

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.

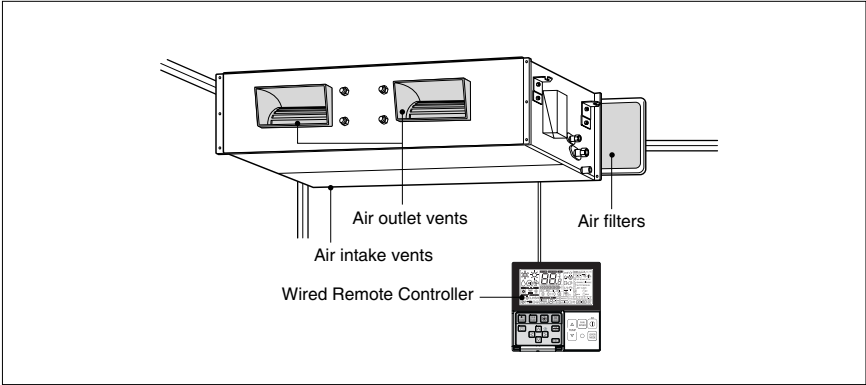
CEILING CONCEALED DUCT - HIGH STATIC

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Features

ENGLISH



Name	Drain hose	Clamp metal	Washer for hanging basket	Clamp (Tie Wrap)	Insulation for fitting	(Other)
Quantity	1 EA	1 EA	8 EA	4 EA	1 SET	
Shape					 for gas pipe for liquid pipe	• Owner's manual • Installation manual

Safety Precautions

To prevent injury to the user or other people and property damage, the following instructions must be followed. Be sure to read before installing the air conditioner.

Be sure to observe the cautions specified here as they include important items related to safety.

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

⚠ WARNING

This symbol indicates the possibility of death or serious injury.

⚠ CAUTION

This symbol indicates the possibility of injury or damage to properties only.

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

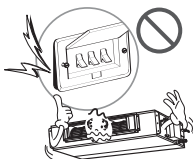
	Be sure not to do.
	Be sure to follow the instruction.

⚠ WARNING

Installation

Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.

- There is risk of fire or electric shock.



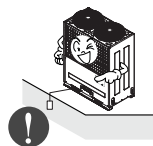
For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.

- Do not disassemble or repair the product. There is risk of fire or electric shock.



Always ground the product.

- There is risk of fire or electric shock.



Install the panel and the cover of control box securely.

- There is risk of fire or electric shock.



Always install a dedicated circuit and breaker.

- Improper wiring or installation may cause fire or electric shock.



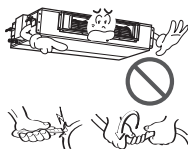
Use the correctly rated breaker or fuse.

- There is risk of fire or electric shock.



Do not modify or extend the power cable.

- There is risk of fire or electric shock.



Do not 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.



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.



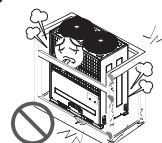
Do not install the product on a defective installation stand.

- 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.



Operation

Do not store or use flammable gas or combustibles near the product.

- There is risk of fire or failure of product.

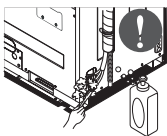


⚠ CAUTION

Installation

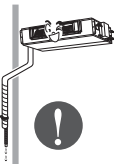
Always check for gas (refrigerant) leakage after installation or repair of product.

- Low refrigerant levels may cause failure of product.



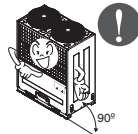
Install the drain hose to ensure that water is drained away properly.

- 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.



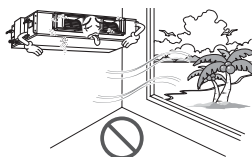
Use two or more people to lift and transport the product.

- 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.



If you eat the liquid from the batteries, brush your teeth and see doctor. Do not use the remote if the batteries have leaked.

- The chemicals in batteries could cause burns or other health hazards.



Make sure to check the rated pressure outside machine and adjust E.S.P value after the installation of the product.

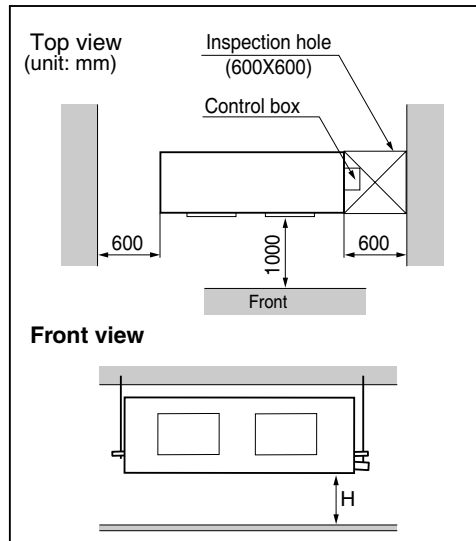
- Otherwise, there is a risk of weak cooling/heating and condensed water emission/dripping.

Installation

Read completely, then follow step by step.

Selection of the best location

- 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.



CAUTION : In case that the unit is installed near the sea, the installation parts may be corroded by salt, The installation parts (and the unit) should be taken appropriate anti-corrosion measures.

[Inspection Hole Standard]

Number of Inspection hole	Distance between False ceiling & Actual ceiling	Remarks
1	More than 100cm	Sufficient space in the ceiling for servicing.
2	20cm to 100cm	Insufficient space. Difficult for servicing
Hole size should be more than the size of IDU.	Less than 20cm	Minimum height for motor replacement.

Ceiling dimension and hanging bolt location

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.

(Unit:mm)

Dimension	A	B	C	D	E	F	(G)	H	I
Capacity(Btu/h)									
7/9/12/15/18/24k	932	882	355	47	450	30	87	750	158
28/36/42k	1232	1182	355	47	450	30	87	830	186
48k	1282	1230	477	56	590	30	120	1006	294

(Unit:mm)

Dimension	A	B	C	D	E	F	G	H	I	J	K	L
Capacity(Btu/h)												
76/96k	1680	1565	1165	330	460	519	700	NA	1630	390	445	25

CASE 2

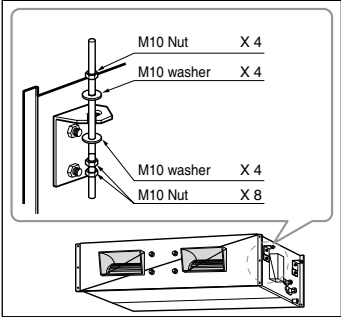
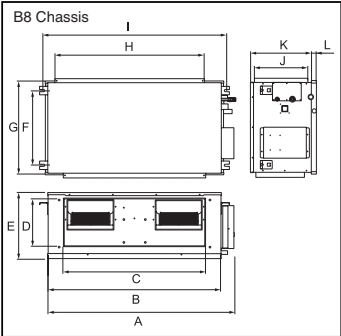
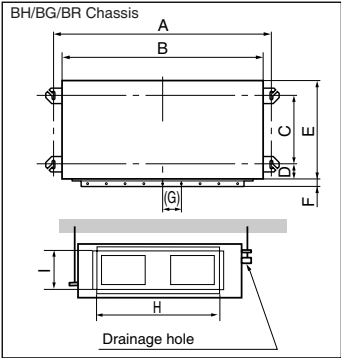
- Install the unit leaning to a drainage hole side as a figure for easy water drainage.

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.

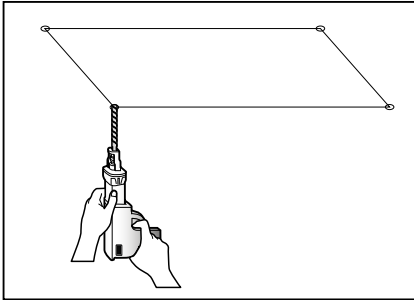
NOTICE

- Thoroughly study the following installation locations:
 1. In such places as restaurants and kitchens, considerable amount of oil steam and flour adhere to the fan, the fin of the heat exchanger, resulting in heat exchange reduction, spraying, dispersing of water drops, etc.
In these cases, take the following actions:
 - Make sure that the ventilation fan for smoke-collecting hood on a cooking table has sufficient capacity so that it draws oily steam which should not flow into the suction of the air conditioner.
 - Make enough distance from a cooking room to install the air conditioner in such a place where it may not suck in oil steam.
 2. Avoid installing air conditioner in such circumstances where cutting oil mist or iron powder is in suspension in factories, etc.
 3. Avoid places where inflammable gas is generated, flows in, is stored or vented.
 4. Avoid places where sulfurous acid gas or corrosive gas is generated.
 5. Avoid places near high frequency generators.



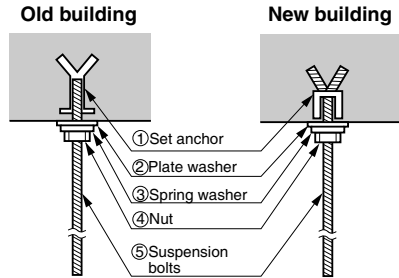
Indoor Unit Installation

- Select and mark the position for fixing bolts.
- Drill the hole for set anchor on the face of ceiling.



CAUTION : Tighten the nut and bolt to prevent unit falling.

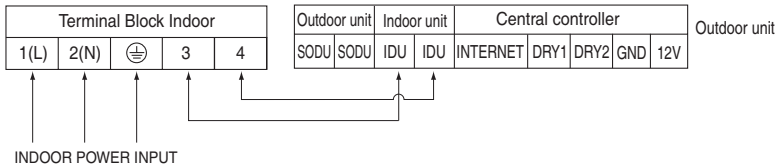
- Insert the set anchor and washer onto the suspension bolts for locking the suspension bolts on the ceiling.
- Mount the suspension bolts to the set anchor firmly.
- Secure the installation plates onto the suspension bolts (adjust level roughly) using nuts, washers and spring washers.



Wiring Connection

Connect the wires to the terminals on the control board individually according to the outdoor unit connection.

- Ensure that the color of the wires of outdoor unit and the terminal No. are the same as those of indoor unit respectively.



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

Clamping of cables

- 1) Arrange 2 power cables on the control panel.
- 2) First, fasten the steel clamp with a screw to the inner boss of control panel.
- 3) For the cooling model, fix the other side of the clamp with a screw strongly. For the heat pump model, put the 0.75mm² cable(thinner cable) on the clamp and tighten it with a plastic clamp to the other boss of the control panel.

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

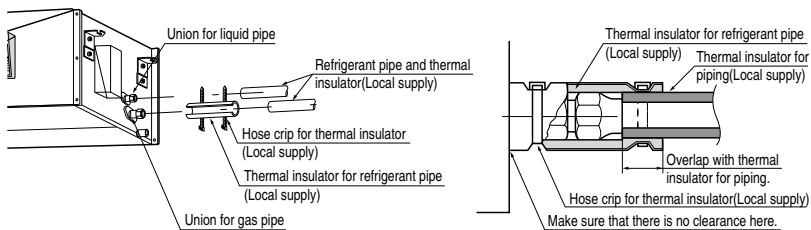
INSULATION, OTHERS

Insulate the joint and tubes completely.

THERMAL INSULATION

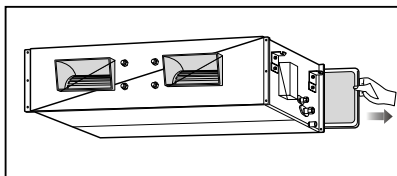
All thermal insulation must comply with local requirement.

INDOOR UNIT



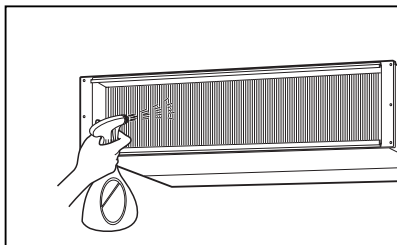
Checking the Drainage

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.

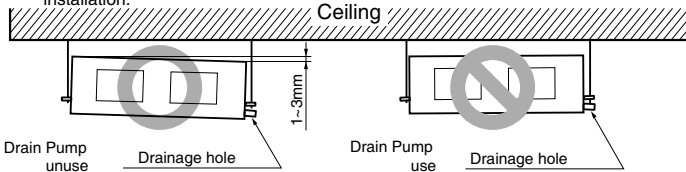


CAUTION

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 5mm.

Front of view

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

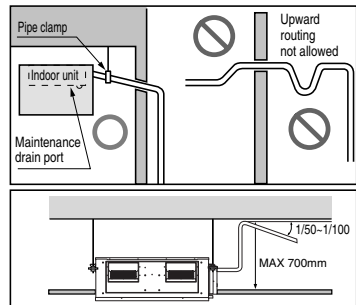
**Indoor Unit Drain Piping**

- 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.

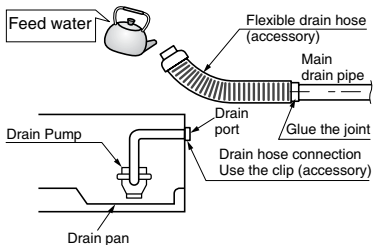
Piping material: Polyvinyl chloride pipe inner diameters $\varnothing$ 25mm and pipe fittings

- Be sure to install heat insulation on the drain piping.

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

**Drain test**

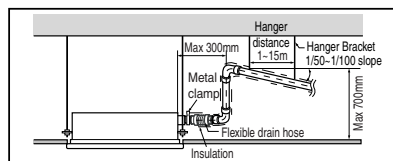
The air conditioner uses a drain pump to drain water.
Use the following procedure to test the drain pump operation:



- 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.
- Be sure to check the drain pump for normal operation and noise when electrical wiring is complete.
- When the test is complete, connect the flexible drain hose to the drain port on the indoor unit.

CAUTION

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





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 posted on the inside of control box cover.
- 2) Provide a circuit breaker switch between power source and the unit.
- 3) The screws which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)
- 4) Specification of power source
- 5) Confirm that electrical capacity is sufficient.
- 6) Be sure that the starting voltage is 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, fuse breaking, disturbance by the normal function of an overload protection device.
 - Proper starting power is not given to the compressor.

HAND OVER

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

WIRED REMOTE CONTROLLER INSTALLATION

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

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

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

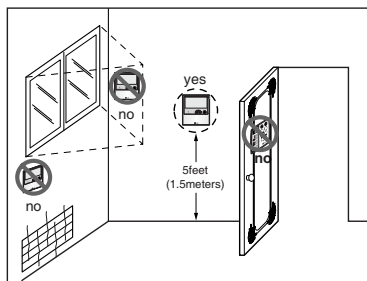
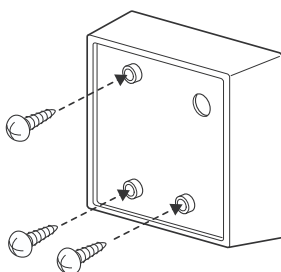


Fig.1 Typical locations for remote controller

Installation 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.

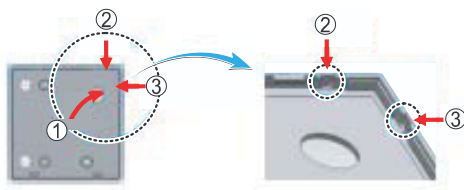
- Setup direction: the surface of wall reclamation, upper, right
- If setting up remote controller cable into upper and right side, please set up after removing remote controller cable guide groove.

✳ Remove guide groove with long nose.

① Reclamation to the surface of the wall

② Upper part guide groove

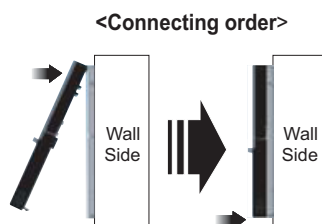
③ Right part guide groove



<Wire guide grooves>

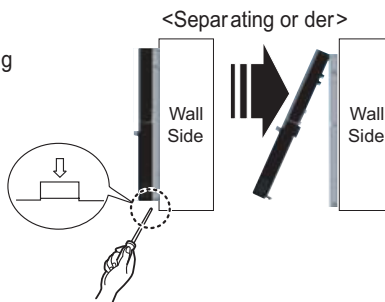
3. Please fix remote controller upper part into the setup board attached to the surface of the wall, as the picture below, and then, connect with setup board by pressing lower part.

- Please connect not to make a gap at the remote controller and setup board's upper and lower, right and left part.

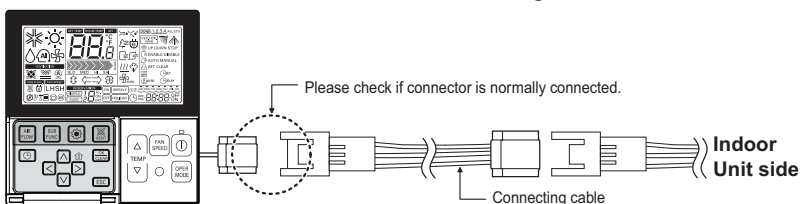


When separating remote controller from setup board, as the picture below, after inserting into the lower separating hole using screw driver and then, spinning clockwise, remote controller is separated.

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



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



5. Please use extension cable if the distance between wired remote controller and indoor unit is more than 10m.

⚠ CAUTION

When installing the wired remote controller, do not bury it in the wall.

(It can cause damage in the temperature sensor.)

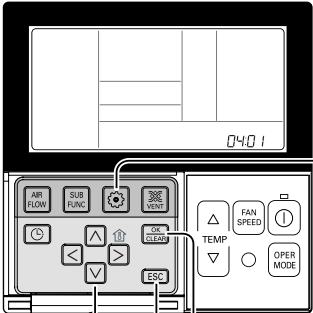
Do not install the cable to be 50m or above.

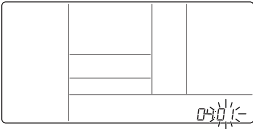
(It can cause communication error.)

- 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.

Installer Setting -Thermistor

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



- 1 If pressing  button long for 3 seconds, it enters into remote controller setter setup mode.
- If pressing once shortly, it enters into user setup mode. Please press more than 3 seconds for sure. 
- 2 If moving to room temperature perception sensor selection menu by pressing  button, it indicates as picture below.

- 3 Set Thermistor value by pressing   button. (01: Remote Controller, 02: Indoor, 03: 2TH)

Function Code Thermistor setting
- 4 Press  button to save.

- 5 Pressing  button will exit settings mode.
* After setup, it automatically gets out of setup mode if there is no button input for 25 seconds.
* When exiting without pressing set button, the manipulated value is not reflected.

<Thermistor Table>

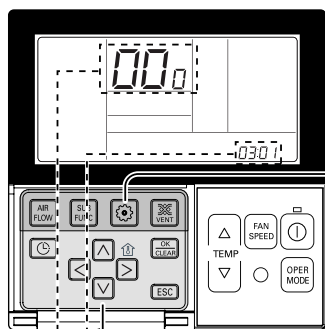
Temperature sensor selection			Function
01	Remote controller		Operation in remote controller temperature sensor
02	Indoor unit		Operation in indoor unit temperature sensor
03	2TH	Cooling	Operation of higher temperature by comparing indoor unit's and wired remote controller's temperature. (There are products that operate at a lower temperature.)
		Heating	Operation of lower temperature by comparing indoor unit's and wired remote controller's temperature.

* The function of 2TH has different operation characteristics according to the product.

Installer Setting -E.S.P

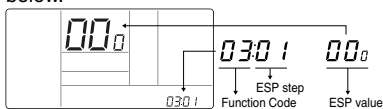
This is the function that decides the strength of the wind for each wind level and because this function is to make the installation easier.

- If you set ESP incorrectly, the air conditioner may malfunction.
- This setting must be carried out by a certificated-technician.

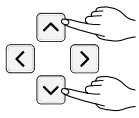


Function code, ESP code

ESP value

- 1 If pressing  button long for 3 seconds, it enters into remote controller setter setup mode.
- If pressing once shortly, it enters into user setup mode. Please press more than 3 seconds for sure. 
- 2 If entering into ESP setup mode by using  button, it indicates as the picture below.

- 3 Select ESP fan step by pressing   button. (01: very low, 02: low, 03: medium, 04: high, 05: power)

- 4 Move to ESP value setting by pressing  button.
(It is 000 when delivering from the warehouse.)

- 5 Press   button to setup ESP value.
(It is possible to setup ESP value from 1 to 255, and 1 is the smallest and 255 is the biggest.)


- When setting ESP value on the product without very weak wind or power wind function, it may not work.

JRNU28GBGA3, JRNU36GBGA3, JRNU42GBGA3

(Unit: CMM)

Setting Value	Static Pressure(mmAq(Pa))								
	5(50)	6(60)	7(70)	8(80)	9(90)	10(100)	12(120)	14(140)	16(160)
70	-	-	-	-	-	-	-	-	-
80	4.0	-	-	-	-	-	-	-	-
90	12.1	6.9	4.13	-	-	-	-	-	-
100	17.0	15.5	11.01	6.2	4.2	-	-	-	-
110	21.4	19.6	17.53	14.0	11.6	6.6	-	-	-
120	25.8	24.0	21.8	19.8	17.9	14.6	12.1	-	-
130	30.0	28.5	26.93	25.3	23.4	21.8	18.1	14.6	11.3
140	36.0	32.1	30.41	29.0	27.4	25.9	21.6	17.8	14.5
143	37.5	33.9	32.1	30.7	28.8	27.2	23.0	20.1	16.8
150	41.0	38.0	36.0	34.5	32.1	30.1	26.3	22.4	18.2
160	42.4	41.6	38.2	36.1	35	34.6	31.1	26.8	23.3

JRNU48GBRA3, JRNU54GBRA3

(Unit: CMM)

Setting Value	Static Pressure(mmAq(Pa))										
	5(50)	6(60)	8(80)	10(100)	12(120)	14(140)	15(150)	16(160)	17(170)	18(180)	20(200)
91	46.5	43.7	38.2	31.3	23.2	14.0	9.0	3.7	-	-	-
96	49.9	46.1	43.0	33.5	31.1	18.4	13.7	9.0	2.6	-	-
101	52.1	50.2	47.9	39.5	37.4	27.3	25.2	17.8	8.9	6.1	-
106	51.4	51.2	50.4	44.4	43.1	33.3	32.1	28.9	21.0	17.9	8.3
111	53.6	53.7	52.9	49.9	48.3	40.6	40.2	32.8	31.5	27.2	17.5
116	62.3	61.0	60.3	55.7	50.8	44.8	42.6	40.1	37.6	32.5	27.6
121	67.0	64.8	64.1	58.2	52.2	50.8	50.3	45.7	44.6	38.8	32.2
126	68.2	67.5	66.2	65.1	64.3	57.4	54.4	51.2	50.4	46.0	43.5

Note: 1. The above table shows the correlation between the air rates and E.S.P.

JRNU76GB8A3, JRNU96GB8A3

Setting Value	Static Pressure(mmAq)										
	6(60)	9(90)	12(120)	15(150)	18(180)	20(200)	22(220)	23(230)	25(250)	27(270)	30(300)
80	76.27	69.65	55.16	-	-	-	-	-	-	-	-
85	83.26	78.59	67.4	55.88	-	-	-	-	-	-	-
91	89.7	87.09	78.87	67.55	54.18	-	-	-	-	-	-
95	93.37	91.43	86.1	77	66.4	50.58	-	-	-	-	-
100	93.4	91.35	88.26	84.9	75.85	69.54	60.76	-	-	-	-
105	93.16	91.27	88.28	84.89	81.08	77.4	69.23	67.92	51.26	-	-
111	93.47	91.42	88.42	86.07	81.44	79.16	75.92	74.96	70.72	67.3	61.4
115	93.75	91.44	88.33	86.4	81.57	80.3	75.85	75.24	72.5	68.9	63.7

Note:1. The above table shows the correlation between the air rates and E.S.P.

JRNU48GBGA4

(Unit: CMM)

Setting Value	Static Pressure(mmAq(Pa))										
	5(50)	6(60)	8(80)	10(100)	12(120)	14(140)	15(150)	16(160)	17(170)	18(180)	20(200)
91	46.5	43.7	38.2	31.3	23.2	14.0	9.0	3.7	-	-	-
96	49.9	46.1	43.0	33.5	31.1	18.4	13.7	9.0	2.6	-	-
101	52.1	50.2	47.9	39.5	37.4	27.3	25.2	17.8	8.9	6.1	-
106	51.4	51.2	50.4	44.4	43.1	33.3	32.1	28.9	21.0	17.9	8.3
111	53.6	53.7	52.9	49.9	48.3	40.6	40.2	32.8	31.5	27.2	17.5
116	-	-	-	55.7	50.8	44.8	42.6	40.1	37.6	32.5	27.6
121	-	-	-	-	52.2	50.8	50.3	45.7	44.6	38.4	32.2
126	-	-	-	-	-	-	54.4	51.2	50.4	46.0	43.5

JRNU76GB8A4, JRNU96GB8A4

(Unit: CMM)

Setting Value	Static Pressure(mmAq(Pa))										
	6(60)	9(90)	12(120)	15(150)	18(180)	20(200)	22(220)	23(230)	25(250)	27(270)	30(300)
80	76.3	69.7	55.2	-	-	-	-	-	-	-	-
85	83.3	78.6	67.4	55.9	-	-	-	-	-	-	-
91	89.7	87.1	78.9	67.6	54.2	-	-	-	-	-	-
95	93.4	91.4	86.1	77.0	66.4	50.6	-	-	-	-	-
100	93.4	91.4	88.3	84.9	75.9	69.5	60.8	-	-	-	-
105	93.2	91.3	88.3	84.9	81.1	77.4	69.2	67.9	51.3	-	-
111	93.5	91.4	88.4	86.1	81.4	79.2	75.9	75.1	70.7	67.3	61.4
115	93.8	91.4	88.3	86.4	81.6	80.3	75.9	75.2	72.5	68.9	63.7

- Note:
1. The above table shows the correlation between the air rates and E.S.P.
 2. Make sure to check and adjust E.S.P (external static pressure) value after the installation of the product. Otherwise, there is a risk of weak cooling/heating and condensed water discharge/drop.

Dip Switch Setting

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

CAUTION

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



MFL66302102

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Regd. Office : LG Electronics India Pvt. Ltd., A Wing (3rd Floor), D-3, District Center, Saket, New Delhi - 110017