

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 : Ceilling Concealed Duct



P/NO : MFL61971216

http://www.lghvac.com www.lg.com

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

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

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

A WARNING

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

Installation

- Always perform grounding. Otherwise, it may cause electrical shock.
- For installation of the product, always contact the service center or a professional installation agency. Otherwise, it may cause a fire, electrical shock, explosion or injury.
- Securely attach the electrical part cover to the indoor unit and the service panel to the outdoor unit. - If the electrical part cover of the indoor unit and the service panel of the outdoor unit are not attached securely, it could result in a fire or electric shock due to dust, water, etc.
- Always install an air leakage breaker and a dedicated switching board. No installation may cause a fire and electrical shock.
- Do not keep or use flammable gases or combustibles near the air conditioner. Otherwise, it may cause a fire or the failure of product.
- Ensure that an installation frame of the outdoor unit is not damaged due to use for a long time. - It may cause injury or an accident.
- Do not disassemble or repair the product randomly. It will cause a fire or electrical shock.
- Do not install the product at a place that there is concern of falling down. Otherwise, it may result in personal injury.
- Use caution when unpacking and installing. Sharp edges may cause injury.
- 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.
- Consult your lacal dealer regarding what to do in case of refrigerant leakage. When the air conditioner is to be installed in a small room, it is necessary to take proper measures so that the amount of any leaked refrigerant does not exceed the concentration limit in the event of a leakage. Otherwise, this may lead to an accident due to oxygen depletion.
- Carry out the specified installation work after taking into account earthquakes. Failure to do so during installation work may result in the unit falling and causing accidents.

4

- Make sure that a sekparate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual. An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.
- Be sure to switch off the unit before touching any electrical parts.
- Make sure that all wiring is secured, the specified wires are used, and that there is no strain on the terminal connections or wires.
- If refrigerant gas leaks during installation, ventilate the area immediately. Toxic gas may be produced if the refrigerant gas comes into contact with fire.

Operation

- Unplug the unit if strange sounds, smell, or smoke comes from it. Otherwise, it may cause electrical shock or a fire.
- Keep the flames away. Otherwise, it may cause a fire.
- Take the power plug out if necessary, holding the head of the plug and do not touch it with wet hands. Otherwise, it may cause a fire or electrical shock.
- Do not open the suction inlet of the indoor/outdoor unit during operation. Otherwise, it may electrical shock and failure.
- Do not allow water to run into electrical parts. Otherwise, it may cause the failure of machine or electrical shock.
- Never touch the metal parts of the unit when removing the filter. They are sharp and may cause injury.
- Do not step on the indoor/outdoor unit and do not put anything on it. It may cause an injury through dropping of the unit or falling down.
- When the product is submerged into water, always contact the service center. Otherwise, it may cause a fire or electrical shock.
- Take care so that children may not step on the outdoor unit. Otherwise, children may be seriously injured due to falling down.

Installation

- Install the drain hose to ensure that drain can be securely done. Otherwise, it may cause water leakage.
- Install the product so that the noise or hot wind from the outdoor unit may not cause any damage to the neighbors. Otherwise, it may cause dispute with the neighbors.
- Always inspect gas leakage after the installation and repair of product. Otherwise, it may cause the failure of product.
- Keep level parallel in installing the product. Otherwise, it may cause vibration or water leakage.

Operation

- Avoid excessive cooling and perform ventilation sometimes. Otherwise, it may do harm to your health.
- Use a soft cloth to clean. Do not use wax, thinner, or a strong detergent. The appearance of the air conditioner may deteriorate, change color, or develop surface flaws.
- Do not use an appliance for special purposes such as preserving animals vegetables, precision machine, or art articles. Otherwise, it may damage your properties.
- Do not place obstacles around the flow inlet or outlet. Otherwise, it may cause the failure of appliance or an accident.

5

TABLE OF CONTENTS

- 2 TIPS FOR SAVING ENERGY
- 3 IMPORTANT SAFETY INSTRUCTIONS

6 INSTALLATION PLACES

7 THE INDOOR UNIT INSTALLATION

- 12 Indoor Unit Drain Piping
- 12 Drain test
- 13 Heat insulation
- 13 Wiring Connection

15 REMOTE CONTROLLER INSTALLATION

17 OPTIONAL OPERATION

- 17 Installer Setting -Test Run Mode
- 18 Installer Setting Setting Address of Central Control
- 19 Installer Setting -Thermistor
- 20 Installer Setting-Group Setting
- 21 Installer Setting-Celsius / Fahrenheit Switching

22 HOW TO SET E.S.P?

22 Installer Setting -E.S.P.

24 SELF-DIAGNOSIS FUNC-TION

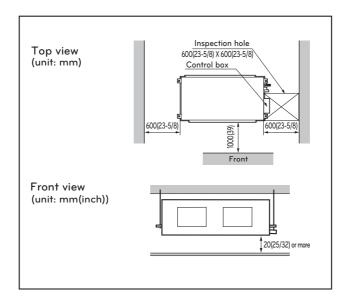
24 Indoor Unit Error

25 **DIP SWITCH SETTING**

INSTALLATION PLACES

Indoor unit

- 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



THE INDOOR UNIT INSTALLATION

Installation of Unit

Install the unit above the ceiling correctly.

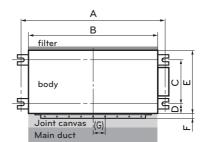


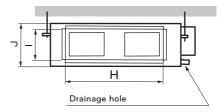
Position of suspension Bolt

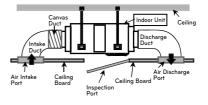
- Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.
- Apply a filter Accessory at air return hole.

Dimension Capacity	24 K	36 K
A	1,232(48.5)	1,290(50.8)
В	1,182(46.5)	1,230(48.4)
С	355(14)	447(17.6)
D	45.5(1.8)	56(2.2)
E	450(17.7)	590(23.2)
F	30(1.2)	30(1.2)
G	87(3.4)	120(4.7)
Н	830(32.7)	1,006(39.6)
I	186(7.3)	294(11.6)
J	298(11.7)	380(15)

Unit:mm(inch)





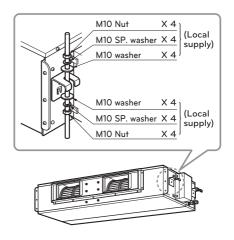


Case 2

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

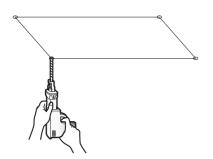
Position of console Bolt

- 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.

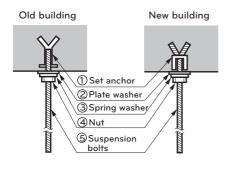


7

- 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.



•	Local	supply

- Set anchor
- 2 Plate washer M10
- ③ Spring washer M10
- (4) Nut W3/8 or M10
- (5) Suspension bolt W3/8 or M10

Tighten the nut and bolt top revent unit falling.

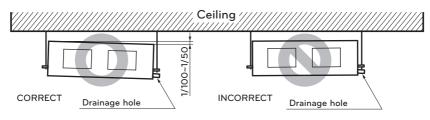
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- 1 Install declination of the indoor unit is very important for the drain of the duct type air conditioner.
- 2 Minimum thickness of the insulation for the connecting pipe shall be 5mm.

Front of view

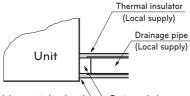
• The unit must be declined to the drain hose connected when finished installation.



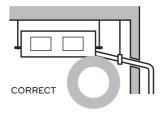
CAUTION FOR GRADIENT OF UNIT AND DRAIN PIPING

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

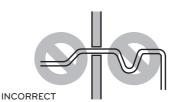
- Always lay the drain with downward inclination (1/100 to 1/50).
 Prevent any upward flow or reverse flow in any part.
- 10mm or thicker formed thermal insulator shall always be provided for the drain pipe.



Make sure to be closed. \ Drainage hole

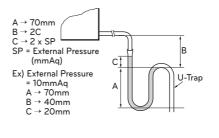


• Upward routing not allowed



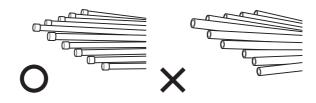
• Install the P-Trap (or U-Trap) to prevent a water leakage caused by the blocking of intake air filter.

Applied U-Trap Dimension



Plumbing materials and storage methods

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



Refrigerant piping on three principles

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

Nitrogen substitution method

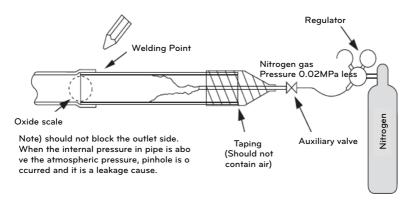
Welding, as when heating without nitrogen substitution a large amount of the oxide film is formed on the internal piping.

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

It prevents normal operation of the compressor.

In order to avoid this problem, Welding should be done after replacing air by nitrogen gas. When welding plumbing pipe, the work is required.

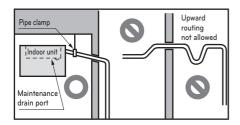
+How to work



- <u>CAUTION</u> -

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

Indoor Unit Drain Piping



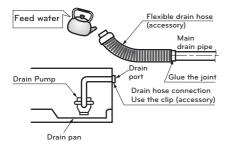
- Drain piping must have down-slope (1/50 to 1/100): be sure not to provide up-and-down slope to prevent reversal flow.
- During drain piping connection, be careful not to exert extra force on the drain port on the indoor unit.
- The outside diameter of the drain connection on the indoor unit is 32mm.

Piping material: Polyvinyl chloride pipe VP-25 and pipe fittings

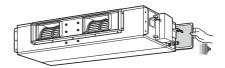
- Be sure to execute heat insulation on the drain piping.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300mm from the unit.

Heat insulation material: Polyethylene foam with thickness more than 8 mm.

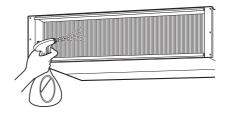
Drain test



- Connect the main drain pipe to the exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- When the test is complete, connect the flexible drain hose to the drain port on the indoor unit.
- 1 Remove the Air Filter.



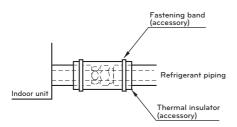
- 2 Check the drainage.
 - Spray one or two glasses of water upon the evaporator.
 - Ensure that water flows drain hose of indoor unit without any leakage.



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Heat insulation

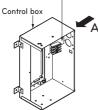
- 1 Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120°C).
- 2 Precautions in high humidity circumstance: This air conditioner has been tested according to the "KS Standard Conditions with Mist" and confirmed that there is not any default. However, if it is operated for a long time in high humid atmosphere (dew point temperature: more than 23°C), water drops are liable to fall. In this case, add heat insulation material according to the following procedure:
 - Heat insulation material to be prepared... Adiabatic glass wool with thickness 10 to 20mm.
 - Stick glass wool on all air conditioners that are located in ceiling atmosphere.

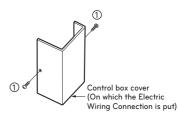


Wiring Connection

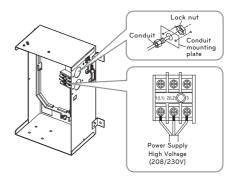
- Remove the control box cover for electrical connection between the indoor and outdoor unit. (Remove screws ①.)
- Open the control box cover and connect the Remote controller cord and Indoor power wires.
- Use the cord clamper to fix the cord.

Control terminal board



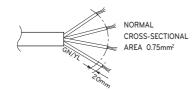


Connection method of the connecting cable(Example)

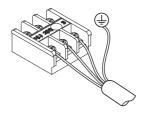


Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazzard may also exist. Therefore, be sure all wiring is tightly connected.

The connecting cable connected to the indoor and outdoor unit should be complied with the following specifications (Rubber insulation, type H05RN-F approved by HAR or SAA).



If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent. When the connection line between the indoor unit and outdooor unit and outdoor unit is over 40m, connect the telecommunication line and power line separately.



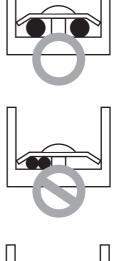
Precautions when laying power wiring

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.





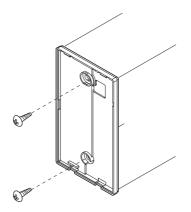
- For wiring, use the designated power wire and connect firmly, then secure to prevent outside pressure being exerted on the terminal block.
- Use an appropriate screwdriver for tightening the terinal screws. A screwdriver with a small head will strip the head and make proper tighterning impossible.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

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REMOTE CONTROLLER INSTALLATION

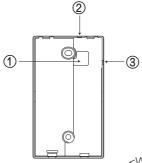
Please fix tightly using provided screw after placing remote controller setup board on the place where you like to setup.

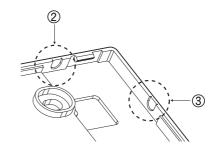
- Please set it up not to bend because poor setup could take place if setup board bends.
- Please set up remote controller board fit to the reclamation box if there is a reclamation box.



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>

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.

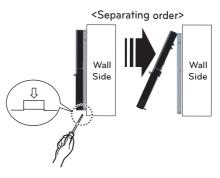
- Please make sure to leave no gaps on the top, bottom, left or right sides between the remote controller and backplate.
- Before assembly with the backplate, arrange the Cable not to interfere with circuit parts.

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



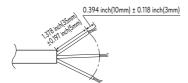
Please refer to the following directions when connecting the indoor unit and the wired remote controller together.

- AUTION-

- When installing the extension cable, make sure that the directions of the connectors on both sides (remote controller side and product side) are correct for the proper installation.
- If you install the extension cable in the wrong direction, the connectors will not be connected.
- Specification of extension cable : AWG22, 2core 1shield core or above.
- * 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.

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.)

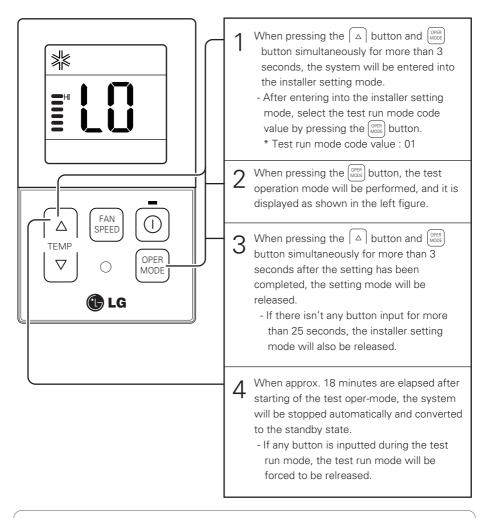


Signal	Yellow
12V	Red
GND	Black

OPTIONAL OPERATION

Installer Setting -Test Run Mode

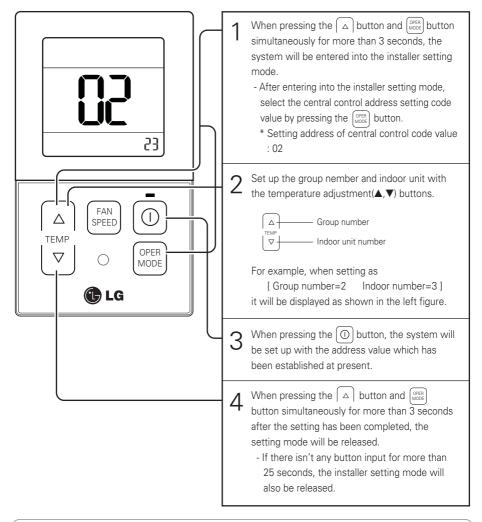
After installing the product, you must run a Test Run mode. For details related to this operation, refer to the product manual.



- 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

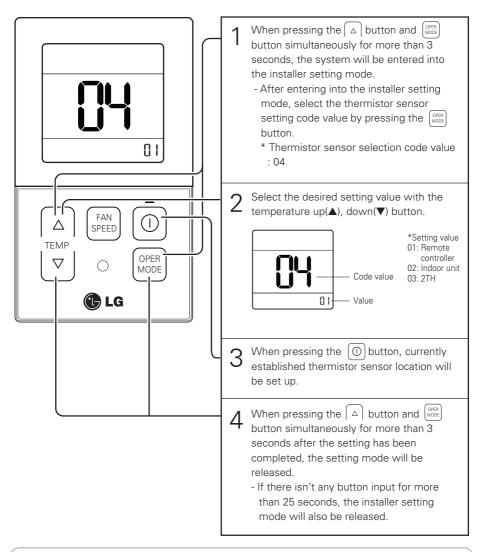
It's the function to use for connecting central control. Please refer to central controller manual for the details.



- 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 -Thermistor

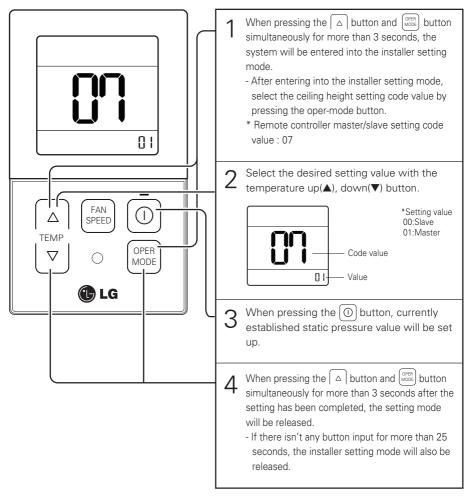
This is the function to select the temperature sensor to judge the room temperature.



• 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-Group Setting

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



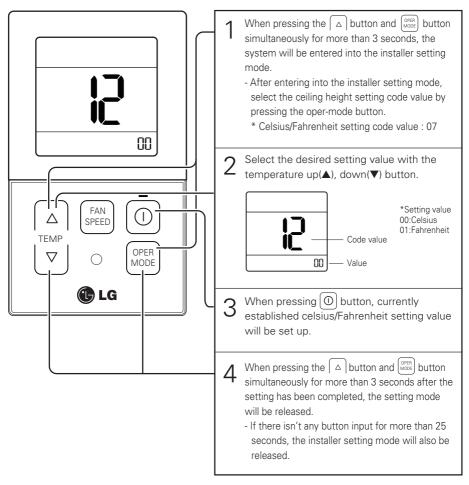
Remote controller	Function
Master	Indoor unit operates based on master remote controller at group control. (Master is set when delivering from the warehouse.)
Slave	Setup all remote controllers except one master remote controller to slave at group control

* 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) $\,$



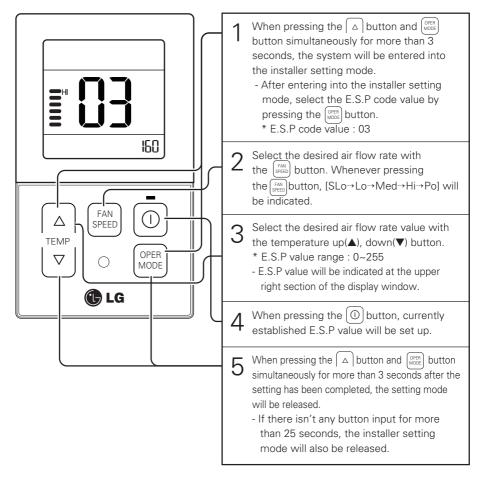
 Whenever press temp up(▲), down(▼) button in Fahrenheit mode, the temperature will increase/drop 2 degrees.

HOW TO SET E.S.P?

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.



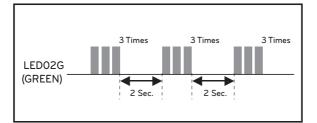
- Precaution shall be taken not to alter the E.S.P value corresponded to each air flow section.
- E.S.P value can be varied according to the products.
- In the case of going to the next air flow rate stage by pressing the fan-speed button during the setup of the E.S.P value, the E.S.P value of previous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

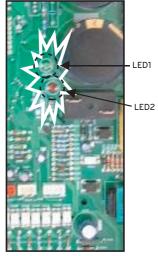
			Static Pressure(mmAq(in.Aq))										
Capacity	Step	CFM	2.5(0.1)	4(0.15)	6(0.23)	8(0.31)	10(0.39)	12(0.47)	14(0.55)	15(0.6)	16(0.62)	18(0.70)	20(0.78)
			Setting Value										
	HIGH	688	90	97	108	119	126	134	143	146	149	157	159
24k	MID	618	86	93	105	115	123	131	140	143	146	153	156
	LOW	530	82	90	102	112	120	128	137	140	143	150	153
	HIGH	1130	-	96	103	109	115	120	126	129	-	-	-
36k	MID	953	-	85	96	102	109	115	121	124	-	-	-
	LOW	706	-	76	85	95	100	107	113	116	-	-	-

SELF-DIAGNOSIS FUNCTION

Indoor Unit Error

Ex) Error 03 (Remote controller error)

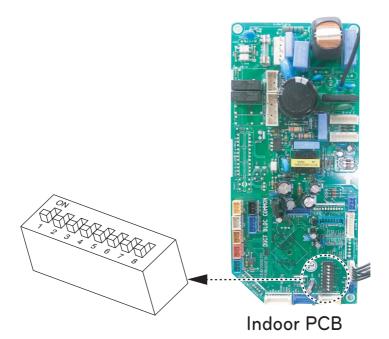




Error Code	Description	LED 1 (Green)	LED 2 (Red)	Indoor status
01	Indoor Room sensor error	0	1time 🕕	OFF
02	Indoor in-pipe sensor error	0	2times 🕕	OFF
03	Remote controller error	0	3times 🕕	OFF
04	Drain pump error	0	4times 🕕	OFF
05	Communication error indoor and outdoor	0	5times 🕕	OFF
06	Indoor out-pipe sensor error	0	6times 🕕	OFF
09	EEPROM error (indoor)	0	9times 🕕	OFF
10	BLDC motor fan lock (indoor)	1time 🕕	0	OFF

- * Because remote controller turn off when occur ERROR in simultaneous operation system, it should check LED blinks of outdoor in order to confirm error code.
- * Repeatedly after LED1 is turned on and off as the Error code number of tens digit, LED2 is turned on and off as the Error code number of single-digit.

DIP SWITCH SETTING



Function		Description	Setting Off	Setting On	Default
SW3	Group Control Selection of Master or Slave		Master	Slave	Off
SW4	Dry Contact Mode	Selection of Dry Contact Mode	Wired/Wireless remote controller Selection of Manual or Auto operation Mode	Auto	Off
SW5	Installation	Fan continuous operation	Continuous operation Removal	Working	Off

26 _

