

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



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:

Mod	el number :				
Seria	al number :				
,	C 1.1	 	 ٠.		

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.
- Installation MUST conform with local building codes or, in the absence of local codes, with the Nation Electrical Code NFPA 70/ANSI C1-1003 or current edition and Canadian Electrical Code Part1 CSA C.22.1.
- 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.
- Don't use a power cord, a plug or a loose socket which is damaged. Otherwise, it may cause a fire or 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.

Operation

- Do not share the outlet with other appliances. It will cause an electric shock or a fire due to heat generation.
- Do not use the damaged power cord. Otherwise, it may cause a fire or electrical shock.

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- Do not modify or extend the power cord randomly. Otherwise, it may cause a fire or electrical shock.
- Take care so that the power cord may not be pulled during operation. Otherwise, it may cause a fire or electrical shock.
- 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 use the power cord near the heating tools. Otherwise, it may cause a fire and 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.
- Hold the plug by the head when taking it out. It may cause electric shock and damage.
- 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.
- Do not place a heavy object on the power cord. Otherwise, it may cause a fire or electrical shock.
- 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

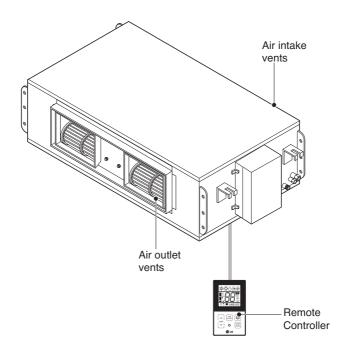
- Avoid excessive cooling and perform ventilation sometimes. Otherwise, it may do harm to your health.
- Use a soft cloth to clean. Do not use wax, thinner, or a strong detergent. The appearance of the air conditioner may deteriorate, change color, or develop surface flaws.
- Do not use an appliance 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.

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INTRODUCTION

Features



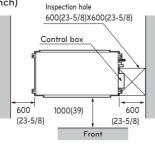
INSTALLATION OF INDOOR

Selection of the best location

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 easily connect with the out-door 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

Top view Unit: mm(inch)



Front view Unit: mm(inch) \$\frac{1}{20(25/32)}\$ or more

Confirm the positional relationship between the unit and suspension bolts.

- Installation the ceiling opening to clean the filter or service under the product.

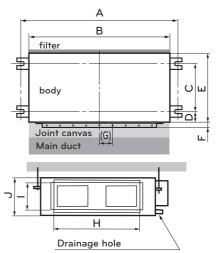
Ceiling dimension and hanging bolt location

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.



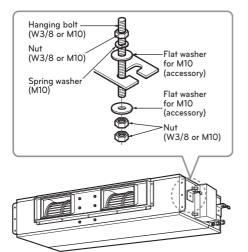
								(Ur	iit:m	nm)
Dimension Capacity	А	В	С	D	Е	F	(G)	Η	I	J
18/21 kBtu/h	932	882	355	46	450	30	87	750	163	260
24/36 kBtu/h	1232	1182	355	45.5	450	30	87	830	186	298
42/48/54 kBtu/h	1290	1230	447	56	590	30	120	1006	294	380

CASE 2

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

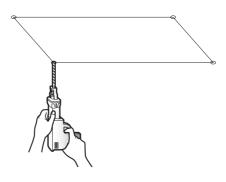
Position of console Bolt

- 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.



Select and mark the position for fixing bolts

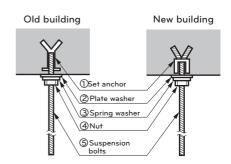
- Drill the hole for set anchor on the face of ceiling.





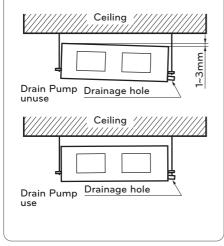
Tighten the nut and bolt to prevent unit falling.

- 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.



CAUTION

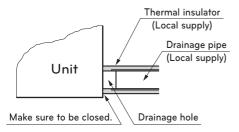
- Install declination of the indoor unit is very important for the drain of the duct type air conditioner.
- Minimum thickness of the insulation for the connecting pipe shall be 5mm.
- The unit must be horizontal or declined to the drain hose connected when finished installation



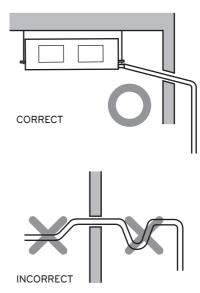
Caution for gradient of unit and drain piping

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

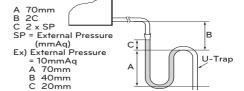
- Always lay the drain with downward inclination (1/50 to 1/100). Prevent any upward flow or reverse flow in any part.
- 5mm or thicker formed thermal insulator shall always be provided for the drain pipe.



- Upward routing not allowed



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

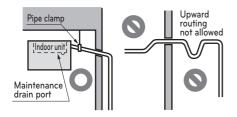


Indoor Unit Drain Piping

- 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

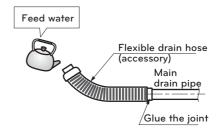
- Be sure to execute heat insulation on the drain piping.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300mm from the unit.



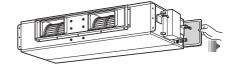
Heat insulation material: Polyethylene foam with thickness more than 8 mm.

Drain test

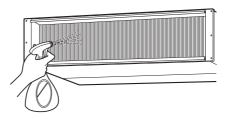
- Connect the main drain pipe to the exterior and leave it provisionally until the test comes to an end.
- Feed water to the flexible drain hose and check the piping for leakage.
- When the test is complete, connect the flexible drain hose to the drain port on the indoor unit



1 Remove the Air Filter.

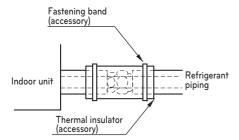


- 2 Check the drainage.
 - Spray one or two glasses of water upon the evaporator.
 - Ensure that water flows drain hose of indoor unit without any leakage.



Heat insulation

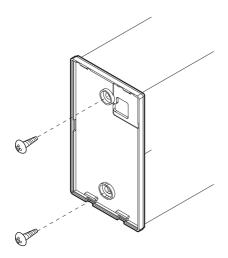
- 1 Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120°C).
- 2 Precautions in high humidity circumstance: This air conditioner has been tested according to the "KS Standard Conditions with Mist" and confirmed that there is not any default. However, 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.



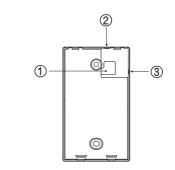
REMOTE CONTROLLER INSTALLATION

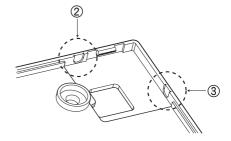
- 1 Please fix tightly using provided screw after placing remote controller setup board on the place where you like to setup.
 - Please set it up not to bend because poor setup could take place if setup board bends.

Please set up remote controller board fit to the reclamation box if there is a reclamation box.

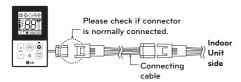


- 2 Can set up Wired remote controller cable into three directions.
 - Setup direction: the surface of wall reclamation, upper, right
 - If setting up remote controller cable into upper and right side, please set up after removing remote controller cable guide groove.
- * Remove guide groove with long nose.
- 1) Reclamation to the surface of the wall
- 2 Upper part guide groove
- 3 Right part guide groove

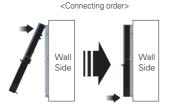




3 Please connect indoor unit and remote controller using connection cable.

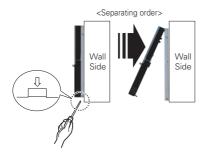


- 4 Please use extension cable if the distance between wired remote controller and indoor unit is more than 10m.
- 5 Please fix remote controller upper part into the setup board attached to the surface of the wall, as the picture below, and then, connect with setup board by pressing lower part.
 - Please connect not to make a gap at the remote controller and setup board's upper and lower, right and left part.



When separating remote controller from setup board, as the picture below, after inserting into the lower separating hole using screw driver and then, spinning clockwise, remote controller is separated.

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



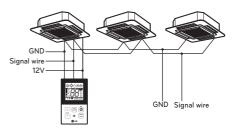
CAUTION

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 50m or above. (It can cause communication error.)

- When installing the extension cable, check the connecting direction of the connector of the remote controller side and the product side for correct installation.
- If you install the extension cable in the opposite direction, the connector will not be connected.
- Specification of extension cable: 2547 1007 22# 2 core 3 shield 5 or above.

Group Control

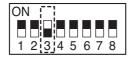


- 1 When installing more than 2 units of air conditioner to one wired remote controller, please connect as the right figure.
 - If it is not event communication indoor unit, set the unit as slave.
 - Check for event communication through the product manual.
- When controlling multiple indoor units with 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)

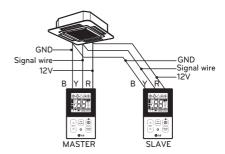


#3 switch ON: Slave

- 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.

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



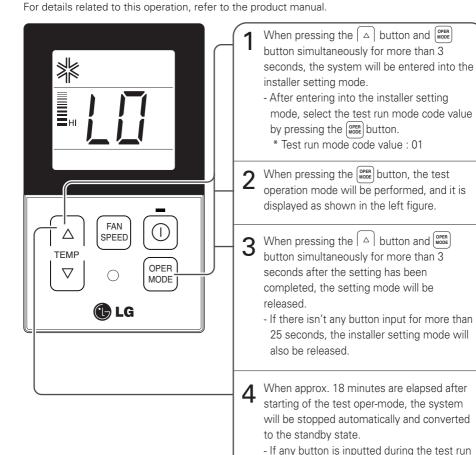
<When simultaneously connecting 2 sets of wired remote controller>

 When controlling in groups, set the master/slaver of the remote controller.
 Refer to Installer setting section on how to set master/slave for more detail.

OPTIONAL OPERATION

Installer Setting -Test Run Mode

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



What is the test run mode??

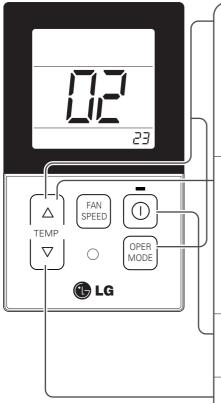
- This means the operation of the product under the cooling, strong wind, and Comp on state without performing room temperature control in order to confirm the installed state during the product installation.

be relreased.

mode, the test run mode will be forced to

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



- When pressing the button and 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 MODE button.
 - * Setting address of central control code value: 02
- Set up the group nember and indoor unit with the temperature adjustment(\triangle , ∇) buttons.



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

- 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 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.

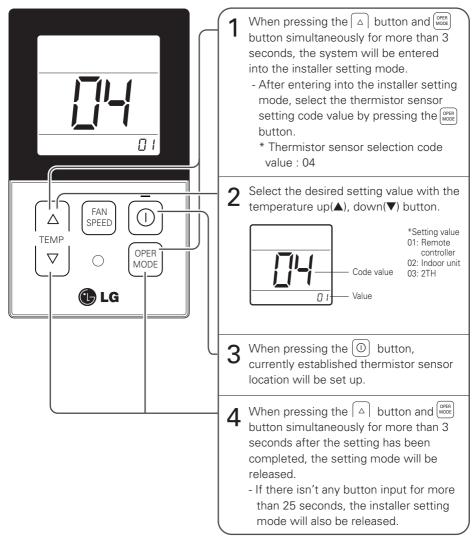
NOTE

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 -Thermistor

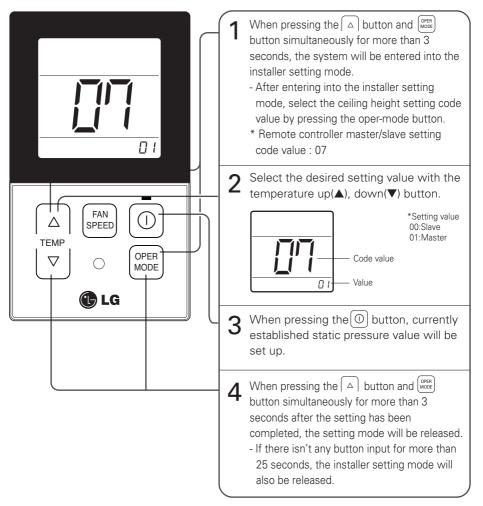
This is the function to select the temperature sensor to judge the room temperature.



^{*} 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-Remote Controller Master/Slave Setup

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

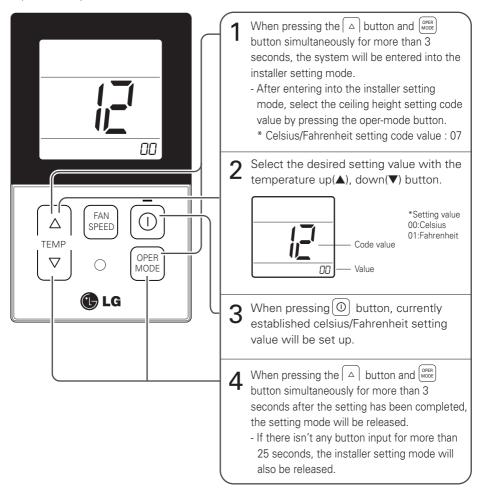


Remote controller	Function
Master	Indoor unit operates based on master remote controller at group control. (Master is set when delivering from the warehouse.)
Slave	Setup all remote controllers except one master remote controller to slave at group control

- * 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)

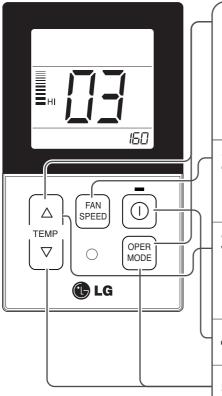


⁻ Whenever press temp up(▲), down(▼) button in Fahrenheit mode, the temperature will increase/drop 2 degrees.

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.



- When pressing the [\(\triangle \) button and \(\frac{OPER}{MODE} \) 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 MODE button.
 - * E.S.P code value: 03
- Select the desired air flow rate with the (speed) button. Whenever pressing the (FAN | button, [Lo→Med→Hi] will be indicated
- Select the desired air flow rate value with the temperature up(\triangle), 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.
- When pressing the | ① | button, currently established E.S.P value will be set up.
- When pressing the \(\triangle \) button and \(\triangle \) button and \(\triangle \) 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.

[Table, 1]

Table. IJ							
	Setting Value Static Pressure[mmAq(Pa)]						
	_	2.5(25)	4	(39)	6(59)	8(78)	
	100	12.8					
	105	13.9					
	110	15.2		2.7			
ABNQ18GHLA0	115	16.5		14			
ABNQ21GHLA0	120	17.8		5.3	12.7		
	125			6.5	14		
	130		1	7.8	15.3	12.6	
	135				16.5	13.5	
	140				17.5	14.5	
	145					16.5	
			Static Pressi	ure[mmAq(Pa)]			
	Setting Value	2.5(25)	4(39)	6(59)	8(78)	10(98)	
	80	14.8	,		-, -,		
	90	19	14.4				
ABNQ24GGLA0	100	23.3	19.7	13.9			
	110	26.9	24.3	19.8	14.1		
	120	31.2	28.2	25.2	20.1	14.4	
	130	34.9	32.4	29.5	26.1	20.5	
	100	0 1.0					
	Setting Value			Static Pressure[
	_	4(39)	6	(59)	8(78)	10(98)	
	100	20.8					
	105	23.2		9.5			
ABNQ36GGLA0	110	26		1.5			
	115			3.5	19.1		
	120		2	26.3	21.6		
	125				24	19.9	
	130				27	22.7	
	135					25.9	
	Castina Value			Static Pressure(mmAq(Pa)]		
	Setting Value	6(59)	8	(78)	10(98)	12(118)	
	85	31.5					
	90	36.3	2	9.8			
ABNQ42GRLA0	95	41.3	3	4.5	28.4		
	100	45.4	3	9.7	33.5	27.3	
	105		4	4.1	38.6	33.1	
	110				44.2	38.9	
	115					44.7	
				Static Pressure(mmΛα(Pa)]		
	Setting Value	6(59)		(78)	10(98)	12(118)	
	85	31.5	°	1,01	10(00)	12(110)	
	90	36.3	1	9.8			
ABNQ48GRLA0	95	41.3		34.5	28.4		
, ISING-TOGITEAU	100	45.4			33.5	27.3	
	105	43.4	39.7 44.1		38.6	33.1	
	110				44.2	38.9	
	115					44.7	
			0: :: 0				
	Setting Value	0/50)		ure[mmAq(Pa)]	10/115	4 4/4 0=1	
		6(59)	8(78)	10(98)	12(118)	14(137)	
	95	41.3					
ABNQ54GRLA0	100	45.4	39.7				
	105	49.5	44.1	38.6			
	110		48.5	44.2	38.9		
	115			49.8	44.7	42.2	
	120				50.5	48.1	

^{*} ABNQ42GRLA0 / ABNQ48GRLA0 As far as possible do not set ESP 82,83

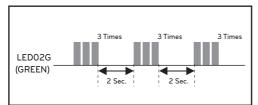


- 1. Be sure to set the value refering table 1. Unexpected set value will cause mal-function.
- 2. Table 1 is based at 230V. According to the fluctuation of voltage, air flow rate varies.

SELF-DIAGNOSIS FUNCTION

Indoor Unit Error

Ex) Error 03 (Remote controller error)

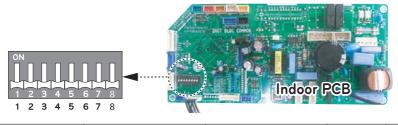




Error Code	Description	LED 1 (Red)	LED 2 (Green)	Indoor status
01	Indoor Room sensor error	0	1time 🕕	OFF
02	Indoor in-pipe sensor error	0	2times (OFF
03	Remote controller error	0	3times (OFF
04	Drain pump error	0	4times (OFF
05	Communication error indoor and outdoor	0	5times (OFF
06	Indoor out-pipe sensor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

