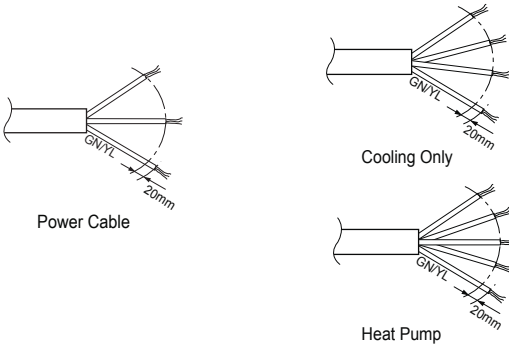| Therminals on the indoor unit	3(L)	4(N)	5	6		⏚

outdoor unit	⏚	1(L)	2(N)	3(L)	4(N)	5	6	7	⏚

POWER INPUT

■ Cooling only type

Therminals on the indoor unit	3(L)	4(N)	5	⏚

outdoor unit	⏚	1(L)	2(N)	3(L)	4(N)	5	⏚

POWER INPUT

Specification	Connecting Cable				Power Cable
	1 , 2	3 , 4	5 , 6	7 , 8	
Capacity Btu/h	-	$\geqslant$2.5mm^2	$\geqslant$0.75mm^2	-	$\geqslant$2.5mm^2 1(L),2(N)

GN/YL
20mm
Power Cable

GN/YL
20mm
Cooling Only

GN/YL
20mm
Heat Pump

• Rubber insulation,type insulation,type H05RN-F approved by HAR or SAA.
• If the supply cord is damaged,it must be replaced by a special cord or assemble availible from the manufacturer of its aervice
  WARNING: Make sure that the screws of the terminal are free from looseness.

Clamping of cables

■ Arrange 2 power cables on the control panel.
■ First,fasten the steel clamp with a screw to the inner boss of control panel.
■ For the cooling model,fix the other side of the clamp with a screw strongly.
   For the heat pump model,put the 0.75mm^2 cable(thinner cable) on the clamp and tighten it.
   with a plastic clamp to the other boss of the control panel.
■ In Australia, the length of power supply cord measured from the entry of the power supply
   cord to the middle of live pin on the power plug should be over 1.8m.

Clamping of cables

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  For the heat pump model, put the 0,75mm^2 cable(thinner cable) on the clamp and tighten it with a plastic clamp to the other boss of the control panel.
• In Australia, the length of power supply cord measured from the entry of the power supply cord to the middle of live pin on the power plug should be over 1,8m.

Connecting the cable to the Outdoor Unit

• Remove the Cover control from the unit by loosening a screw.
  Connect the wires to the terminals on the control board individually as following.
• Secure the cable onto the control board with the holder (clamper).
• Refix the cover control to the original position with the screw.
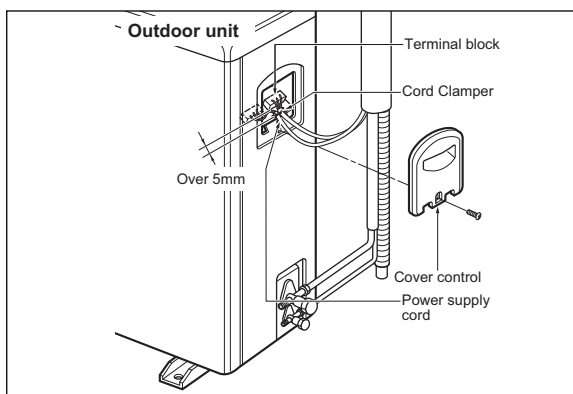
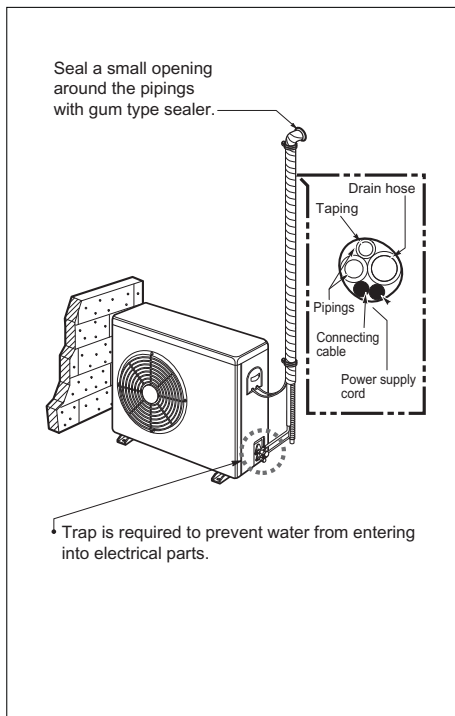**CAUTION: After the confirmation of the above conditions, prepare the wiring as follows:**

1) Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.
2) Provide a circuit breaker switch between power source and the unit.
3) The screw 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 maintained at more than 90 percent of the rated voltage marked on the name plate.
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 a leakage breaker where it is wet or moist.
9) The following troubles would be caused by voltage drop-down.
   • Vibration of a magnetic switch, damage on the contact point there of, fuse breaking, disturbance to the normal function of a overload protection device.
   • Proper starting power is not given to the compressor.

Form the pipings

- Wrap the connecting portion of indoor unit with the Insulation material and secure it with two Plastic Bands. (for the right pipings)

  - If you want to connect an additional drain hose, the end of the drain-outlet should keep distance from the ground. (Do not dip it into water, and fix it on the wall to avoid swinging in the wind.)

  In case of the Outdoor unit being installed below position of the Indoor unit.

- Tape the Pipings, drain hose and Connecting Cable from bottom to top.
- Form the pipings gathered by taping along the exterior wall and fix it onto the wall by saddle or equivalent.

Seal a small opening around the pipings with gum type sealer.

Drain hose
Taping
Pipings
Connecting cable
Power supply cord

Trap is required to prevent water from entering into electrical parts.

  In case of the Outdoor Unit being installed above position of the Indoor Unit.

- Tape the Pipings and Connecting cable from bottom to top.
- Form the pipings gathered by taping along the exterior wall, and make the trap prevent water from entering into the room.
- Fix the pipings onto the wall by saddle or equivalent.

Seal a small opening around the pipings with gum type sealer.

Trap
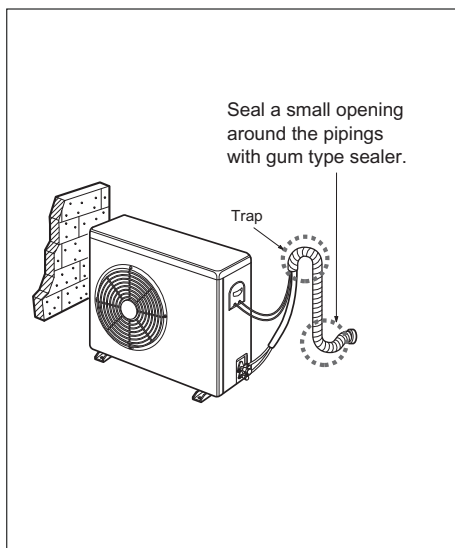
Air Purging and Evacuation

Air and moisture remaining in the refrigerant system have undesirable effects as indicated below.
1. Pressure in the system rises.
2. Operating current rises.
3. Cooling(or heating) efficiency drops.
4. Moisture in the refrigerant circuit may freeze and block capillary tubing.
5. Water may lead to corrosion of parts in the refrigeration system.
Therefore, the indoor/outdoor unit and connecting tube must be checked for leak tight, and vacuumed to remove incondensible gas and moisture in the system.

Checking method

Preparation

• Check that each tube(both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve caps from both the gas and the liquid side on the outdoor unit. Check that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.

Leakage test

• Connect the manifold valve(with pressure gauges) and dry nitrogen gas cylinder to this service port with charge hoses.

⚠ **CAUTION: Be sure to use a manifold valve for leakage test. If it is not available, use a stop valve for this purpose. The "Hi" knob of the manifold valve must always be kept close.**

• Pressurize the system to no more than 150 P.S.I.G. with dry nitrogen gas and close the cylinder valve when the gauge reading reached 150 P.S.I.G. Next, test for leaks with liquid soap.

⚠ **CAUTION: To avoid nitrogen entering the refrigerant system in a liquid state, the top of the cylinder must be higher than its bottom when you pressurize the system. Usually, the cylinder is used in a vertical standing position.**

1. Do a leakage test of all joints of the tubing(both indoor and outdoor) and both gas and liquid side service valves.
   Bubbles indicate a leak. Be sure to wipe off the soap with a clean cloth.

2. After the system is found to be free of leaks, relieve the nitrogen pressure by loosening the charge hose connector at the nitrogen cylinder. When the system pressure is reduced to normal, disconnect the hose from the cylinder.

Indoor unit
Outdoor unit
Manifold valve
Pressure gauge
Charge hose
Nitrogen gas cylinder(in vertical standing position)
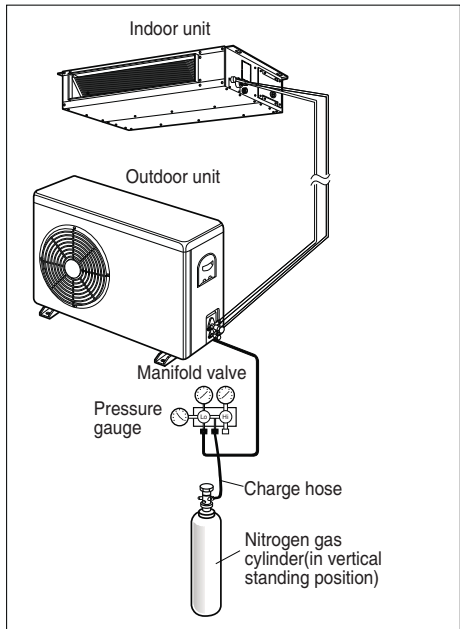
Soap water method

1. Remove the caps from the 2-way and 3-way valves.
2. Remove the service-port cap from the 3-way valve.
3. To open the 2-way valve turn the valve stem counterclockwise approximately 90°, wait for about 2~3 sec, and close it.
4. Apply a soap water or a liquid neutral detergent on the indoor unit connection or outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping.
5. If bubbles come out, the pipes have leakage
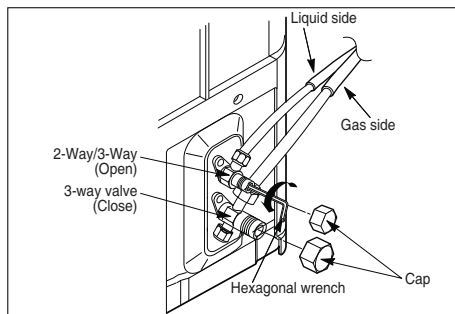
Evacuation

1. Connect the charge hose end described in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit.
   Confirm the "Lo" knob of the manifold valve is open. Then, run the vacuum pump.
   The operation time for evacuation varies with tubing length and capacity of the pump.
   After the vacuum state is 0,8 torr, continue to vacuumize over 10 minutes more.

2. When the desired vacuum is reached, close the "Lo" knob of the manifold valve and stop the vacuum pump.

Finishing the job

1. With a service valve wrench, turn the valve stem of liquid side valve counter-clockwise to fully open the valve.
2. Turn the valve stem of gas side valve counter-clockwise to fully open the valve.
3. Loosen the charge hose connected to the gas side service port slightly to release the pressure, then remove the hose.
4. Replace the flare nut and its bonnet on the gas side service port and fasten the flare nut securely with an adjustable wrench. This process is very important to prevent leakage from the system.
5. Replace the valve caps at both gas and liquid side service valves and fasten them tight.

This completes air purging with a vacuum pump.
The air conditioner is now ready to test run.
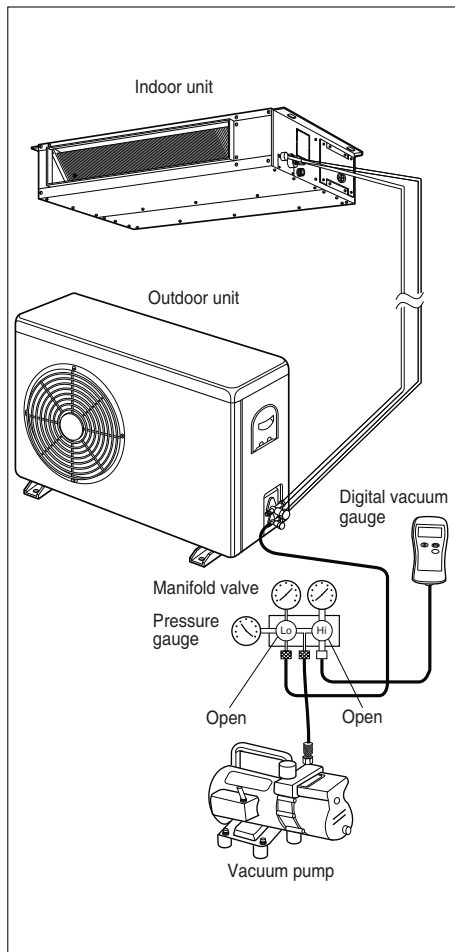
Group control

1. When installing more than 2 units of air conditioner to one wired remote controller, please connect as the right figure.

GND
Signal wire
12V

GND   Signal wire

• If it is not event communication indoor unit, set the unit as slave.
• Check for event communication through the product manual.
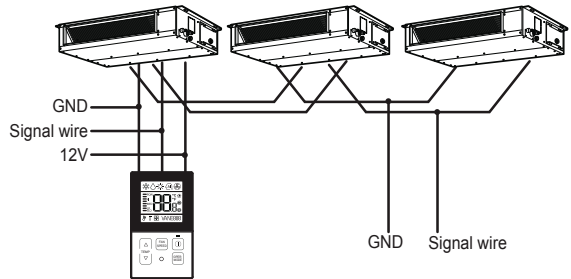
When controlling multiple indoor units with event communication function with one remote controller, you must change the master/slave setting from the indoor unit.

Indoor units, the master/slave configuration of the product after completion of indoor unit power 'OFF' and then 'ON' the power after 1 minutes elapsed sign up.

- For ceiling type cassette and duct product group, change the switch setting of the indoor PCB.

#3 switch OFF: Master
(Factory default setting)

#3 switch ON: Slave

- For wall-mount type and stand type product, change the master/slave setting with the wireless remote controller. (Refer to wireless remote controller manual for detail)

❋ When installing 2 remote controllers to one indoor unit with event communication function, set the master/slave of the remote controller. (Refer to remote controller master/slave selection)

When controlling the group, some functions excluding basic operation setting, fan level Min/Mid/Max, remote controller lock setting and time setting may be limited.

2. When installing more than 2 wired remote controllers to one air conditioner, please connect as the right picture.

GND
Signal wire
12V
B Y R

GND
Signal wire
12V
B Y R

MASTER   SLAVE

<When simultaneously connecting 2 sets of wired remote controller>

• When installing more than 2 units of wired remote controller to one air conditioner, set one wired remote controller as master and the others all as slaves, as shown in the right picture.
• You cannot control the group as shown in the right for some products.
• Refer to the product manual for more detail.
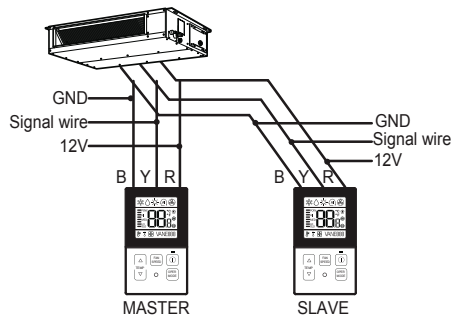
• When controlling in groups, set the master/slave of the remote controller. Refer to Installer setting section on how to set master/slave for more detail.

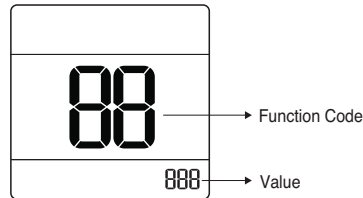# *Installer Setting - How to enter installer setting mode*

⚠ CAUTION

Installer setting mode is to set the detail function of the remote controller.
If the installer setting mode is not set correctly, it can cause problems to the product, user injury or property
damage. This must be set by an certificated installer, and any installation or change that is carried out by a
non-certificated person should be responsible for the results. In this case, free service cannot be provided.
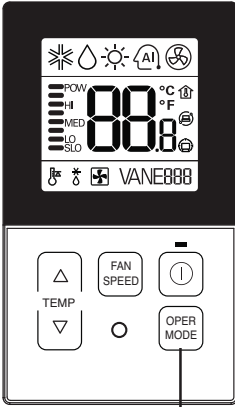
1 If you want to set installer setting mode, press the temperature up button and the oper mode button same time for five seconds.

2 When you enter the setting mode initially. Function code is displayed on the LCD screen.

→ Function Code

→ Value

### <Installer Setting Code Table>
1) General air-conditioner product

No.	Function	Code	Value
1	Test Run	01	01:Set
2	Address Setting	02	00~FF : Address
3	E.S.P. Value	03	<ESP Step>　　<ESP Value>　　<Example> 01:VeryLow　　　0 ~ 255 02:Low 03:Med 04:High　　Function Code　ESP step　ESP value 05:Very High
4	Thermistor	04	01:Remo 02:Indoor 03:2TH
5	Ceiling Height	05	01:Med 02:Low 03:High 04:Very High
6	Static Pressure	06	01:V-H 02:F-H 03:V-L 04:F-L
7	Master Setting	07	00:Slave 01:Master
8	Celsius Fahrenheit Switching	12	00:Celsius 01:Fahrenheit　(Optimized only for U.S.A)
9	Static Pressure Step	32	00: use static pressure (code 06) set value 01~ 11: static pressure step (code 32) set value

❈ Some contents may not be displayed depending on the product function

Installer Setting - Test Run Mode

After installing the product, you must run a Test Run mode.

For details related to this operation, refer to the product manual.
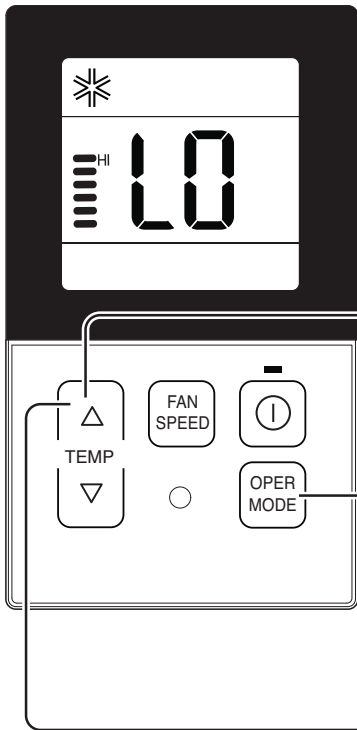
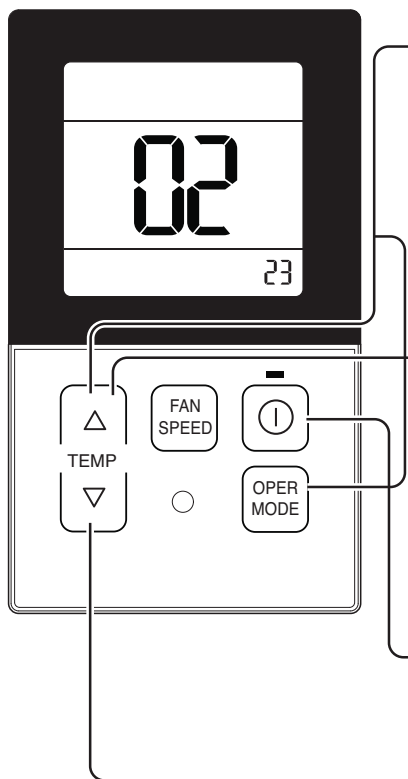|	
1	When pressing the ⌂ button and OPER MODE button simultaneously for more than 3 seconds, the system will be entered into the installer setting mode. - After entering into the installer setting mode, select the test run mode code value by pressing the OPER MODE button. * Test run mode code value : 01
2	When pressing the OPER MODE button, the test operation mode will be performed, and it is displayed as shown in the left figure.
3	When pressing the ⌂ button and OPER MODE button simultaneously for more than 3 seconds after the setting has been completed, the setting mode will be released. - If there isn't any button input for more than 25 seconds, the installer setting mode will also be released.
4	When approx. 18 minutes are elapsed after starting of the test oper-mode, the system will be stopped automatically and converted to the standby state. - If any button is inputted during the test run mode, the test run mode will be forced to be relreased.

• What is the test run mode??

- This means the operation of the product under the cooling, strong wind, and Comp on state without performing room temperature control in order to confirm the installed state during the product installation.

Installer Setting - Setting Address of Central Control

It's the function to use for connecting central control.
Please refer to central controller manual for the details

1 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds, the system will be entered into the installer setting mode.
 - After entering into the installer setting mode, select the central control address setting code value by pressing the OPER MODE button.
 * Setting address of central control code value : 02

2 Set up the group number and indoor unit with the temperature adjustment(▲,▼) buttons.

△ ——— Group number
TEMP
▽ ——— Indoor unit number
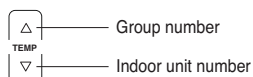
For example, when setting as
 [Group number=2   Indoor number=3]
it will be displayed as shown in the left figure.

3 When pressing the ⏻ button, the system will be set up with the address value which has been established at present.

4 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds after the setting has been completed, the setting mode will be released.
 - If there isn't any button input for more than 25 seconds, the installer setting mode will also be released.

• If you connect the indoor unit to the central controller, you should set the network address of the indoor unit so that the central controller could recognize it.
• The center-control address is composed of the group number and the indoor-unit number.

Note : The remote controller displays 'HL' if central controller has locked the remote controller.

* In the case when the lock is set up at the central controller, 'HL' will be indicated on the display window of the wired remote controller and the indoor unit will not be controlled by the remote controller.

Installer Setting - E.S.P.

This is the function that decides the strength of the wind for each wind level and because this function is to make the installation easier.

・ **If you set ESP incorrectly, the air conditioner may malfunction.**
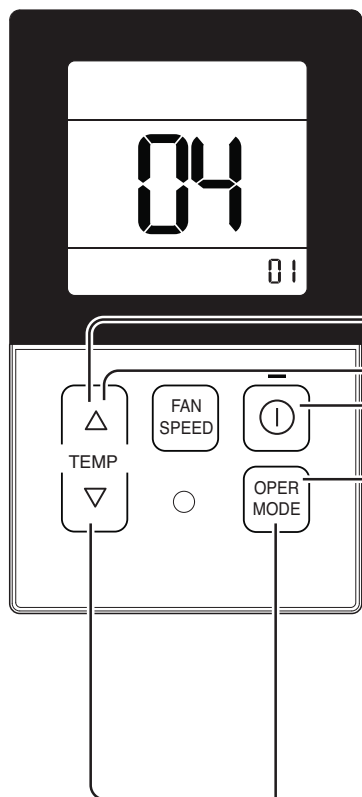・ **This setting must be carried out by a certificated-technician.**
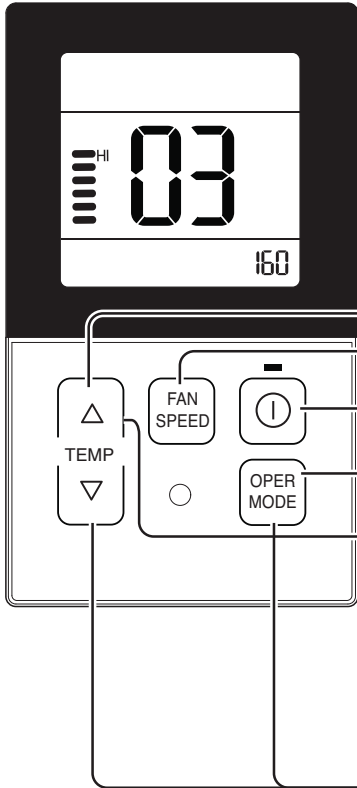
1 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds, the system will be entered into the installer setting mode.
   - After entering into the installer setting mode, select the E.S.P code value by pressing the OPER MODE button.
   * E.S.P code value : 03

2 Select the desired air flow rate with the FAN SPEED button. Whenever pressing the FAN SPEED button, [LO→MED→HI] will be indicated.

3 Select the desired air flow rate value with the temperature up(▲), down(▼) button.
   * E.S.P value range : 0~255
   - E.S.P value will be indicated at the upper right section of the display window.

4 When pressing the ⓞ button, currently established E.S.P value will be set up.

5 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds after the setting has been completed, the setting mode will be released.
   - If there isn't any button input for more than 25 seconds, the installer setting mode will also be released.

・ Precaution shall be taken not to alter the E.S.P value corresponded to each air flow section.
・ E.S.P value can be varied according to the products.
・ In the case of going to the next air flow rate stage by pressing the fan-speed button during the setup of the E.S.P value, the E.S.P value of previous air flow rate will be maintained by remembering the E.S.P value prior to the shift.

Installer Setting - Thermistor

This is the function to select the temperature sensor to judge the room temperature.

1 When pressing the $\boxed{\triangle}$ button and $\boxed{\text{OPER MODE}}$ button simultaneously for more than 3 seconds, the system will be entered into the installer setting mode.
  - After entering into the installer setting mode, select the thermistor sensor setting code value by pressing the $\boxed{\text{OPER MODE}}$ button.
    * Thermistor sensor selection code value : 04

2 Select the desired setting value with the temperature up(▲), down(▼) button.

Code value

Va lue

*Setting value
01: Remote controller
02: Indoor unit
03: 2TH

3 When pressing the $\boxed{\circled{0}}$ button, currently established thermistor sensor location will be set up.

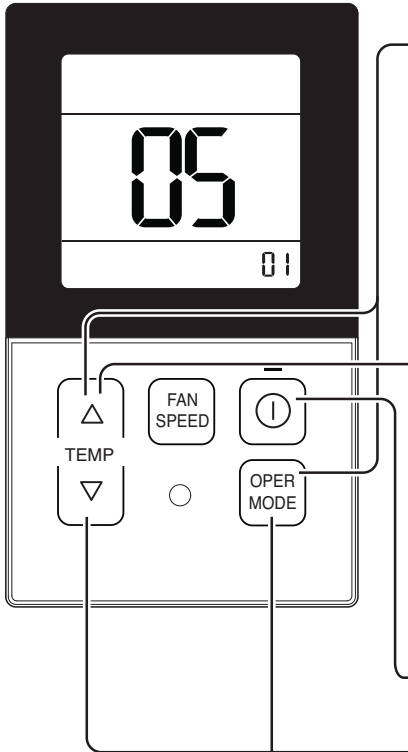**4** When pressing the $\boxed{\triangle}$ button and $\boxed{\text{OPER MODE}}$ button simultaneously for more than 3 seconds after the setting has been completed, the setting mode will be released.
  - If there isn't any button input for more than 25 seconds, the installer setting mode will also be released.

FAN SPEED

TEMP

OPER MODE

• As the characteristic of the '2TH' function can be different in accordance with the products, refer to the product instruction manual for its detail.

Installer Setting - Ceiling Height Selection

This function is to adjust FAN Airflow rate according to ceiling height (For ceiling type product)

1 When pressing the ⌐△⌐ button and [OPER MODE] button simultaneously for more than 3 seconds, the system will be entered into the installer setting mode.
- After entering into the installer setting mode, select the ceiling height setting code value by pressing the [OPER MODE] button.
* Ceiling height setting code value : 05

2 Select the desired setting value with the temperature up(▲), down(▼) button.

Code value — 05
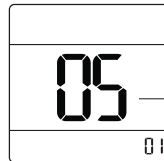
Value — 01

*Setting value
01: Low
02: Standard
03: High
04: Very high

3 When pressing the ⊙ button, currently established ceiling height value will be set up.

4 When pressing the ⌐△⌐ button and [OPER MODE] button simultaneously for more than 3 seconds after the setting has been completed, the setting mode will be released.
- If there isn't any button input for more than 25 seconds, the installer setting mode will also be released.

FAN SPEED

TEMP △ ▽

OPER MODE

• As the ceiling height setting standard can be different in accordance with the products, refer to the product instruction manual for its detail.

<Ceiling Height Selection Table>

	Ceiling Height Level	Description
01	Low	Decrease the indoor airflow rate 1 step from standard level
02	Standard	Set the indoor airflow rate as standard level
03	High	Increase indoor airflow rate 1 step from standard level
04	Very high	Increase indoor airflow rate 2 steps from standard level

• Ceiling height setting is available only for some products.
• Ceiling height of 'Very high' function may not exist depending on the indoor unit.
• Refer to the product manual for more details.

Installer Setting - Static Pressure Setting

This function is applied to only duct type. Setting this in other cases will cause malfunction.
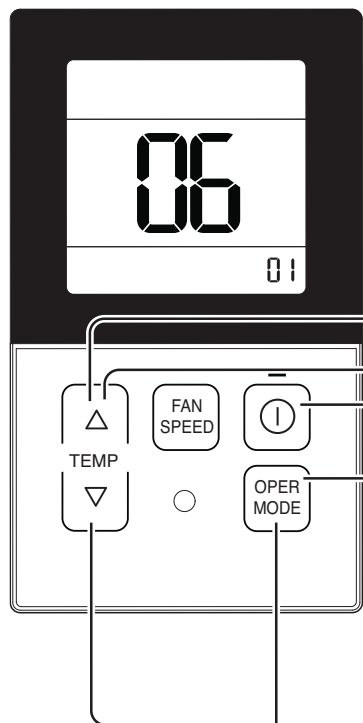
1 When pressing the ⬓ button and [OPER MODE] button simultaneously for more than 3 seconds, the system will be entered into the installer setting mode.
- After entering into the installer setting mode, select the static pressure setting code value by pressing the [OPER MODE] button.
 * Static pressure setting code value : 06

2 Select the desired setting value with the temperature up(▲), down(▼) button.
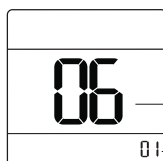
*Setting value
01:V-H
02:F-H
03:V-L
04:F-L

Code value

Value

3 When pressing ⊙ button, currently established static pressure value will be set up.
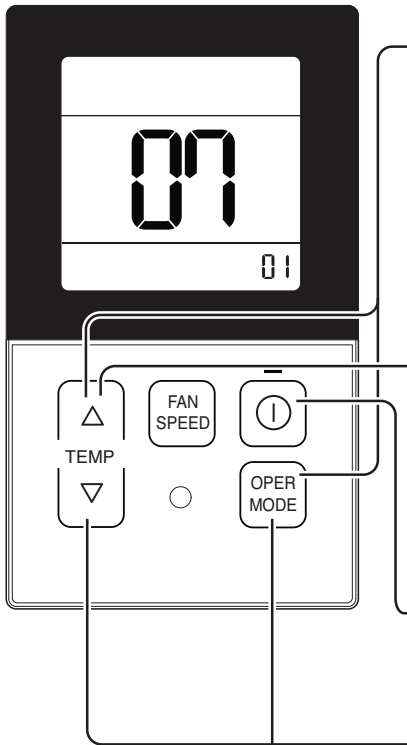
4 When pressing the ⬓ button and [OPER MODE] button simultaneously for more than 3 seconds after the setting has been completed, the setting mode will be released.
- If there isn't any button input for more than 25 seconds, the installer setting mode will also be released.

FAN SPEED

TEMP

OPER MODE

<Static Pressure Setting Table>

Pressure selection		Function	
		Zone state	ESP standard value
01	V-H	Variable	High
02	F-H	Fixed	High
03	V-L	Variable	Low
04	F-L	Fixed	Low

Installer Setting - Remote Controller Master/Slave Setup

It is a function for settings in group control, or 2-remote controller control.

1 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds, the system will be entered into the installer setting mode.
- After entering into the installer setting mode, select the remote controller master / slave setting code value by pressing the OPER MODE button.
* Remote controller master/slave setting code value : 07

2 Select the desired setting value with the temperature up(▲), down(▼) button.

*Setting value
00:Slave
01:Master

Code value

Value

3 When pressing the ⊙ button, currently established static pressure value will be set up.

4 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds after the setting has been completed, the setting mode will be released.
- If there isn't any button input for more than 25 seconds, the installer setting mode will also be released.

Remote controller	Function
Master	Indoor unit operates based on master remote controller at group control. (Master is set when delivering from the warehouse.)
Slave	Setup all remote controllers except one master remote controller to slave at group control

✽ Refer to the 'group control' part for details

• When controlling in groups, basic operation settings, airflow strength weak/medium/strong, lock setting of the remote controller, time settings, and other functions may be restricted.

Installer Setting - Celsius / Fahrenheit Switching

This function is used for switching the display between Celsius and Fahrenheit.
(Optimized only for U.S.A)
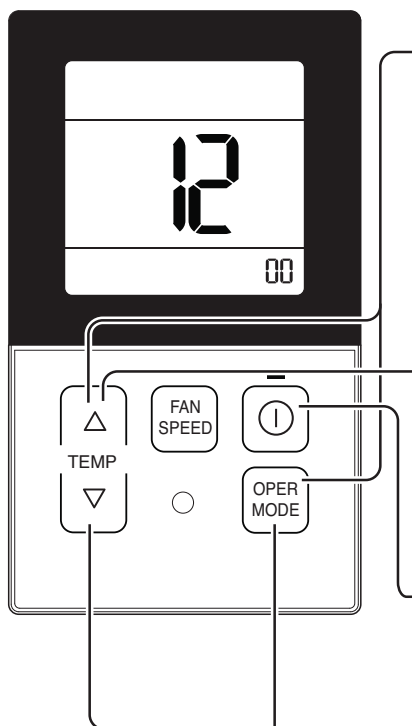
1 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds, the system will be entered into the installer setting mode.
  - After entering into the installer setting mode, select the Celsius / Fahrenheit setting code value by pressing the OPER MODE button.
    * Celsius/Fahrenheit setting code value : 12

2 Select the desired setting value with the temperature up(▲), down(▼) button.
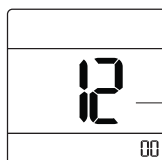
*Setting value
00:Celsius
01:Fahrenheit

Code value

Value

3 When pressing ⊙ button, currently established celsius/Fahrenheit setting value will be set up.

4 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds after the setting has been completed, the setting mode will be released.
  - If there isn't any button input for more than 25 seconds, the installer setting mode will also be released.

FAN SPEED

TEMP

OPER MODE

• Whenever press temp up(▲), down(▼) button in Fahrenheit mode, the temperature will increase/drop 2 degrees.

Installer Setting - Static Pressure Step Setting

This function is applied to only duct type. Setting this in other cases will cause malfunction.
This function is only available on some models.
This is the function that static pressure of the product is divided in 11 steps for setting.
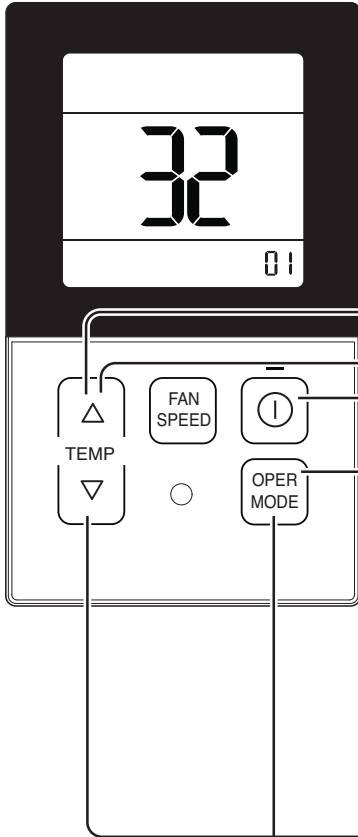
1 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds, the system will be entered into the installer setting mode.
- After entering into the installer setting mode, select the static pressure step setting code value by pressing the OPER MODE button.
* Static pressure step setting code value : 32

2 Select the desired setting value with the temperature up(▲), down(▼) button.
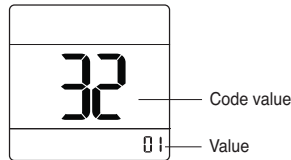
Code value
Value

00: use static pressure (code 06) set value
01~ 11: static pressure step (code 32) set value

3 When pressing ① button, currently established static pressure value will be set up.

4 When pressing the △ button and OPER MODE button simultaneously for more than 3 seconds after the setting has been completed, the setting mode will be released.
- If there isn't any button input for more than 25 seconds, the installer setting mode will also be released.

• Static Pressure (Code 06) setting will not be used if Static Pressure Step (Code 32) setting is being used.
• For the static pressure value for each step, refer to the indoor unit in the product manual.

External Static Pressure & air Flow

Static Pressure (mmAq)		0	1	2	3
Step	CMM	Setting Value			
Hi	9	165	165	165	165
Mid	8	194	194	194	194
Lo	7	222	222	222	222

Note: 1. To get the desired Airflow & E.S.P combination from the table set the matching value from the table.
Value other than that in table will not give the combinations of airflow & ESP which are mentioned in the
table.

2. Table 1 is based at 220V. According to the fluctuation of voltage, air flow rate varies.

3. Duct work must be designed within the range of ▭ on installing the unit.

4. When the static pressure value is lower than the minimum of E.S.P.,the air flow will be uncontrollable,
noise will be higer;When the stastic pressure vavlue is higer than the maximum of E.S.P.,the air flow will be smaller,
and it will result in abnormal cycle.

Installation Guide at the Seaside

> ⚠ CAUTION:
>
> 1. Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.
> 2. Do not install the product where it could be exposed to sea wind (salty wind) directly. It can result corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient performance.
> 3. If outdoor unit is installed close to the seaside, it should avoid direct exposure to the sea wind. Otherwise it needs additional anticorrosion treatment on the heat exchanger.

Selecting the location(Outdoor Unit)

1) If the outdoor unit is to be installed close to the seaside, direct exposure to the sea wind should be avoided. Install the outdoor unit on the opposite side of the sea wind direction.
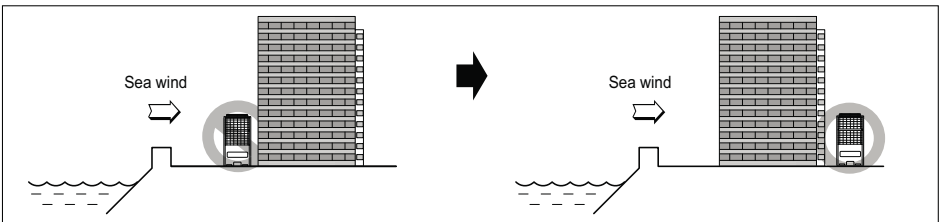
2) In case, to install the outdoor unit on the seaside, set up a windbreak not to be exposed to the sea wind.
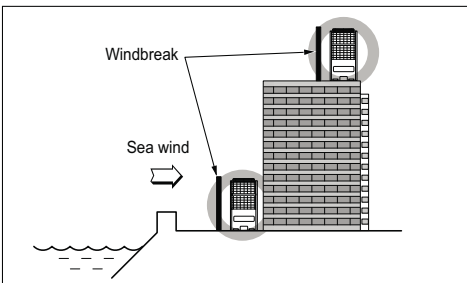
- It should be strong enough like concrete to prevent the sea wind from the sea.
- The height and width should be more than 150% of the outdoor unit.
- It should be keep more than 70 cm of space between outdoor unit and the windbreak for easy air flow.

3) Select a well-drained place.

> 1. If you can't meet above guide line in the seaside installation, please contact LG Electronics for the additional anticorrosion treatment.
> 2. Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water
>
> ❈ Do not use sea water when you clean up the heat exchanger.