ENGLISH

OWNER'S & INSTALLATION MANUAL

AIR CONDITIONER

Please read this manual carefully before operating your set and retain it for future reference.

CEILING CASSETTE, CEILING CONCEALED DUCT
Original instruction

MFL67870342
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www.lg.com

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SAFETY INSTRUCTIONS

The following symbols are displayed on indoor and outdoor units.

	Read the precautions in this manual carefully before operating the unit.		This appliance is filled with flammable refrigerant. (for R32)
	This symbol indicates that the Operation Manual should be read carefully.		This symbol indicates that a service personnel should be handling this equipment with reference to the Installation Manual.

The following safety guidelines are intended to prevent unforeseen risks or damage from unsafe or incorrect operation of the appliance.
The guidelines are separated into 'WARNING' and 'CAUTION' as described below.

This symbol is displayed to indicate matters and operations that can cause risk.
Read the part with this symbol carefully and follow the instructions in order to avoid risk.

⚠ WARNING

This indicates that the failure to follow the instructions can cause serious injury or death.

⚠ CAUTION

This indicates that the failure to follow the instructions can cause the minor injury or damage to the product.

⚠ WARNING

- Always ground the product.
  - There is a risk of electric shock.
- Do not use a defective or underrated circuit breaker. Use the correctly rated breaker and fuse.
  - There is risk of fire or electric shock.
- Do not use a multi consent.
  - Always use this appliance on a dedicated circuit and breaker. Otherwise it can cause electric shock or fire.
- For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.
  - Do not disassemble or repair the product by yourself. There is risk of fire or electric shock.
- Always ground the product as per the wiring diagram.
  - Do not connect the ground wire to gas or water pipes lightening rod or telephone ground wire. 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 due to dust, water etc.
- Use the correctly rated breaker or fuse.
  - There is risk of fire or electric shock.

- Do not modify or extend the power cable.
  - If the power cable or cord has scratches or skin peeled off or deteriorated then it must be replaced. There is risk of fire or electric shock.
- For installation, removal or reinstall, 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.
  - Be sure that the installation area does not deteriorate with age. It may cause product to fall.
- Never install the outdoor unit on a moving base or a place from where it can fall down.
  - The falling outdoor unit can cause damage or injury or even death of a person.
- When the product is soaked (flooded or submerged) in water, contact an Authorized Service Center for repair before using it again.
  - There is risk of fire or electric shock.
- Be sure to check the refrigerant to the used.
  - Please read the label on the product. Incorrect refrigerant used can prevent the normal operation of the unit.
- Don't use a power cord, a plug or a loose socket which is damaged.
  - Otherwise it may cause a fire or electrical shock.
- Do not touch, operate, or repair the product with wet hands.
  - Hold the plug by hand when taking out. There is risk of electric shock or fire.
- Do not place a heater or other heating appliances near the power cable.
  - There is risk of fire and electric shock.
- Do not allow water to run into electric parts. Install the unit away from water sources.
  - There is risk of fire, failure of the product, or electric shock.
- Do not store or use or even allow flammable gas or combustibles near the product.
  - There is risk of fire.
- Indoor/outdoor wiring connections must be secured tightly and the cable should be routed properly so that there is no force pulling the cable from the connection terminals.
  - Improper or loose connections can cause heat generation or fire.
- Safely dispose off the packing materials.
  - Like screws, nails, batteries, broken things etc after installation or svc and then tear away and throw away the plastic packaging bags. Children may play with them and cause injury.
- Make sure to check that the power cable plug is not dirty, loose or broken and then only insert the plug completely.
  - Dirty, loose or broken power plug can cause electric shock or fire.
- In outdoor unit the step-up capacitor supplies high voltage electricity to the electrical components.
  - Be sure to discharge the capacitor completely before conducting the repair work. An charged capacitor can cause electrical shock.
- When installing the unit, use the installation kit provided with the product.
  - Otherwise the unit may fall and cause severe injury.
- Be sure to use only those parts which are listed in the svc parts list.
  - Never attempt to modify the equipment. The use of inappropriate parts can cause an electrical shock, excessive heat generation or fire.
- Do not use the product in a tightly closed space for a long time. Perform ventilation regularly.
  - Oxygen deficiency could occur and hence harm your health.

- Do not open the front grille of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)
  - There is risk of physical injury, electric shock, or product failure.
- If strange sounds, smell or smoke comes from product.
  - Immediately turn the breaker off or disconnect the power supply cable. There is risk of electric shock or fire.
- Ventilate the product room from time to time when operating it together with a stove, or heating element etc.
  - Oxygen deficiency can occur and hence harm your health.
- Turn the main power off and unplug the unit when cleaning or repairing the product.
  - There is risk of electric shock.
- When the product is not to be used for a long time, disconnect the power supply plug or turn off the breaker.
  - There is risk of product damage or failure, or unintended operation.
- Take care to ensure that nobody especially kids could step on or fall onto the outdoor unit.
  - This could result in personal injury and product damage.
- Take care to ensure that power cable could not be pulled out or damaged during operation.
  - There is risk of fire or electric shock.
- Do not place ANYTHING on the power cable.
  - There is risk of fire or electric shock.
- Do not plug or unplug the power supply plug to turn the unit ON/OFF.
  - There is risk of fire or electric shock.
- When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.
  - Do not use the telephone or turn switches on or off. There is risk of explosion or fire.
- Do not turn on the breaker or power under condition that front panel, cabinet, top cover, control box cover are removed or opened.
  - Otherwise, it may cause fire, electric shock, explosion or death.
- Use a vacuum pump or Inert (nitrogen) gas when doing leakage test or air purge.
  - Do not compress air or Oxygen and Do not use Flammable gases.
    Otherwise, it may cause fire or explosion. There is the risk of death, injury, fire or explosion.
- The appliance shall be stored in a room without continuously operating ignition sources (for example : open flames, an operating gas appliance or an operating electric heater.)
- Keep any required ventilation openings clear of obstruction.
- The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation. (for R32)
- Ducts connected to an appliance shall not contain an ignition source. (for R32)
- Compliance with national gas regulations shall be observed.
- Mechanical connections shall be accessible for maintenance purposes.
- Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.
- Do not pierce or burn refrigerant cycle part.
- Be aware that refrigerants may not contain an odour.

⚠ CAUTION

- Two or more people must 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.
- Install the drain hose to ensure that the condensed water is drained away properly.
  - A bad connection may cause water leakage.
- Keep level even when installing the product.
  - To avoid vibration or noise.
- Do not install the product where the noise or hot air from the outdoor unit could damage or disturb the neighborhoods.
  - It may cause a problem for your neighbors and hence dispute.
- Always check for gas (refrigerant) leakage after installation or repair of product.
  - Low refrigerant levels may cause failure of product.
- Do not use the product for special purposes, such as preserving foods, works of art, etc.
  - It is a consumer air conditioner, not a precision refrigeration system. There is risk of damage or loss of property.
- Do not block the inlet or outlet of air flow.
  - It may cause product failure.
- Use a soft cloth to clean. Do not use harsh detergents, solvents or splashing water etc.
  - There is risk of fire, electric shock, or damage to the plastic parts of the product.
- Do not touch the metal parts of the product when removing the air filter.
  - There is risk of personal injury.
- Do not step on or put anything on the product.
  - There is risk of personal injury and failure of product.
- Always insert the filter securely after cleaning.
  - Clean the filter every two weeks or more often if necessary. A dirty filter reduces the efficiency.
- Do not insert hands or other objects through the air inlet or outlet while the product is operating.
  - There are sharp and moving parts that could cause personal injury.
- Be cautious when unpacking and installing the product.
  - Sharp edges could cause injury.
- If the refrigerant gas leaks during the repair, do not touch the leaking refrigerant gas.
  - The refrigerant gas can cause frostbite (cold burn)
- Do not tilt the unit when removing or uninstalling it.
  - The condensed water inside can spill.
- Do not mix air or gas other than the specified refrigerant used in the system.
  - If air enters the refrigerant system, an excessively high pressure results, causing equipment damage or injury.
- If the refrigerant gas leaks during the installation, ventilate the area immediately.
  - Otherwise it can be harmful for your health.
- Dismantling the unit, treatment of the refrigerant oil and eventual parts should be done in accordance with local and national standards.

- Replace the all batteries in the remote control with new ones of the same type.
  - Do not mix old and new batteries or different types of batteries. There is risk of fire or product failure.
- Do not recharge or disassemble the batteries.
  - Do not dispose off batteries in a fire. They may burn or explode.
- If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water.
  - Do not use the remote if the batteries have leaked. The chemicals in batteries could cause burns or other health hazards.
- If you eat the liquid from the batteries, brush your teeth and see doctor.
  - Do not use the remote if the batteries have leaked. The chemicals in batteries could cause burns or other health hazard.
- 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.
- Do not expose your skin or kids or plants to the cool or hot air draft.
  - This could harm to your health.
- Do not drink the water drained from the product.
  - It is not sanitary and could cause serious health issues.
- Use a firm stool or ladder when cleaning, maintaining or repairing the product at an height.
  - Be careful and avoid personal injury.
- The air conditioner is not intended for use by young children or invalids without supervision.
- Young children should be supervised to ensure that they do not play with the air conditioner.
- The appliance shall be stored so as to prevent mechanical damage from occurring.
- Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorizes their competence to handle refrigerants safely in accordance with an industry recognized assessment specification. (for R32)
- Servicing shall only be performed as recommended by the equipment manufacturer. Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants. (for R32)
- Wear adequate personal protection equipment (PPE) when installing, maintaining or servicing the product.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
  - Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
  - Children should be supervised to ensure that they do not play with the appliance.
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent.
- The appliance shall be installed in accordance with national wiring regulations.

- Do not touch refrigerant pipe and water pipe or any internal parts while the unit is operating or immediately after operation.
  - There is risk of burns or frostbite, personal injury.
- The air conditioner should be used only for the applications for which it has been designed : the indoor unit is not suitable to be installed in areas used for laundry.
- The installation of pipe-work shall be kept to a minimum.
- Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- Pipe-work shall be protected from physical damage.
- Do not install the unit in potentially explosive atmosphere.

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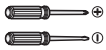
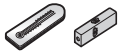
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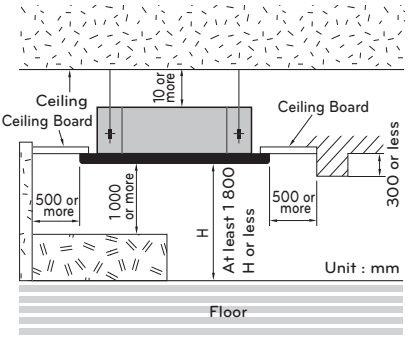
INSTALLATION TOOLS

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

INSTALLATION PLACES

Installation Places for Indoor unit

- There should not be any heat source or steam near the unit.
- There should not be any obstacles to prevent the air circulation.
- A place where air circulation in the room will be good.
- A place where drainage can be easily obtained.
- A place where noise prevention is taken into consideration.
- Do not install the unit near the door way.
- Ensure the spaces indicated by arrows from the wall, ceiling, or other obstacles.
- The indoor unit must keep the maintenance space.



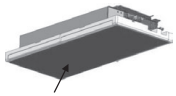
Chassis	H
TU/TT	3 300
TQ/TR/TP	3 600
TN/TM	4 200

* Please use an annexed sheet or the corrugated cardboard on the bottom of packing as installation sheet.



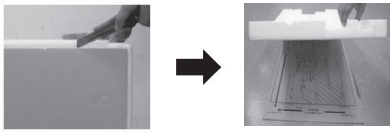
Annexed sheet

Or

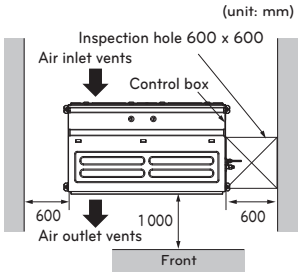


Packing corrugated cardboard on the bottom

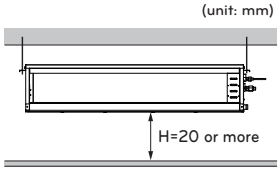
* When using the bottom sheet, please use it after separating the installation sheet from packing of the product floor by using a knife etc as a picture below.



Top view



Side view



- Suitable dimension "H" is necessary to get a slope to drain as shown in the figure.

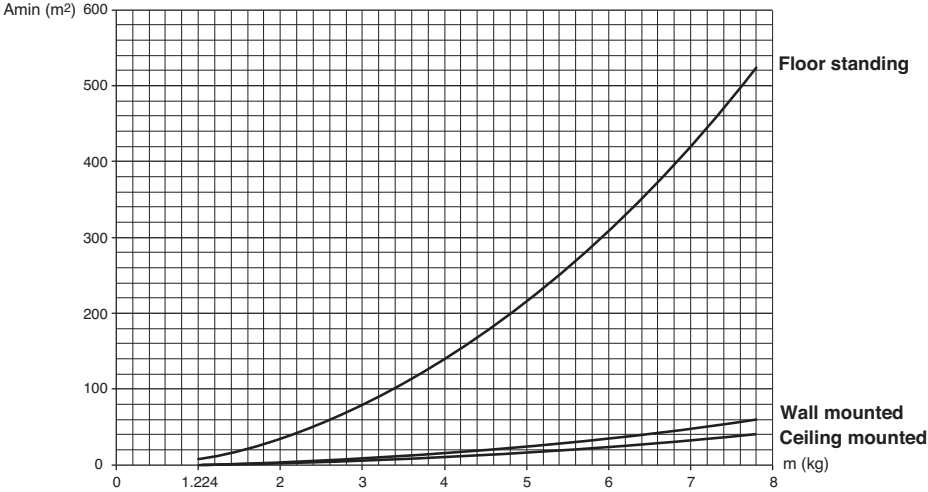
* The feature can be changed according to type of model.

[Inspection Hole Standard]

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

Minimum floor area (for R32)

- The appliance shall be installed, operated and stored in a room with a floor area larger than the minimum area.
- Use the graph of table to determine the minimum area.



- m : Total refrigerant amount in the system
- Total refrigerant amount : factory refrigerant charge + additional refrigerant amount
- Amin : minimum area for installation

Floor location	
m (kg)	Amin (m²)
< 1.224	-
1.224	12.9
1.4	16.82
1.6	21.97
1.8	27.80
2	34.32
2.2	41.53
2.4	49.42
2.6	58.00
2.8	67.27
3	77.22
3.2	87.86
3.4	99.19
3.6	111.20
3.8	123.90
4	137.29
4.2	151.36
4.4	166.12

Floor location	
m (kg)	Amin (m²)
4.6	181.56
4.8	197.70
5	214.51
5.2	232.02
5.4	250.21
5.6	269.09
5.8	288.65
6	308.90
6.2	329.84
6.4	351.46
6.6	373.77
6.8	396.76
7	420.45
7.2	444.81
7.4	469.87
7.6	495.61
7.8	522.04

Wall mounted	
m (kg)	Amin (m²)
< 1.224	-
1.224	1.43
1.4	1.87
1.6	2.44
1.8	3.09
2	3.81
2.2	4.61
2.4	5.49
2.6	6.44
2.8	7.47
3	8.58
3.2	9.76
3.4	11.02
3.6	12.36
3.8	13.77
4	15.25
4.2	16.82
4.4	18.46

Wall mounted	
m (kg)	Amin (m²)
4.6	20.17
4.8	21.97
5	23.83
5.2	25.78
5.4	27.80
5.6	29.90
5.8	32.07
6	34.32
6.2	36.65
6.4	39.05
6.6	41.53
6.8	44.08
7	46.72
7.2	49.42
7.4	52.21
7.6	55.07
7.8	58.00

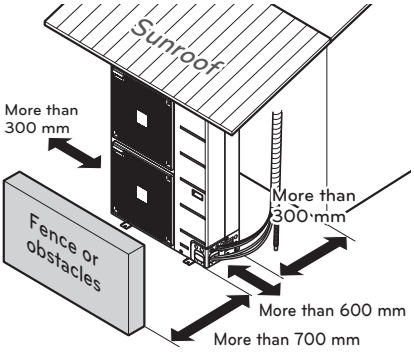
Ceiling Mounted	
m (kg)	Amin (m²)
< 1.224	-
1.224	0.956
1.4	1.25
1.6	1.63
1.8	2.07
2	2.55
2.2	3.09
2.4	3.68
2.6	4.31
2.8	5.00
3	5.74
3.2	6.54
3.4	7.38
3.6	8.27
3.8	9.22
4	10.21
4.2	11.26
4.4	12.36

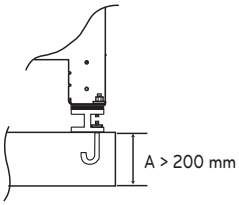
Ceiling Mounted	
m (kg)	Amin (m²)
4.6	13.50
4.8	14.70
5	15.96
5.2	17.26
5.4	18.61
5.6	20.01
5.8	21.47
6	22.98
6.2	24.53
6.4	26.14
6.6	27.80
6.8	29.51
7	31.27
7.2	33.09
7.4	34.95
7.6	36.86
7.8	38.83

Installation Places for Outdoor Unit

You need to select adequate installation location considering the following conditions, and make sure to acquire the consent of the user.

- If an awning is built over the unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.
- Ensure that the spaces indicated by arrows around front, back and side of the unit are respected.
- Do not place animals and plants in the path of the warm air.
- Take the air conditioner weight into account and select a place where noise and vibration are minimum.
- Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.
- Select a place that can sufficiently endure the weight and vibration of the outdoor unit and where even installation is possible.
- Select a place that has no direct impact of snow or rain
- Select a place with no danger of snowfall or icicle drop
- Select a place without weak floor or base such as decrepit part of the building or with a lot of snow accumulation
- Install at a place with fluent water draining to prevent damage from localized heavy rain and avoid frequent flooded area.





⚠ CAUTION

Be very careful while carrying the product.

- Do not have only one person carry product if it is more than 20 kg (44 lbs).
- PP bands are used to pack some products. Do not use them as a mean for transportation because they are dangerous.
- Do not touch heat exchanger fins with your bare hands. Otherwise you may get a cut in your hands.
- Tear plastic packaging bag and scrap it so that children cannot play with it. Otherwise plastic packaging bag may suffocate children to death.
- When carrying in Outdoor Unit, be sure to support it at four points. Carrying in and lifting with 3-point support may make Outdoor Unit unstable, resulting in a fall.
- Use 2 belts of at least 8 m (26.2 ft) long.
- Place extra cloth or boards in the locations where the casing comes in contact with the sling to prevent damage.
- Hoist the unit making sure it is being lifted at its center of gravity.

Installation Guide at the Seaside

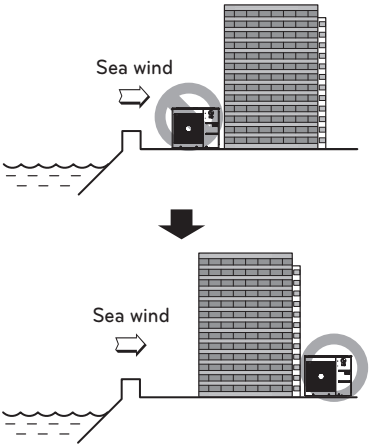
⚠ CAUTION

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

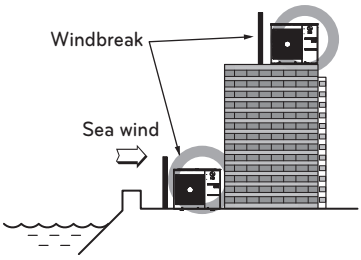
Selecting the location (Outdoor Unit)

In case, to install the outdoor unit on the seaside, set If the outdoor unit is to be installed close to the seaside, direct exposure to the sea wind should be avoided.

Install the outdoor unit on the opposite side of the sea wind direction. a windbreak not to be exposed to the sea wind.



In case, to install the outdoor unit on the seaside, set up a windbreak not to be exposed to the sea wind.



- It should be strong enough like concrete to prevent the sea wind from the sea.
- The height and width should be more than 150 % of the outdoor unit.
- More than 70 cm of space should be kept between outdoor unit and the windbreak for easy air flow.

Place with fluent water draining
- Install at a place with fluent water draining to prevent damage from localized heavy rain and avoid frequent flooded area.

- Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water.

Seasonal Wind and Cautions in Winter

- Sufficient measures are required in a snow area or severe cold area in winter so that product can operate well.
- Get ready for seasonal wind or snow in winter even in other areas.
- Install a suction and discharge duct not to let in snow or rain.
- Install the outdoor unit not to come in contact with snow directly. If snow piles up and freezes on the air suction hole, the system may malfunction. If it is installed at snowy area, attach the hood to the system.
- Install the outdoor unit at the higher installation console by 50 cm than the average snowfall (annual average snowfall) if it is installed at the area with much snowfall.
- Where snow accumulated on the upper part of the Outdoor Unit by more than 10 cm, always remove snow for operation.

THE INDOOR UNIT INSTALLATION

Position of Suspension Bolt

- Select and mark the position for fixing bolts and piping hole.
- Decide the position for fixing bolts slightly tilted to the drain direction after considering the direction of drain hose.
- Drill the hole for anchor bolt on the wall.

⚠ CAUTION

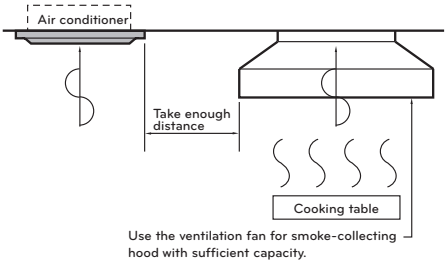
- This air-conditioner uses a drain pump.
- Install the unit horizontally using a level gauge.
- During the installation, care should be taken not to damage electric wires.

NOTE

Avoid the following installation location.

1 Such places as restaurants and kitchen where considerable amount of oil steam and flour is generated. These may cause heat exchange efficiency reduction, or water drops, drain pump mal-function. In these cases, take the following actions;

- Make sure that ventilation fan is enough to cover all noxious gases from this place.
- Ensure enough distance from the cooking room to install the air conditioner in such a place where it may not suck oily steam.



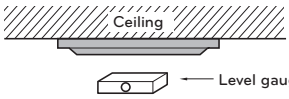
2 Avoid installing air conditioner in such places where cooking oil or iron powder is generated.

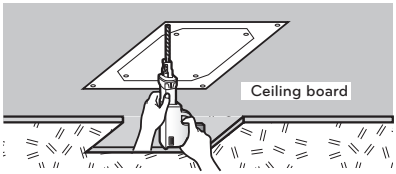
3 Avoid places where inflammable gas is generated.

4 Avoid place where noxious gas is generated.

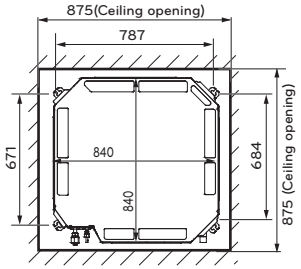
5 Avoid places near high frequency generators.

Ceiling Cassette Type



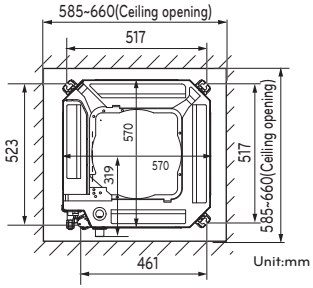


[TM/TN/TP Chassis] (Unit : mm)

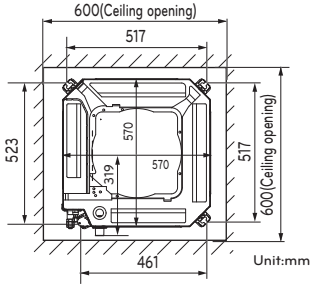


Panel size : 950 X 950 mm

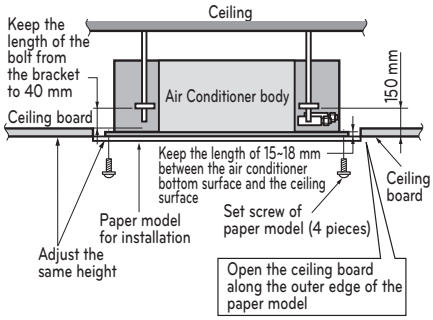
[TQ/TR Chassis] (Unit : mm)

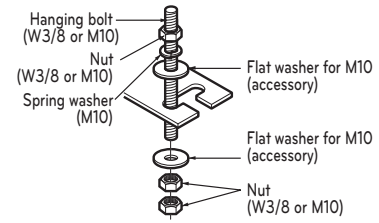


Panel size : 700 X 700 mm



Panel size : 620 X 620 mm

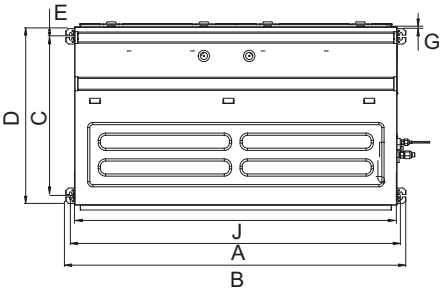


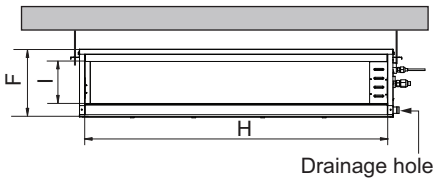


* The feature can be changed according to type of model.

Ceiling Concealed Duct Type - Mid static

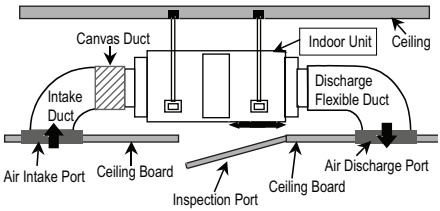
- Apply a joint-canvas between the unit and duct to absorb unnecessary vibration.
- Apply a filter Accessory at air return hole.





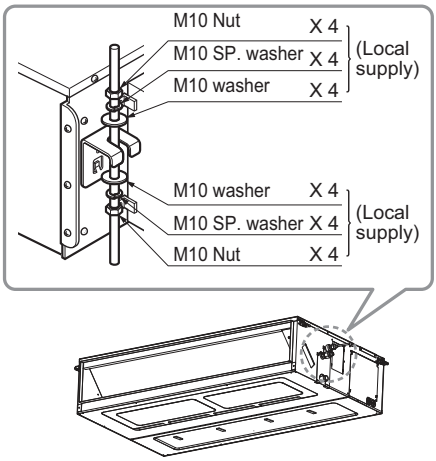
(Unit: mm)

Dimension / Chassis	A	B	C	D	E	F	G	H	I	J
M1	933.4	971.6	619.2	700	30	270	15.2	858	201.4	900
M2	1 283.4	1 321.6	619.2	689.6	30	270	15.2	1 208	201.4	1 250

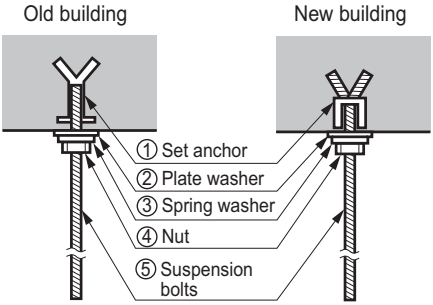


Position of console Bolt

- 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.



- 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.



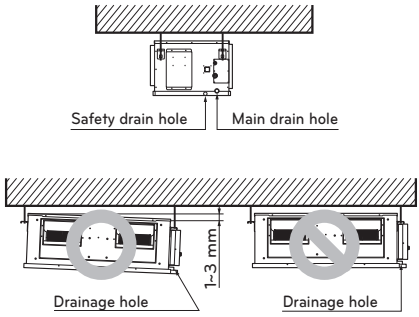
- Local supply
  - ① Set anchor
  - ② Plate washer - M10
  - ③ Spring washer - M10
  - ④ Nut - W3/8 or M10
  - ⑤ Suspension bolt - W3/8 or M10

⚠CAUTION

- Tighten the nut and bolt top revent unit falling.

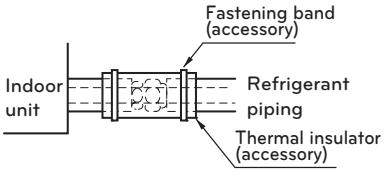
⚠CAUTION

1. Install declination of the indoor unit is very important for the drain of the duct type air conditioner.
2. Minimum thickness of the insulation for the connecting pipe shall be 10 mm.



Heat Insulation

- Use the heat insulation material for the refrigerant piping which has an excellent heat-resistance (over 120 °C).
- 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:



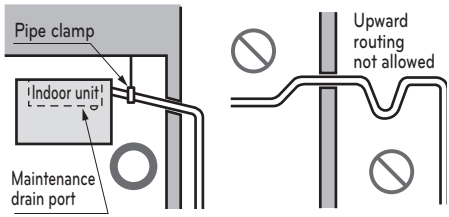
- Heat insulation material to be prepared... Adiabatic EPDM or NBR with thickness 10 to 20 mm.
- Stick glass wool on all air conditioners that are located in ceiling atmosphere.

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 32 mm.

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

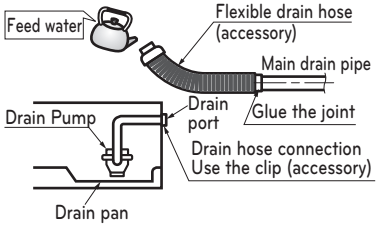
- Be sure to execute heat insulation on the drain piping.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300 mm from the unit.



Drain test

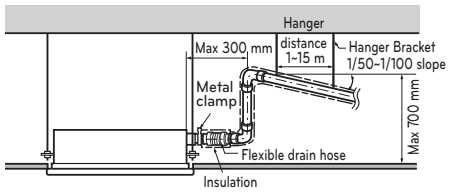
The air conditioner uses a drain pump to drain water.
Use the following procedure to test the drain pump operation:

- 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 operating 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

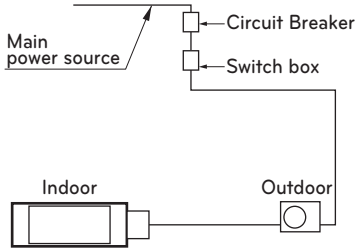
The supplied flexible drain hose should not be curved, neither screwed. The curved or screwed hose may cause a leakage of water.



WIRING CONNECTION

Electrical Wiring

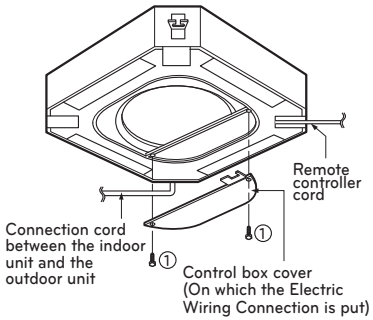
- All wiring must comply with local requirements.
- Select a power source that is capable of supplying the current required by the air conditioner.
- Use a recognized circuit breaker between the power source and the unit. A disconnection device to adequately disconnect all supply lines must be fitted.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

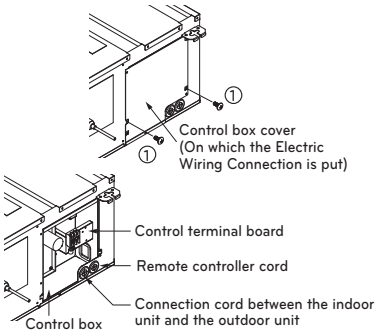


Capacity (kBtu/h)	Phase(Ø)	ELCB
24	1	25 A
36 / 48	1	40 A

Indoor unit

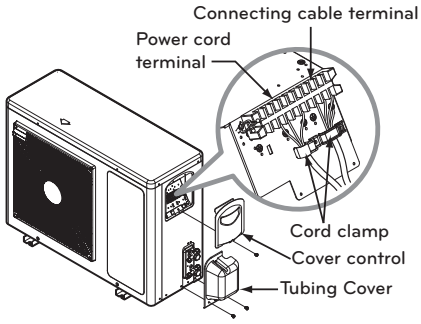
- Remove the control box cover for electrical connection between the indoor and outdoor unit.
- Use the cord clamp to fix the cable.





Outdoor unit

- Remove the control cover for wiring connection.
- Use the cord clamp to fix the cable.
- Earthing work
  Case 1 :Terminal block of Outdoor Unit have ⏚ mark.
  Connect the cable of diameter 1.6 mm^2 or more to the earthing terminal provided in the control box and do earthing.
  Case 2 :Terminal block of Outdoor Unit don't have ⏚ mark.
- Connect the cable of diameter 1.6 mm^2 or more, to the panel of control box, marked as ⏚ and fasten with earth screw.



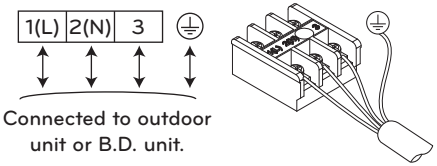
⚠CAUTION

- The circuit diagram is not subject to change without notice.
- Be sure to connect wires according to the wiring diagram.
- Connect the wires firmly, so that not to be pulled out easily.
- Connect the wires according to color codes by referring the wiring diagram.
- The Power cable connected to the unit should be selected according to the following specifications.

Connecting cables to the Unit

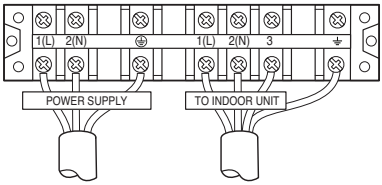
- Connect the wires to the terminals on the control board individually according to the outdoor unit connection.
  * Ensure that the color of the wires of outdoor unit.

<Indoor>



* The figure can be changed according to model.

<Outdoor>

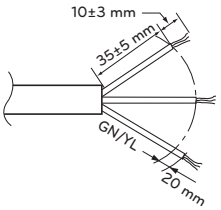


⚠CAUTION

- Make sure that the screws of the terminal fixed tightly
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only

Clamping of cables

- Arrange two power cables on the control panel.
- First, fasten the clamp with a screw to the inner boss of control panel.
- For connecting cable to the terminal block, put the 1.0 mm^2 cable(thinner cable) on the clamp and tighten it with a plastic clamp to the other boss of the control panel.
- In Australia, the length of power supply cable measured from the entry of the power supply cable to the middle of live pin on the power plug should be over 1.8 m.



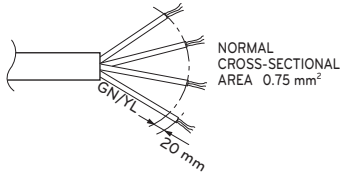
Capacity (kBtu/h)	Phase(Ø)	Area (mm^2)
24 / 36 / 48	1	6

⚠CAUTION

- Supply cable of parts of appliance for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (code designation 60245 IEC 57) or complied with HD 22.4 S4
- If the supply cable is damaged, it must be replaced by a special cord or assembly available from the manufacturer of its service agent.

⚠CAUTION

- 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).

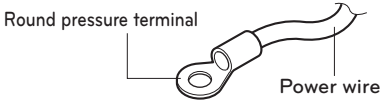


Rated current of appliance A.	Nominal cross-sectional area mm²
≤ 0.2	Tinsel cord
> 0.2 and ≤ 3	0.5
> 3 and ≤ 6	0.75
> 6 and ≤ 10	1.0 (0.75)
> 10 and ≤ 16	1.5 (1.0)
> 16 and ≤ 25	2.5
> 25 and ≤ 32	4
> 32 and ≤ 40	6
> 40 and ≤ 63	10

NOTE For **supply cords** supplied with multi-phase appliances, the nominal cross-sectional area of the conductors is based on the maximum cross-sectional area of the conductors per phase at the **supply cord** connection to the appliance terminals.

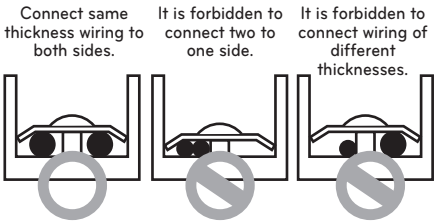
Precautions when laying power wiring

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



When none are available, follow the instructions below.

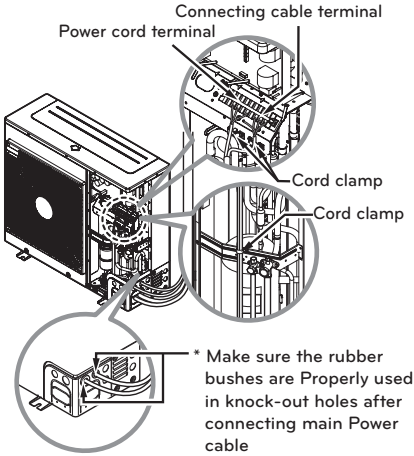
- Do not connect wiring of different thicknesses to the power terminal block. (Slack in the power wiring may cause abnormal heat.)
- When connecting wiring which is the same thickness, do as shown in the figure below.



- 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 terminal screws. A screwdriver with a small head will strip the head and make proper tighterning impossible.
- Over-tightening the terminal screws may break them.

Connecting cables to the Outdoor Unit

- Remove the side panel from the unit by loosing screws. Connect the wires to the terminals on the control board individually as previous page.
- Secure the cable onto the control board with the holder (clamp).
- Refix the cover control to the original position with the screw.



* Minimum Rated Air Flow

	CST			Duct	
Capacity (kBtu/h)	24	36	48	24	36
CMM	13	20	47	14.5	24

CONNECTING PIPES

Preparation of Piping

- Main cause of gas leakage is defect in flaring work. Carry out correct flaring work in the following procedure.
- Use the de-oxidised copper as piping materials to install.

Cut the pipes and the cable.

- Use the accessory piping kit or the pipes purchased locally.
- Measure the distance between the indoor and the outdoor unit.
- Cut the pipes a little longer than measured distance.
- Cut the cable 1.5 m longer than the pipe length.

Burrs removal

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

Putting nut on

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

Flaring work

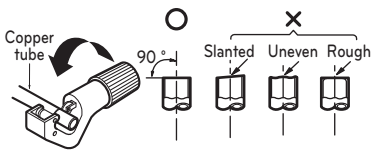
- Carry out flaring work using dedicated flaring tool for R32 as shown below.

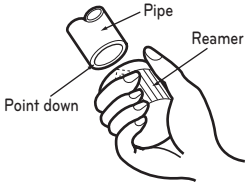
Pipe diameter Inch (mm)	A inch (mm)	
	Wing nut type	Clutch type
Ø 1/4 (Ø 6.35)	0.04~0.05 (1.1~1.3)	0~0.02 (0~0.5)
Ø 3/8 (Ø 9.52)	0.06~0.07 (1.5~1.7)	
Ø 1/2 (Ø 12.7)	0.06~0.07 (1.6~1.8)	
Ø 5/8 (Ø 15.88)	0.06~0.07 (1.6~1.8)	
Ø 3/4 (Ø 19.05)	0.07~0.08 (1.9~2.1)	

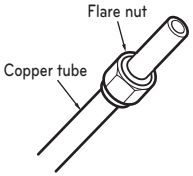
Firmly hold copper tube in a bar(or clamp) as indicated dimension in the table above.

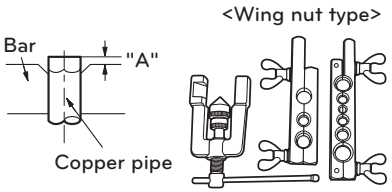
Check

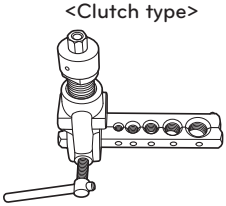
- Compare the flared work with figure below.
- If flare is noted to be defective, cut off the flared section and do flaring work again.

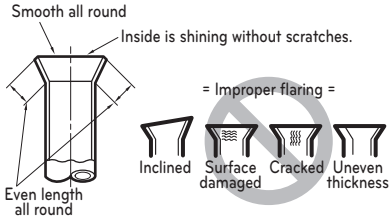






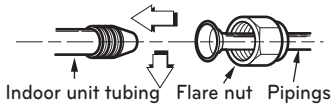




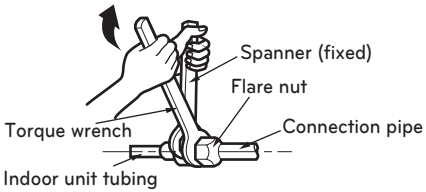


Connecting the pipings to the indoor unit and drain hose to drain pipe

- Align the center of the pipings and sufficiently tighten the flare nut by hand.

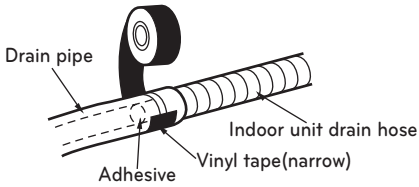


- Tighten the flare nut with a wrench.



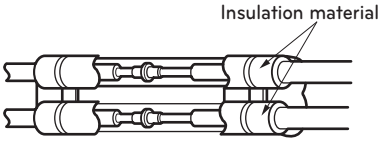
Outside diameter		Torque
mm	inch	kg.m
Ø 6.35	1/4	1.8~2.5
Ø 9.52	3/8	3.4~4.2
Ø 12.7	1/2	5.5~6.6
Ø 15.88	5/8	6.6~8.2
Ø 19.05	3/4	9.9~12.1

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

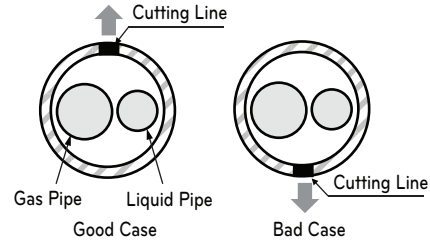


Wrap the insulation material around the connecting portion.

1 Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there may be no gap.

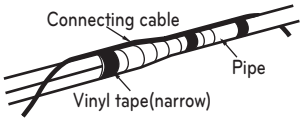


2 Set the tubing cutting line upward. Wrap the area which accommodates the rear piping housing section with vinyl tape.

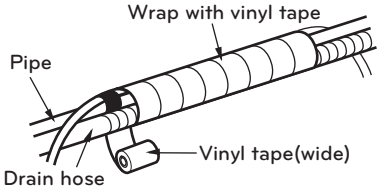


* Tubing cutting line have to be upward.





3 Bundle the piping and drain hose together by wrapping them with vinyl tape sufficient enough to cover where they fit into the rear piping housing section.

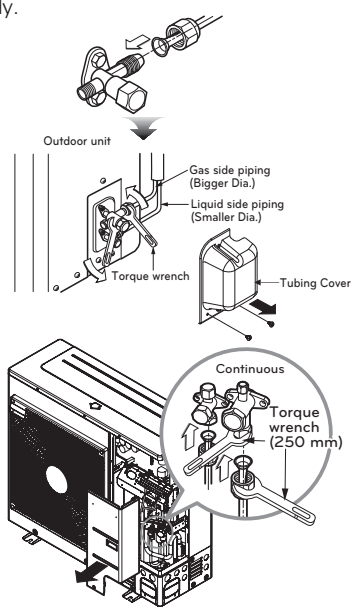


Connection of piping - Outdoor

- Align the center of the piping and sufficiently tighten the flare nut by hand.
- Finally, tighten the flare nut with torque wrench until the wrench clicks.
  When tightening the flare nut with torque wrench ensure the direction for tightening follows the arrow on the wrench.

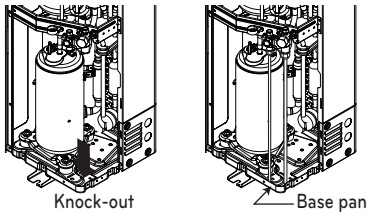
Outside diameter		Torque
mm	inch	kg·m
Ø 6.35	1/4	1.8~2.5
Ø 9.52	3/8	3.4~4.2
Ø 12.7	1/2	5.5~6.6
Ø 15.88	5/8	6.6~8.2

* When tighten the pipe, hold the hexagonal body.



- When connecting in a downward direction, knock out the knock-out hole of the base pan. (refer to figure 2)

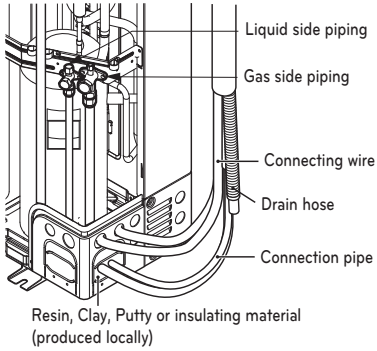
<Figure 2>



Preventing foreign objects from entering (Figure3)

- Plug the pipe through-holes with putty or insulation material(procured locally)to stop up all gaps,as shown in the figure 3.

<Figure 3>



⚠ CAUTION

Insects or small animals entering the outdoor unit may cause a short circuit in the electrical box.

⚠ CAUTION

(for R32)

- A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts.
- When flared joints are reused indoors, the flare part shall be re-fabricated.
- When mechanical connectors are reused indoors, sealing parts shall be renewed.

Forming the piping

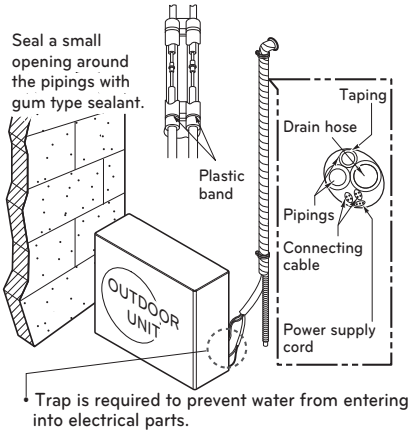
Form the piping by wrapping the connecting portion of the indoor unit with insulation material and secure it with two kinds of vinyl tape.

- If you want to connect an additional drain hose, the end of the drain outlet should be routed above the ground. Secure the drain hose appropriately.

In cases where the outdoor unit is installed below the indoor unit perform the following.

1 Tape the piping, drain hose and connecting cable from down to up.

2 Secure the tapped piping along the exterior wall using saddle or equivalent.

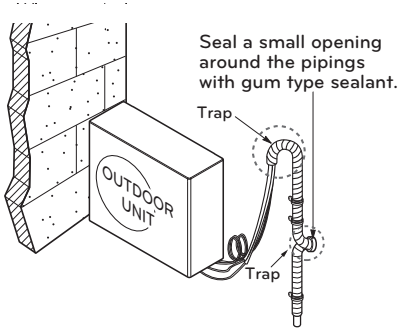


In cases where the Outdoor unit is installed above the Indoor unit perform the following.

1 Tape the piping and connecting cable from down to up.

2 Secure the taped piping along the exterior wall. Form a trap to prevent water entering the room.

3 Fix the piping onto the wall by saddle or equivalent.



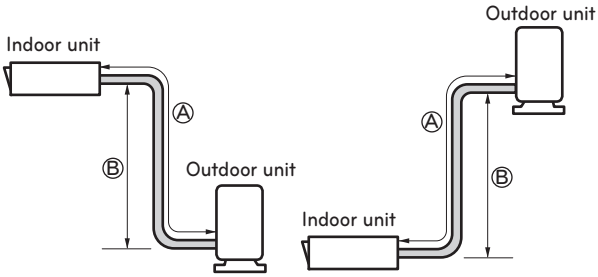
⚠ CAUTION

- Refrigerant tubing shall be protected or enclosed to avoid damage.
- Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that may be displaced during normal operations shall be protected against mechanical damage.

PIPING LENGTH AND THE ELEVATION

Capacity (kBtu/h)	Pipe Size mm(inch)		Length A(m)		Elevation B(m)		*Additional refrigerant (g/m)
	Gas	Liquid	Standard	Max.	Standard	Max.	
24	Ø 15.88 (5/8)	Ø 9.52 (3/8)	7.5	50	5	30	35
36	Ø 15.88 (5/8)	Ø 9.52 (3/8)	7.5	85	5	30	40
48	Ø 15.88 (5/8)	Ø 9.52 (3/8)	7.5	85	5	30	40

If installed tube is shorter than 7.5 m, additional charging is not necessary
Additional Refrigerant = (A - 7.5) x Additional refrigerant (g)



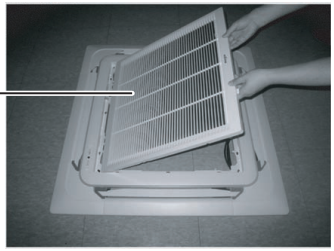
⚠CAUTION

- Capacity is based on standard length and maximum allowance length is on the basis of reliability.
- Improper refrigerant charge may result in abnormal cycle.

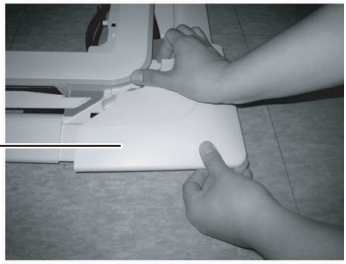
INSTALLATION OF DECORATIVE PANEL(ACCESSORY)

The decorative panel has its installation direction.
Before installing the decorative panel, always remove the paper template.

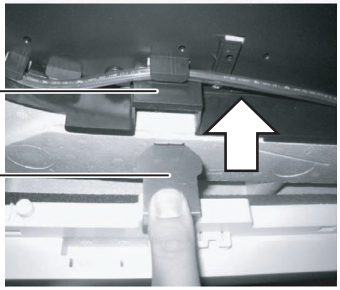
1 Remove the packing and take out air inlet grille from front panel.



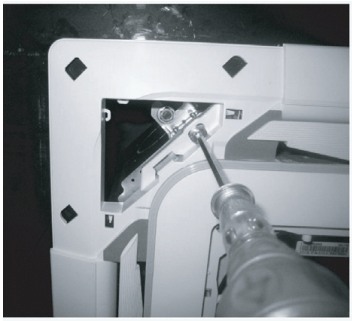
2 Remove the Corner covers of the panel.



3 Fit the panel on the unit by inserting hooks as shown in picture.

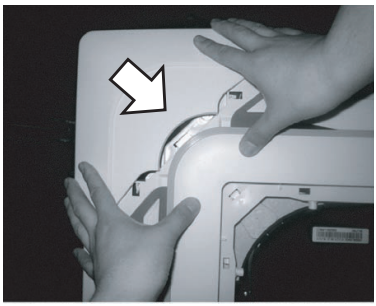


4 Insert two screws on diagonal corners of panel. Do not tighten the bolts completely. (The fixing screws are included in the indoor unit box.)
Check the alignment of panel with the ceiling. Height can be adjusted using hanging bolts as shown in picture. Insert the other two screws and tighten all screws completely.

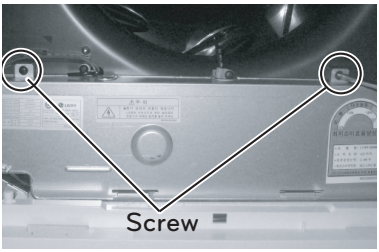




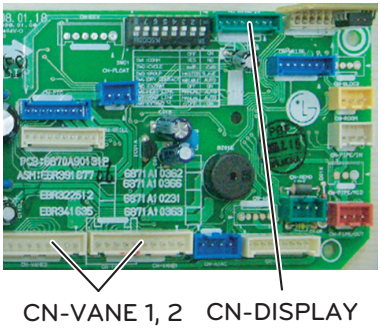
5 Fit the corner covers.



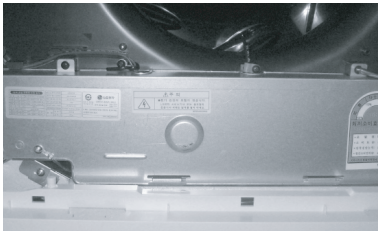
6 Open two screws of control panel cover.



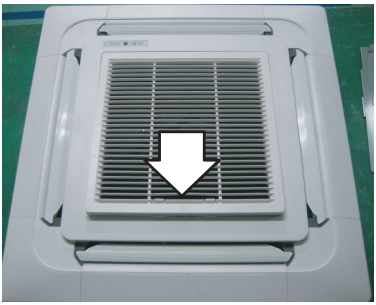
7 Connect one display connector and two vane control connectors of front panel to indoor unit PCB.
The position marking on PCB is as:
Display connector : CN-DISPLAY
Vane control connector: CN-VANE 1, 2



8 Close the cover for control box.



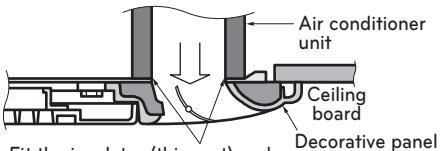
9 Install the air inlet grille and Filter on the panel.



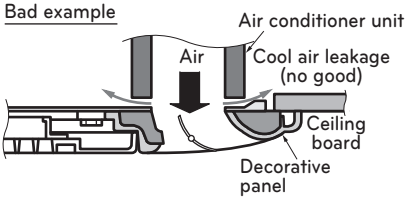
⚠ CAUTION

Install certainly the decorative panel.
Cool air leakage causes sweating. ⇨
Water drops fall.

Good example



Bad example



LEAKAGE TEST AND EVACUATION

Air and moisture remaining in the refrigerant system have undesirable effects as indicated below.

- Pressure in the system rises.
- Operating current rises.
- Cooling (or heating) efficiency drops.
- Moisture in the refrigerant circuit may freeze and block capillary tubing.
- Water may lead to corrosion of parts in the refrigeration system.

Therefore, the indoor/outdoor unit and connecting tube must be checked for leak tight, and vacuumed to remove non-condensable gas and moisture in the system.

Preparation

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

Leakage test

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

⚠ CAUTION

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

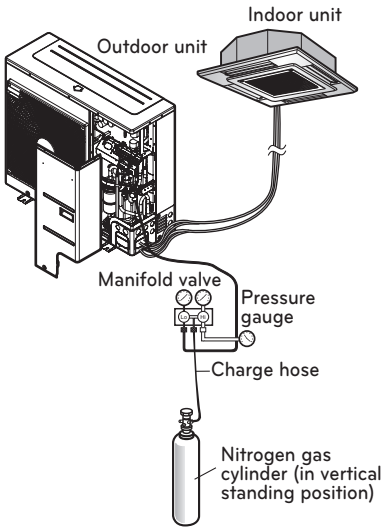
- Pressurize the system to no more than 3.8 MPa with dry nitrogen gas and close the cylinder valve when the gauge reading reached 3.8 MPa Next, test for leaks using bubble test solution.

⚠ CAUTION

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

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

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



Evacuation

- Connect the charge hose end described in the preceding steps to the vacuum pump to evacuate the tubing and indoor unit. Confirm the "Lo and Hi" knob of the manifold valve is open. Then, run the vacuum pump. The operation time for evacuation varies with tubing length and capacity of the pump. The following table shows the time required for evacuation.
- When the desired vacuum is reached, close the "Lo and Hi" knob of the manifold valve and stop the vacuum pump.

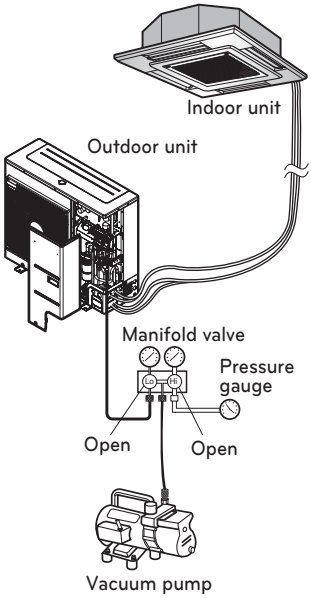
Required time for evacuation when 11.36 l/h vacuum pump is used	
If tubing length is less than 10 m (33 ft)	If tubing length is longer than 10 m (33 ft)
30 minutes. or more	60 minutes. or more
0.07 kPa or less	

Finishing the job

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

This completes air purging with a vacuum pump.

The air conditioner is now ready to test run.



TEST RUNNING

1 Precautions In Test Running

- The initial power supply must provide at least 90 % of the rated voltage. Otherwise, the air conditioner should not be operated.

⚠ CAUTION

- For test run, carry out the cooling operation firstly even during heating season. If heating operation is carried out firstly, it leads to the trouble of compressor. Then attention must be paid.
- Carry out the test run more than 5 minutes without fail. (Test run will be cancelled 18 minutes later automatically)

- The test run is started by pressing the room temperature checking button and down timer button for 3 seconds at the same time.
- To cancel the test run, press any button.

CHECK THE FOLLOWING ITEMS WHEN INSTALLATION IS COMPLETE

- After completing work, be sure to measure and record trial run properties, and store measured data, etc.
- Measuring items are room temperature, outside temperature, suction temperature, blow out temperature, wind velocity, wind volume, voltage, current, presence of abnormal vibration and noise, operating pressure, piping temperature, compressive pressure.
- As to the structure and appearance, check following items.

- ☐ Is the circulation of air adequate?
- ☐ Is the draining smooth?
- ☐ Is the heat insulation complete (refrigerant and drain piping)?
- ☐ Is there any leakage of refrigerant?
- ☐ Is the remote controller switch operated?
- ☐ Is there any faulty wiring?
- ☐ Are not terminal screws loosened?

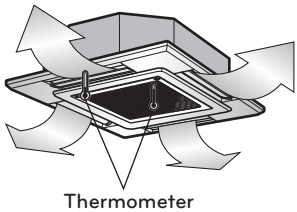
M4.....118 N·cm{12 kgf·cm}
M5.....196 N·cm{20 kgf·cm}
M6.....245 N·cm{25 kgf·cm}
M8.....588 N·cm{60 kgf·cm}

2 Connection of power supply

- Connect the power supply cord to the independent power supply. Circuit breaker is required.
- Operate the unit for fifteen minutes or more.

3 Evaluation of the performance

- Measure the temperature of the intake and discharge air.
- Ensure the difference between the intake temperature and the discharge one is more than 8 °C (Cooling) or reversely (Heating).



⚠ CAUTION

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

1 Never fail to have an individual power specialized for the air conditioner. As for the method of wiring, be guided by the circuit diagram pasted on the inside of control box cover.

2 Provide a circuit breaker switch between power source and the unit.

3 The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could give rise to burn-out of the wires.)

4 Specification of power source

5 Confirm that electrical capacity is sufficient.

6 Be sure that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.

7 Confirm that the cable thickness is as specified in the power sources specification. (Particularly note the relation between cable length and thickness.)

8 Never fail to equip a leakage breaker where it is wet or moist.

9 The following troubles would be caused by voltage drop-down.

- Vibration of a magnetic switch, damage on the contact point there of fuse breaking, disturbance to the normal function of a overload protection device.
- Proper starting power is not given to the compressor.

HAND OVER

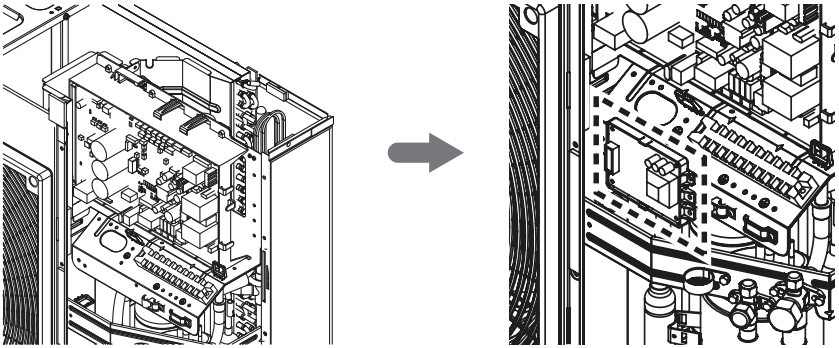
Teach the customer the operation and maintenance procedures, using the operation manual (air filter cleaning, temperature control, etc.).

INSTALLATION PI485

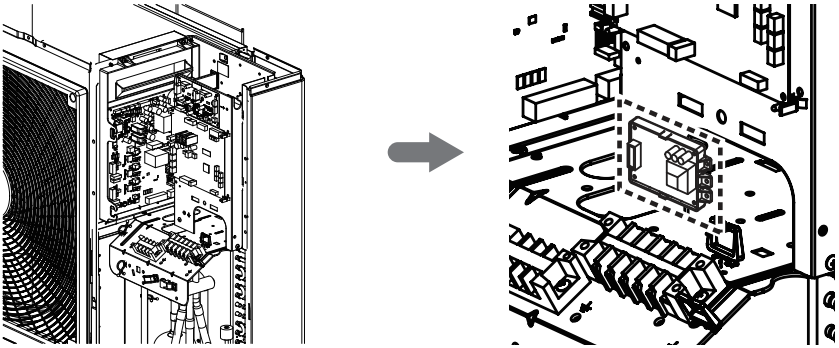
Fix the PI485 PCB as shown in below images.

For detailed installation method refer to PI485 Installation Manual.

24 k



36 / 48 k



EXTERNAL STATIC PRESSURE

* Only for ceiling concealed duct type

Capacity (kBtu/h)	Step	CMM	Static Pressure[mmAq(Pa)]										
			2(20)	2.5(25)	3(29)	4(39)	6(59)	8(78)	10(98)	12(118)	13(127)	14(137)	15(147)
			Setting Value										
			32:01	32:02	32:03	32:04	32:05	32:06	32:07	32:08	32:09	32:10	32:11
24	LOW	14.5	76	77	85	89	97	106	114	121	124	127	132
	MID	16.5	85	87	90	94	103	111	118	125	128	131	136
	HIGH	18	90	92	95	99	108	115	122	129	132	135	138

Capacity (kBtu/h)	Step	CMM	Static Pressure[mmAq(Pa)]										
			4(39)	5(49)	6(59)	7(69)	8(78)	9(88)	10(98)	11(108)	12(118)	13(127)	15(147)
			Setting Value										
			32:01	32:02	32:03	32:04	32:05	32:06	32:07	32:08	32:09	32:10	32:11
36	LOW	24	88	91	95	100	101	108	113	115	118	121	128
	MID	28	93	97	101	105	108	115	118	120	124	127	134
	HIGH	32	101	105	109	112	115	119	123	126	128	133	137

NOTE

1. Be sure to set the value refering table 2. Unexpected set value will cause mal-function.
2. Table 2 is based at 230 V. According to the fluctuation of voltage, air flow rate varies.
3. Factory Set(External Static Pressure) each Model

Capacity (kBtu/h)	Factory set (E.S.P.) mmAq(Pa)
24	6(59)
36	

* If it is zero static pressure, please set value below Maximum value.

Capacity (kBtu/h)	Maximum value
24	115
36	120

Installer Setting - Auto ESP

This function automatically sets the rotation speed of the fans corresponding to each step of rated airflow for easy installation.

Please refer to the manual for separately sold remote control for detailed setup.

NOTE

If this function is incorrectly set especially, in case of mismatching the voltage, the air conditioner may malfunction.

this function must be set by the installation specialist that holds an installation license. (please check the product type)

This function is only available on some products.

NOTE

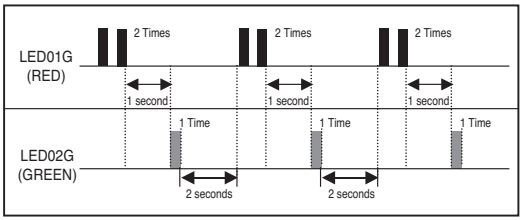
- If the heat exchanger is not dry, please set the device to operate in air circulation mode for 15 minutes.
- The air filter must be properly attached to the suction side of the product.
- Adjust the dampers so that each air inlet and outlet exhaust the required air.
- Please do not use the set auto air flow function when using various booster fans (outdoor air treatment device or ERV through ducts).
- Please reinitiate the set auto air flow function if the duct shape has changed since its initial installation.
- When setting the voltage manually, the set air flow will differ from the actual air flow if the set voltage is different from the actual voltage.
- When setting voltage manually, measure the actual voltage and select the set voltage on the remote control.
- Failure to follow the above method may cause the actual air flow to differ from the rated air flow.

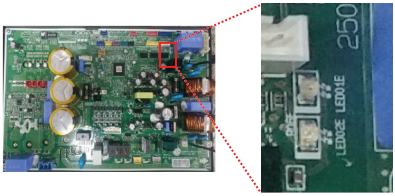
SELF-DIAGNOSIS FUNCTION

Indoor Unit Error

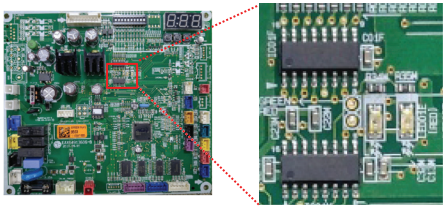
Code	Title	Cause of Error
1	Air temperature sensor of Indoor unit	Air temperature sensor of indoor unit is open or short
2	Inlet pipe temperature Sensor of indoor unit	Inlet pipe temperature sensor of indoor unit is open or short
3	Communication error : wired remote controller ↔ indoor unit	Failing to receive wired remote controller signal in indoor unit PCB
4	Drain pump	Malfunction of drain pump
5	Communication error : outdoor unit ↔ indoor unit	Failing to receive outdoor unit signal in indoor unit PCB
6	Outlet pipe temperature sensor of indoor unit	Outlet pipe temperature sensor of indoor unit is open or short
9	Indoor EEPROM Error	In case when the serial number marked on EEPROM of Indoor unit is 0 or FFFF
10	Abnormal fan motor operation	Disconnecting the fan motor connector / Failure of indoor fan motor lock

Outdoor Unit Error





Standard Inverter : 24 k



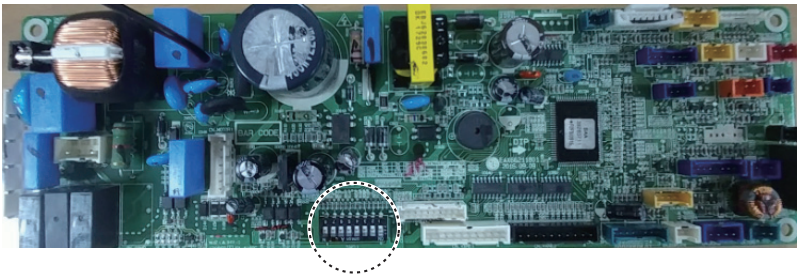
Standard Inverter : 36 / 48 k

Code	Contents	Operation State	Error Display			Count
			Cable Remote Controller	Outdoor Device		
				Red LED	Green LED	
21	IPM Fault Error	Stop	CH21	Flashing 2 times	Flashing 1 time	10 times Within 1h
22	CT 2 Error (Input of Over-Current)	Stop	CH22	Flashing 2 times	Flashing 2 times	Infinite restart
23	DC Link Error (High/Low DC Voltage)	Stop	CH23	Flashing 2 times	Flashing 3 times	Infinite restart
24	Pressure Switch High/Low Pressure Fault	Stop	CH24	Flashing 2 times	Flashing 4 times	Infinite restart
25	Input Frequency Detection Failure	Stop	CH25	Flashing 2 times	Flashing 5 times	1 time Within 1h
26	DC Comp Position Detection Error	Stop	CH26	Flashing 2 times	Flashing 6 times	1 time Within 1h
27	PSC/PFC Over-Current Error (HW)	Stop	CH27	Flashing 2 times	Flashing 7 times	10 times Within 1h
29	Comp Phase Over-Current Error	Stop	CH29	Flashing 2 times	Flashing 9 times	10 times Within 1h
32	D-Pipe Overheating Error (INV Comp)	Stop	CH32	Flashing 3 times	Flashing 2 times	Infinite restart
33	D-Pipe Overheating Error (Constant-rate Comp)	Stop	CH33	Flashing 3 times	Flashing 3 times	Infinite restart
35	Low Pressure Error of Outdoor Unit	Stop	CH35	Flashing 3 times	Flashing 5 times	6 times Within 1h
38	Refrigerant Leakage Error	Stop	CH38	Flashing 3 times	Flashing 5 times	4 times Within 3h
41	D-Pipe Sensor Error (INV Comp)	Stop	CH41	Flashing 4 times	Flashing 1 time	1 time Within 1h
43	High pressure Sensor Error	Stop	CH43	Flashing 4 times	Flashing 3 time	1 time Within 1h
44	Outdoor Inlet Sensor Error	Stop	CH44	Flashing 4 times	Flashing 4 times	1 time Within 1h

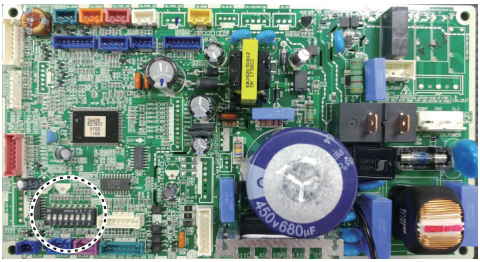
Code	Contents	Operation State	Error Display			Count
			Cable Remote Controller	Outdoor Device		
				Red LED	Green LED	
45	Cond. Pipe Sensor Error	Stop	CH45	Flashing 4 times	Flashing 5 times	1 time Within 1h
46	Suction Pipe Sensor Error	Stop	CH46	Flashing 4 times	Flashing 6 times	1 time Within 1h
47	D-Pipe Sensor Error (Constant-rate Comp)	Stop	CH47	Flashing 4 times	Flashing 7 times	1 time Within 1h
51	Over-Capacity Connection Error	Stop	CH51	Flashing 5 times	Flashing 1 time	1 time Within 1h
53	Communication Error between Outdoor Device Indoor Device	Stop	CH53	Flashing 5 times	Flashing 3 times	1 time Within 1h
54	Open and Reverse Phase Error	Stop	CH54	Flashing 5 times	Flashing 4 times	10 times Within 1h
60	EEPROM Check Sum Error	Stop	CH60	Flashing 6 times	-	1 time Within 1h
61	Outdoor Device Pipe Overheating Error	Stop	CH61	Flashing 6 times	Flashing 1 time	Infinite restart
62	Heat-sink Overheating Error	Stop	CH62	Flashing 6 times	Flashing 2 times	Infinite restart
65	Heat-sink Sensor Error	Stop	CH65	Flashing 6 times	Flashing 5 times	1 time Within 1h
67	Outdoor BLDC Fan Lock Error	Stop	CH67	Flashing 6 times	Flashing 7 times	10 times Within 1h
73	PSC/PFC Over-Current Error (SW)	Stop	CH73	Flashing 7 times	Flashing 3 times	10 times Within 1h

DIP SWITCH SETTING FOR INDOOR UNIT

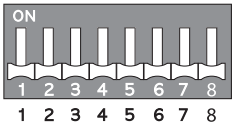
Ceiling Cassette Type



Ceiling Concealed Duct Type



DIP Switch



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

DIP SWITCH SETTING FOR OUTDOOR UNIT

DIP S/W Setting

If you set the DIP Switch when power is on, the change in setting is not applicable. The changing setting is enabled only when Power is reset.

DIP Switch		Function
1	2	
		Normal Operation (No Function)
		Pump Down
		Saving Power Consumption (Step 1)
		Saving Power Consumption (Step 2)
		Mode Lock (Cooling)
		Mode Lock (Heating)
		Night Quiet Mode (Step 1)
		Night Quiet Mode (Step 2)
		Mode Lock (Cooling) + Night Quiet Mode (Step 1)
		Mode Lock (Cooling) + Night Quiet Mode (Step 2)
		Mode Lock (Cooling) + Saving Power Consumption (Step 1)
		Mode Lock (Cooling) + Saving Power Consumption (Step 2)
		Mode Lock (Heating) + Saving Power Consumption (Step 1)
		Mode Lock (Heating) + Saving Power Consumption (Step 2)

1 : 24 k
2 : 36 / 48 k

⚠ WARNING

When you set the DIP switch, you should turn off the circuit breaker or shut the power source of the product down.

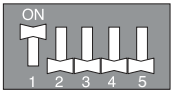
⚠ CAUTION

- Unless the applicable DIP switch is set properly, the product may not work.
- If you want to set a specific function, request that the installer sets the DIP switch appropriately during installation.

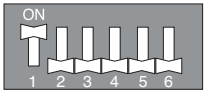
Pump Down

Setting Procedure

1 Set the DIP Switch as follow after shutting the power source down.



24 k



36 / 48 k

2 Reset the power.

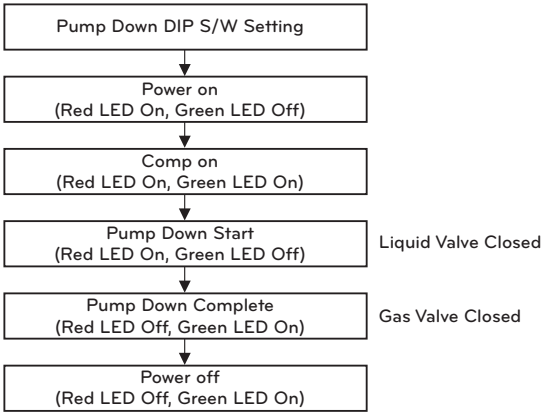
3 Red LED and Green LED of PCB lights during work.
(The indoor unit is operated by force.)

4 If operation is done, Red LED will be turned off.
If operation is not done normally, Red LED will blink.

5 Close the Liquid valve only after green LED turned off (7 minutes from the start of the machine). Then close the gas valve after Green LED on.

⚠ WARNING

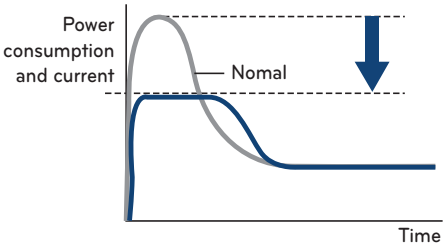
- When the green LED of PCB is on, compressor is going to be off because of low pressure.
- You should return the DIP Switch to operate normally after finishing the operation.
- Improper Pump down will lead to product turn off along with LED (green &red) off with in 20 minutes from the initial start.



- The actual product can be different from above contents depending upon model type.

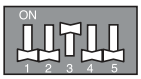
Saving Power Consumption

Saving Power Consumption operation is the function which enables efficient operation by lowering the maximum power consumption value.

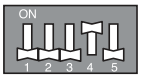


Setting Procedure

1 Set the DIP Switch as follow after shutting the power source down.



24 k



24 k



36 / 48 k

Step 1

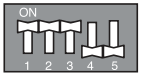


36 / 48 k

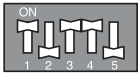
Step 2

2 Reset the power.

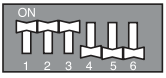
Saving Power Consumption with Mode Lock.



24 k

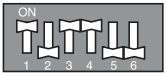


24 k



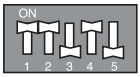
36 / 48 k

Saving Power Consumption (step 1)
+ Mode Lock (Cooling)

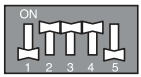


36 / 48 k

Saving Power Consumption (step 1)
+ Mode Lock (Heating)



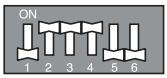
24 k



24 k



36 / 48 k



36 / 48 k

Saving Power Consumption (step 2)
+ Mode Lock (Cooling)

Saving Power Consumption (step 2)
+ Mode Lock (Heating)

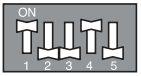
Night Quiet Mode

Night Quiet Mode operation lowers the noise level of the outdoor unit by changing the Compressor's frequency and fan speed. This function is operated all night long.

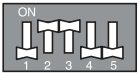
Setting Procedure

1 Set the DIP Switch as follow after shutting the power source down.

❉ Noise level :Step 1 > Step 2



24 k

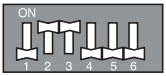


24 k



36 / 48 k

Step 1

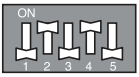


36 / 48 k

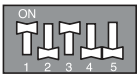
Step 2

2 Reset the power.

Night Quiet Mode with Mode Lock.



24 k



24 k



36 / 48 k

Mode Lock (Cooling)
+ Night Quiet Mode (step 1)



36 / 48 k

Mode Lock (Cooling)
+ Night Quiet Mode (step 2)

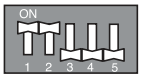
⚠ CAUTION

- If compressor's frequency and fan speed are down, the cooling capacity may decrease accordingly.
- This function is only available for Cooling Mode.
- If you want to stop the Night Quiet Mode, Change the DIP Switch.
- If operating indoor unit is set by the fan speed "Power", Night Quiet Mode will be stopped until fan speed "Power" is changed.

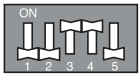
Mode Lock

Setting Procedure

1 Set the DIP Switch as follow after shutting the power source down.



24 k

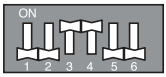


24 k



36 / 48 k

Only Cooling Mode

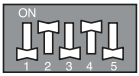


36 / 48 k

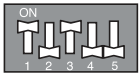
Only Heating Mode

2 Reset the power.

Mode Lock with Night Quiet Mode



24 k

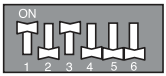


24 k



36 / 48 k

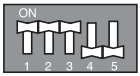
Mode Lock (Cooling)
+ Night Quiet Mode (step 1)



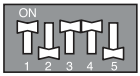
36 / 48 k

Mode Lock (Cooling)
+ Night Quiet Mode (step 2)

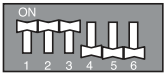
Saving Power Consumption with Mode Lock.



24 k



24 k



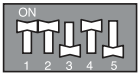
36 / 48 k

Mode Lock (Cooling) + Saving Power
Consumption (step 1)

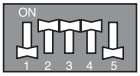


36 / 48 k

Mode Lock (Heating) + Saving Power
Consumption (step 1)



24 k

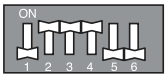


24 k



36 / 48 k

Mode Lock (Cooling) + Saving Power
Consumption (step 2)



36 / 48 k

Mode Lock (Heating) + Saving Power
Consumption (step 2)

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:

- Excessive cooling may be harmful to 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 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 labeled on the side of each unit.

Dealer's name :

Date of purchase :

BEFORE USE

About the system

This system of air conditioner can be used for heating/cooling applications.

Preparing for operation

- Contact an installation specialist for installation.
- Use a dedicated circuit.

Usage

- Being exposed to direct airflow for an extended period of time could be hazardous to your health. Do not expose occupants, pets, or plants to direct airflow for extended periods of time.
- Due to the possibility of oxygen deficiency, ventilate the room when used together with stoves or other heating devices.
- Do not use this air conditioner for non-specified special purposes (e.g. preserving precision devices, food, pets, plants, and art objects). Such usage could damage the items.

Cleaning and maintenance

- Do not touch the metal parts of the unit when removing the filter. Injuries can occur when handling sharp metal edges.
- Do not use water to clean inside the air conditioner. Exposure to water can destroy the insulation, leading to possible electric shock.
- When cleaning the unit, first make sure that the power and breaker are turned off. The fan rotates at a very high speed during operation. There is a possibility of injury if the unit's power is accidentally triggered on while cleaning inner parts of the unit.

Service

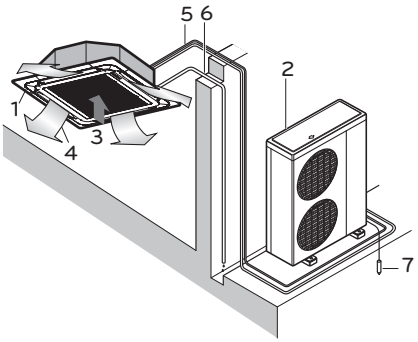
For repair and maintenance, contact your authorized service dealer.

Disposal

The unit uses hydrofluorocarbon. Contact your dealer when discarding this unit. It is required by law to collect, transport and discard the refrigerant in accordance with the "hydrofluorocarbon collection and destruction" regulations.

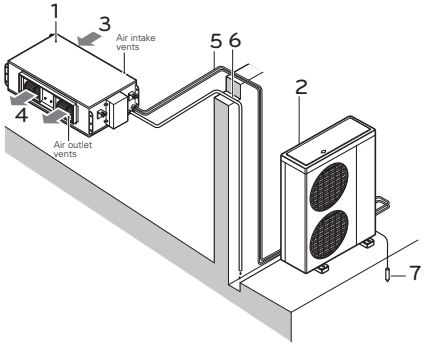
PRODUCT INTRODUCTION

Name and function of parts (CEILING CASSETTE)



1: Indoor unit
2: Outdoor unit
3: Inlet air
4: Discharge air
5: Refrigerant piping, connection electric wire
6: Drain pipe
7: Ground wire
Wire to ground outdoor unit to prevent electrical shocks.

Name and function of parts (CEILING CONCEALED DUCT)

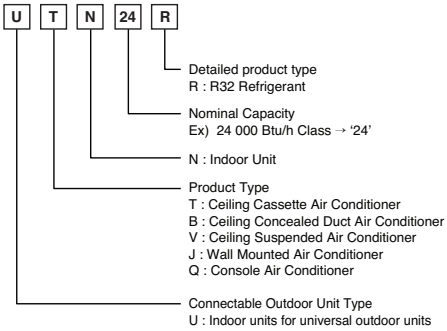


1: Indoor unit
2: Outdoor unit
3: Inlet air
4: Discharge air
5: Refrigerant piping, connection electric wire
6: Drain pipe
7: Ground wire
wire to ground outdoor unit to prevent electrical shocks.

Model designation

Product information – Indoor Unit

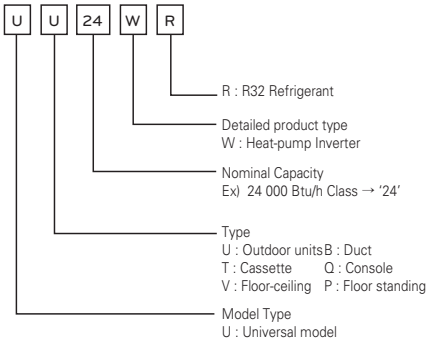
- Product Name : Air conditioner
- Model Name :



- Additional Information : serial number is refer to the barcode on the product.
- Maximum allowable pressure High side : 4.2 MPa / Low side : 2.4 MPa
- Refrigerant : R32 / R410A

Product information – Outdoor Unit

- Product Name : Air conditioner
- Model Name :



- Additional Information : serial number is refer to the barcode on the product.
- Max allowable pressure High side : 4.2 MPa / Low side : 2.4 MPa
- Refrigerant : R32

Airborne Noise Emission

The A-weighted sound pressure emitted by this product is below 70 dB.

** The noise level can vary depending on the site.

The figures quoted are emission level and are not necessarily safe working levels.

Whilst there is a correlation between the emission and exposure levels, this cannot be used reliably to determine whether or not further precautions are required.

Factor that influence the actual level of exposure of the workforce include the characteristics of the work room and the other sources of noise, i.e. the number of equipment and other adjacent processes and the length of time for which an operator exposed to the noise. Also, the permissible exposure level can vary from country to country.

This information, however, will enable the user of the equipment to make a better evaluation of the hazard and risk.

Limiting concentration

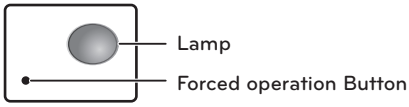
Limiting concentration is the limit of Freon gas concentration where immediate measures can be taken without hurting human body when refrigerant leaks in the air. The limiting concentration shall be described in the unit of kg/m^3 (Freon gas weight per unit air volume) for facilitating calculation

Limiting concentration: 0.44 kg/m^3(R410A)

■ Calculate refrigerant concentration

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

Operation Indicator Lamp



Description	Lamp Color
Cooling mode	Green
Heating mode	Green
Time to clean filter in cooling/heating Mode	Yellowish Green
Time to clean filter when product is not operating	Orange
Hot start or defrost mode before starting heating mode	Green
When reservation set on	Yellowish Green

MAINTENANCE AND SERVICE

CAUTION

Before performing any maintenance, turn off the main power to the system.

Indoor Unit

Grille, Case and Remote Control

- Turn the system off before cleanining, To clean, wipe with a soft, dry cloth. Do not use bleach or abrasives.

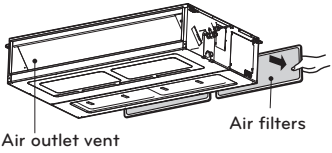
NOTE

Supply power must be disconnected before cleaning the indoor unit.

Air Filters

The air filters behind the front grille should be checked and cleaned once every 2 weeks or more often if necessary.





TU chassis : 4 EA Rack

- Never use any of the followings:

  Water hotter than 40 °C.
  Could cause deformation and/or discoloration.

  Volatile substances.
  Could damage the surfaces of the air conditioner.



1 Remove the Air filters.
   - Take hold of the tab and pull slightly forward to remove the filter.

CAUTION

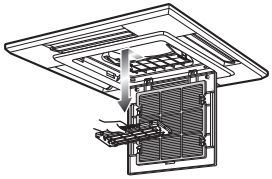
When the air filter is to be removed, do not touch the metal parts of the indoor unit.
It may cause an injury.

2 Clean dirt from the air filter using a vacuum cleaner or washing with water.
   - If dirt is conspicuous, wash with a neutral detergent in lukewarm water.
   - If hot water (50 °C or more) is used, it may be deformed.
3 After washing with water, dry well in the shade.
   - Do not expose the air filter to direct sunlight or heat from a fire when drying it.
4 Install the air filter.

Purifying filter(Optional)

Cleaning

The PLASMA filter behind the air filters should be checked and cleaned once every 3 months or more often if necessary.



1 After removing the air filters, pull slightly forward to remove the PLASMA filter.
2 DIP the PLASMA filter into the water mixed with neutral detergent, for 20~30 minutes.
3 Dry the PLASMA filter in the shade for a day (Especially, the humidity must be removed perfectly on this parts).
4 Note the cuts of electric discharge lines.
5 Re-install the PLASMA filter to the original position.

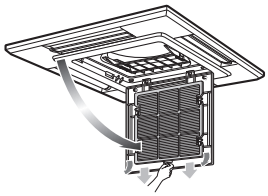
⚠ CAUTION

Don't touch this PLASMA Filter within 10 seconds after opening the inlet grille, it may cause an electric shock.

Replacement

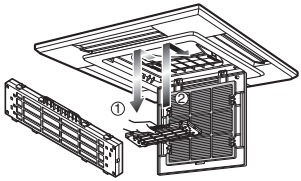
- Recomended use period : About 2 years

1 Open front panel and remove air filter.

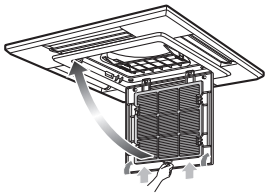


2 Remove air purifying filter.

3 Insert new air purifying filter.



4 Reinsert air filter and close front panel.



Operation Tips!

Do not overcool the room. This is not good for the health and wastes electricity.	**Keep blinds or curtains closed.** Do not let direct sunshine enter the room when the air conditioner is in operation.	**Keep the room temperature uniform.** Adjust the vertical and horizontal airflow direction to ensure a uniform temperature in the room.
Make sure that the doors and windows are shut tight. Avoid opening doors and windows as much as possible to keep the cool air in the room.	**Clean the air filter regularly.** Blockages in the air filter reduce the airflow and lower cooling and dehumidifying effects. Clean at least once every two weeks.	**Ventilate the room occasionally.** Since windows are kept closed, it is a good idea to open them and ventilate the room now and then.

When the air conditioner is not going....

When air conditioner is not going to be used for a long time.

1 Operate the air conditioner at the following settings for 2 to 3 hours.
   - Type of operation: Fan operation mode.
   - This will dry out the internal mechanisms.
2 Turn off the breaker.

⚠ CAUTION

Turn off the breaker when the air conditioner is not going to be used for a long time.

Dirt may collect and may cause a fire.

3 Remove the batteries from the Remote Controller.

Helpful information

The air filters and your electric bill.

If the air filters become clogged with dust, the cooling capacity will drop, and 6 % of the electricity used to operate the air conditioner will be wasted.

When the air conditioner is to be used again.

1 Clean the air filter and install it in the indoor unit.
2 Check that the air inlet and outlet of the indoor/outdoor unit are not blocked.
3 Check that the ground wire is connected correctly. It may be connect to the indoor unit side.

Troubleshooting Tips! Save time and money!

Check the following points before requesting repairs or service.... If the malfunction persist, please contact your dealer.

Case	Explanation
The air conditioner does not operate.	• Have you made a mistake in timer operation?
	• Has the fuse blown or has the circuit breaker been tripped?
The room has a peculiar odor.	• Check that this is not a damp smell exuded by the walls, carpet, furniture or cloth items in the room.
It seems that condensation is leaking from the air conditioner.	• Condensation occurs when the airflow from the air conditioner cools the warm room air.
Air conditioner does not operate for about 3 minutes when restart.	• This is the protector of the mechanism.
	• Wait about three minutes and operation will begin.
Does not cool or heat effectively.	• Is the air filter dirty? See air filter cleaning instructions.
	• The room may have been very hot when the room air conditioner was first turned on. Allow time for it to cool down.
	• Has the setting temperature been set incorrectly?
	• Are the indoor unit's air inlet or outlet vents obstructed?
The air conditioner operation is noisy.	• For a noise that sounds like water flowing. -This is the sound of freon flowing inside the air conditioner unit. • For a noise that sounds like the compressed air releasing into atmosphere. -This is the sound of the dehumidifying water being processed inside the air conditioning unit.
Crack sound is heard.	• This sound is generated by the expansion/contraction of the inlet grille, etc. due to changes of temperature.
Remote control display is faint, or no display at all.	• Has the circuit breaker been tripped? • Are the batteries inserted in the opposite (+) and (-) directions?
The error code is occurred after lightning struck	• This product has been applied to the over current protection circuit. Error can occur, but it is normal behavior. After few minutes, It will operate normally.

Call the service immediately in the following situations

- Anything abnormal such as burning smell, loud noise etc. happen. Stop the unit and turn the breaker off. Never try to repair by yourself or restart the system in such cases.
- Main power cord is too hot or damaged.
- Error code is generated by self diagnosis.
- Water leaks from indoor unit even if the humidity is low.
- Any switch, breaker (safety, earth) or fuse fails to work properly

User must carry routine checkup & cleaning to avoid unit's poor performance.
In case of special situation, the job must be carried out by service person only.


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