AIR CONDITIONER
INDOOR UNIT
Duct type

⚠ CAUTION

R410A
REFRIGERANT

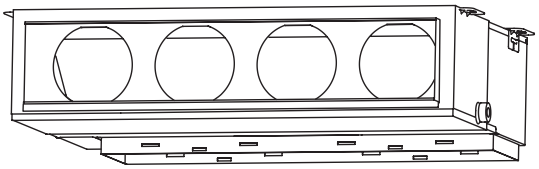
This Air Conditioner contains and operates with refrigerant R410A.

THIS PRODUCT MUST ONLY BE INSTALLED OR SERVICED BY QUALIFIED PERSONNEL.

Refer to Commonwealth, State, Territory and local legislation, regulations, codes, installation & operation manuals, before the installation, maintenance and/or service of this product.

INSTALLATION MANUAL

For authorized service personnel only.



Contents

PART NO. 9379127004-02

1. SAFETY PRECAUTIONS

- Be sure to read this Manual thoroughly before installation.
- The warnings and precautions indicated in this Manual contain important information pertaining to your safety. Be sure to observe them.
- Hand this Manual, together with the Operating Manual, to the customer. Request the customer to keep them on hand for future use, such as for relocating or repairing the unit.

⚠ WARNING	This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.

- Request your dealer or a professional installer to install the indoor unit in accordance with this Installation Manual. An improperly installed unit can cause serious accidents such as water leakage, electric shock, or fire. If the indoor unit is installed in disregard of the instructions in the Installation Manual, it will void the manufacturer's warranty.
- Do not turn ON the power until all work has been completed. Turning ON the power before the work is completed can cause serious accidents such as electric shock or fire.
- If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.
- Installation work must be performed in accordance with national wiring standards by authorized personnel only.

⚠ CAUTION	This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.

2. ABOUT THE UNIT

2.1. Precautions for using R410A refrigerant

⚠WARNING

- Do not introduce any substance other than the prescribed refrigerant into the refrigeration cycle. If air enters the refrigeration cycle, the pressure in the refrigeration cycle will become abnormally high and cause the piping to rupture.
- If there is a refrigerant leak, make sure that it does not exceed the concentration limit. If a refrigerant leak exceeds the concentration limit, it can lead to accidents such as oxygen starvation.
- Do not touch refrigerant that has leaked from the refrigerant pipe connections or other area. Touching the refrigerant directly can cause frostbite.
- If a refrigerant leak occurs during operation, immediately vacate the premises and thoroughly ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.

2.2. Special tool for R410A

⚠ WARNING

- To install a unit that uses R410A refrigerant, use dedicated tools and piping materials that have been manufactured specifically for R410A use. Because the pressure of R410A refrigerant is approximately 1.6 times higher than the R22, failure to use dedicated piping material or improper installation can cause rupture or injury. Furthermore, it can cause serious accidents such as water leakage, electric shock, or fire.

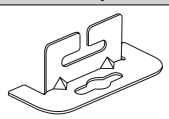
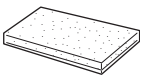
Tool name	Changes
Gauge manifold	The pressure in the refrigerant system is extremely high and cannot be measured with a conventional gauge. To prevent erroneous mixing of other refrigerants, the diameter of each port has been changed. It is recommended to use a gauge manifold with a high pressure display range of –0.1 to 5.3 MPa and a low pressure display range of –0.1 to 3.8 MPa.
Charging hose	To increase pressure resistance, the hose material and base size were changed. (The charging port thread diameter for R410A is 1/2 UNF 20 threads per inch.)
Vacuum pump	A conventional vacuum pump can be used by installing a vacuum pump adapter. Be sure that the pump oil does not backflow into the system. Use one capable for vacuum suction of –100.7 kPa (5 torr, –755 mmHg).
Gas leakage detector	Special gas leakage detector for R410A refrigerant.

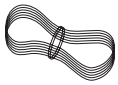
2.3. Accessories

⚠ WARNING

- For installation purposes, be sure to use the parts supplied by the manufacturer or other prescribed parts. The use of non-prescribed parts can cause serious accidents such as the unit to falling, water leakage, electric shock, or fire.

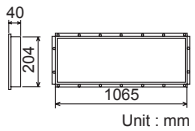
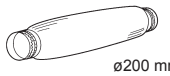
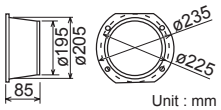
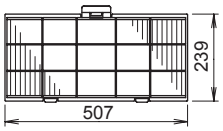
- The following installation parts are furnished. Use them as required.
- Keep the Installation Manual in a safe place and do not discard any other accessories until the installation work has been completed..

Name and Shape	Q'ty	Description
Hanger 	4	For suspending the indoor unit from ceiling
Drain hose insulation 	1	Insulates the drain hose and vinyl hose

Binder (Large) 	1	For fixing the drain hose
Binder (Small) 	1	For remote controller and remote controller cable binding
Remote controller 	1	For air conditioner operation
Remote controller cable (*1) 	1	For connecting the remote controller
Screw (M4 × 16) 	2	For installing the remote controller
Coupler heat insulation (large) 	1	For indoor side pipe joint (gas)
Coupler heat insulation (small) 	1	For indoor side pipe joint (liquid)
Special nut A (large flange) 	4	For suspending the indoor unit from ceiling
Special nut B (small flange) 	4	For suspending the indoor unit from ceiling

(*1) Not supplied for ART series

2.4. Optional parts

Exterior	Parts name	Model No.	Summary
	Square flange	UTD-SF045T	
	Flexible duct	UTD-RD202	
	Round flange	UTD-RF204	
	Long-life filter	UTD-LF25NA	
	Remote sensor	UTD-RS100	New amenity space can be offered by installing the Remote sensor in the remote controller
	External control set	UTD-ECS5A	
	Drain pump unit	UTZ-PX1NBA	
	Receiver unit	UTY-LRH**	

3. INSTALLATION WORK

Especially, the installation place is very important for the split type air conditioner because it is very difficult to move from place to place after the first installation.

3.1. Selecting an installation location

Decide the mounting position together with the customer as follows.

⚠ WARNING

- Select installation locations that can properly support the weight of the indoor unit. Install the units securely so that they do not topple or fall.

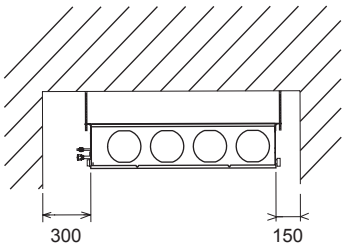
⚠ CAUTION

- Do not install the indoor unit in the following areas:
  - Area with high salt content, such as at the seaside. It will deteriorate metal parts, causing the parts to fall or the unit to leak water.
  - Area filled with mineral oil or containing a large amount of splashed oil or steam, such as a kitchen. It will deteriorate plastic parts, causing the parts to fall or the unit to leak water.
  - Area that generates substances that adversely affect the equipment, such as sulfuric gas, chlorine gas, acid, or alkali. It will cause the copper pipes and brazed joints to corrode, which can cause refrigerant leakage.
  - Area that can cause combustible gas to leak, contains suspended carbon fibers or flammable dust, or volatile inflammables such as paint thinner or gasoline. If gas leaks and settles around the unit, it can cause a fire.
  - Area where animals may urinate on the unit or ammonia may be generated.
- Do not install where there is the danger of combustible gas leakage.
- Do not install the unit near a source of heat, steam, or flammable gas.
- Install the indoor unit, outdoor unit, power supply cable, transmission cable, and remote control cable at least 1 m away from a television or radio receivers. The purpose of this is to prevent TV reception interference or radio noise. (Even if they are installed more than 1 m apart, you could still receive noise under some signal conditions.)
- If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.
- Take precautions to prevent the unit from falling.

(1) Install the indoor unit on a place having a sufficient strength so that it withstands against the weight of the indoor unit.
(2) The inlet and outlet ports should not be obstructed; the air should be able to blow all over the room.
(3) Leave the space required to service the air conditioner.
(4) Install the unit where connection to the outdoor unit is easy.
(5) Install the unit where the connection pipe can be easily installed.
(6) Install the unit where the drain pipe can be easily installed.
(7) Install the unit where noise and vibrations are not amplified.
(8) Take servicing, etc., into consideration and leave the spaces. Also install the unit where the filter can be removed.
(9) Providing as much space as possible between the indoor unit and the ceiling will make work much easier.
(10) If installing in a place where its humidity exceeds 80%, use heat insulation to prevent condensation.

3.2. Installation dimension

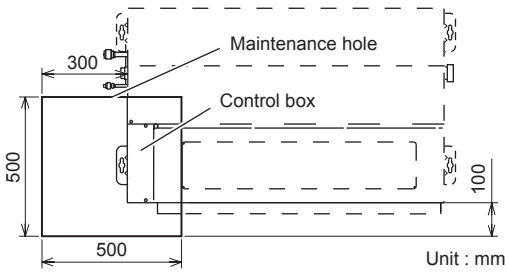
Provide the space around the unit as shown in the following figure.



Unit : mm

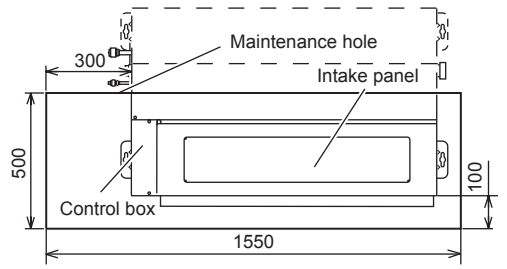
Maintenance hole dimension

It shall be possible to install and remove the control box.



Unit : mm

It shall be possible to install and remove the control box, fan units and filter.



Unit : mm

3.3. Installation the unit

⚠ WARNING

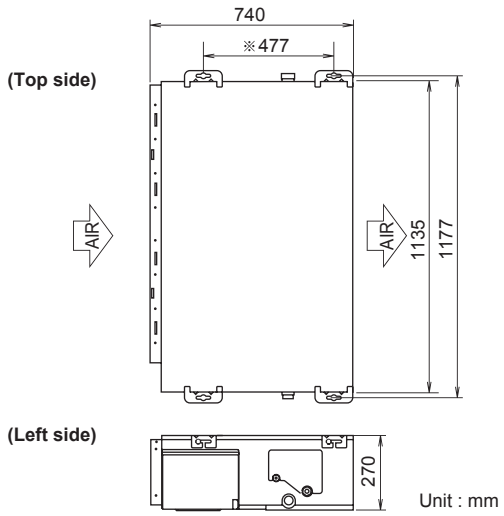
- Install the air conditioner in a location which can withstand a load of at least five times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.
- If the job is done with the panel frame only, there is a risk that the unit will come loose. Please take care.

3.3.1. Installing the hangers

⚠ WARNING

- When fastening the hangers, make the bolt positions uniform.

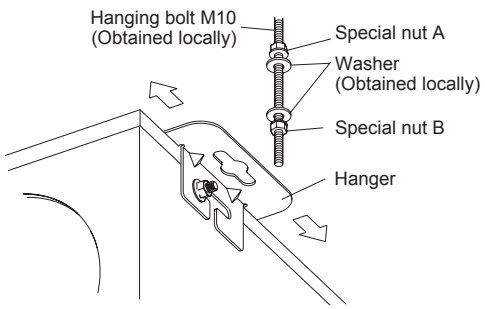
Hanging bolt installation diagram.
(Example)



Unit : mm

The distance of ※ is adjustable according to the place of the hanging bolts.
(MAX : 550 mm, MIN : 410 mm)

Slide the unit in the arrow direction and fasten it.



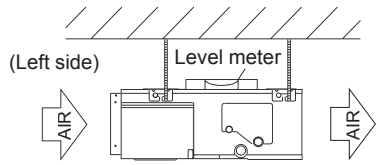
Bolt Strength [N·m (kgf·cm)]	9.81 to 14.71 (100 to 150)

⚠ CAUTION

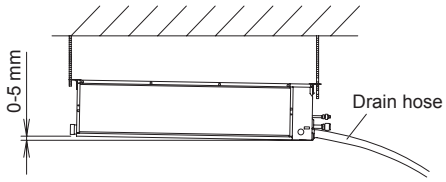
- Fasten the unit securely with special nuts A and B.

3.3.2. Leveling

Base vertical direction leveling on the unit (right and left).



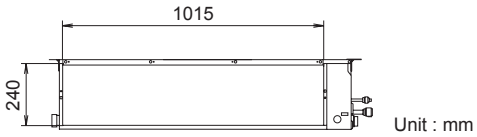
Base horizontal direction leveling on top of the unit.



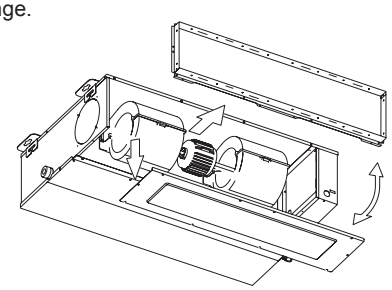
Give a slight tilt to the side to which the drain hose is connected.
The tilt should be in the range of 0 mm to 5 mm.

3.3.3. Intake duct connection

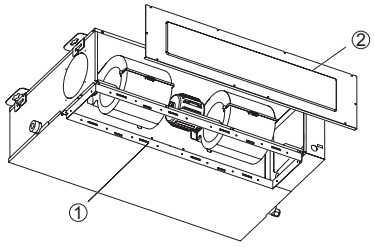
Follow the procedure in the following figure to the ducts.



The air inlet duct can be changed by replacing the intake grille and flange.



For the bottom air intake, follow the procedure of ①→② for installation.
(The factory setting is back air intake.)

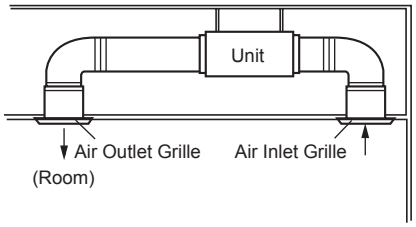


⚠ CAUTION

- When air is taken in from the bottom side, the operating sound of the product will easily enter the room. Install the product and intake grilles where the affect of the operating sound is small.

⚠ CAUTION

- If an intake duct is installed, take care not to damage the temperature sensor.
- Be sure to install the air inlet grille and the air outlet grille for air circulation. The correct temperature cannot be detected.



- Grills must be fixed so that man cannot touch indoor unit fan, and cannot be removed by only hand operation without tool.
- Be sure to install the air filter in the air inlet. If the air filter is not installed, the heat exchanger may be clogged and its performance may decrease.

3.3.4. Outlet duct connection

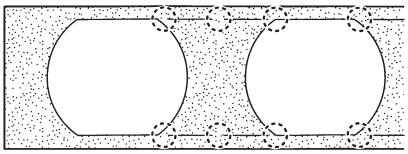
Duct installation pattern (■ CUT PART)

(1) Square duct

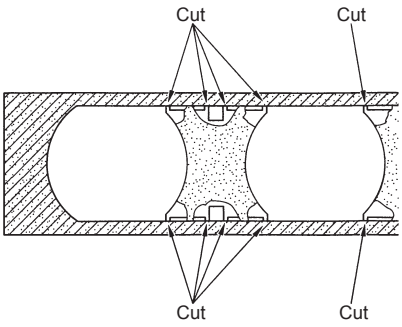
(2) Round duct outlet ×4
(This is the factory setting.)

When using as a square duct

(1) Cut the slit seam ⋯ with a cutter.

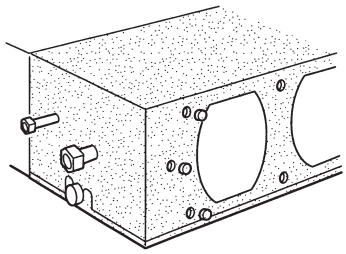


(2) Turn up the insulation around the points to be cut according to the outlet port shape working points so that the insulation does not stick out at the ▨ part.



(3) Cut with nippers and remove the sheet metal.

(4) .Since there is a slit in the insulation, use radio pliers, tweezers, etc. to stretch the screw hole part used when installing the round fl ange and square fl ange when connecting the duct.



4. PIPE INSTALLATION

⚠ CAUTION

- Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant R410A models. Also, when storing the piping, securely seal the openings by pinching, taping, etc.
- While welding the pipes, be sure to blow dry nitrogen gas through them.

4.1. Selecting a pipe material

⚠ CAUTION

- Do not use existing pipes.
- Use pipes that have clean external and internal sides without any contamination which may cause trouble during use, such as sulfur, oxide, dust, cutting waste, oil, or water.
- It is necessary to use seamless copper pipes.
  Material : Phosphor deoxidized seamless copper pipes
  It is desirable that the amount of residual oil is less than 40 mg/10 m.
- Do not use copper pipes that have a collapsed, deformed, or discolored portion (especially on the interior surface). Otherwise, the expansion valve or capillary tube may become blocked with contaminants.
- Improper pipe selection will degrade performance. As an air conditioner using R410A incurs pressure higher than when using conventional refrigerant, it is necessary to choose adequate materials.

- Thicknesses of copper pipes used with R410A are as shown in the table.
- Never use copper pipes thinner than those indicated in the table even if they are available on the market.

Thicknesses of Annealed Copper Pipes (R410A)

Pipe outside diameter [mm (in.)]	Thickness [mm]
6.35 (1/4)	0.80
9.52 (3/8)	0.80
12.70 (1/2)	0.80
15.88 (5/8)	1.00
19.05 (3/4)	1.20

4.2. Pipe requirement

⚠ CAUTION

- Refer to the Installation Manual of the outdoor unit for description of the length of connecting pipe or for difference of its elevation.

Diameter [mm (in.)]		
	Liquid	9.52 (3/8)
	Gas	15.88 (5/8)

- Use pipe with water-resistant heat insulation.

⚠ CAUTION

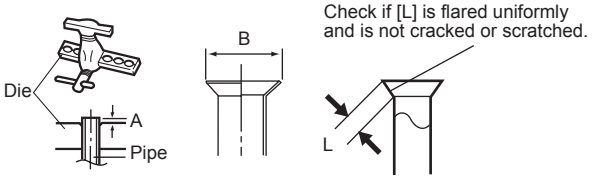
- Install heat insulation around both the gas and liquid pipes. Failure to do so may cause water leaks.
  Use heat insulation with heat resistance above 120 °C. (Reverse cycle model only)
  In addition, if the humidity level at the installation location of the refrigerant piping is expected to exceed 70 %, install heat insulation around the refrigerant piping. If the expected humidity level is 70-80 %, use heat insulation that is 15 mm or thicker and if the expected humidity exceeds 80 %, use heat insulation that is 20 mm or thicker.
  If heat insulation is used that is not as thick as specified, condensation may form on the surface of the insulation.
  In addition, use heat insulation with heat conductivity of 0.045 W/(m·K) or less (at 20 °C).

4.3. Flare connection (pipe connection)

4.3.1. Flaring

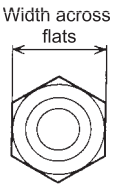
- Use special pipe cutter and flare tool exclusive for R410A.

(1) Cut the connection pipe to the necessary length with a pipe cutter.
(2) Hold the pipe downward so that cuttings will not enter the pipe and remove any burrs.
(3) Insert the flare nut (always use the flare nut attached to the indoor and outdoor units respectively) onto the pipe and perform the flare processing with a flare tool. Use the special R410A flare tool, or the conventional flare tool. Leakage of refrigerant may result if other flare nuts are used.
(4) Protect the pipes by pinching them or with tape to prevent dust, dirt, or water from entering the pipes.



Pipe outside diameter [mm (in.)]	Dimension A [mm] Flare tool for R410A, clutch type	Dimension $B^{0}_{-0.4}$ [mm]
6.35 (1/4)	0 to 0.5	9.1
9.52 (3/8)		13.2
12.70 (1/2)		16.6
15.88 (5/8)		19.7
19.05 (3/4)		24.0

When using conventional flare tools to flare R410A pipes, the dimension A should be approximately 0.5 mm more than indicated in the table (for flaring with R410A flare tools) to achieve the specified flaring. Use a thickness gauge to measure the dimension A.



Pipe outside diameter [mm (in.)]	Width across flats of Flare nut [mm]
6.35 (1/4)	17
9.52 (3/8)	22
12.70 (1/2)	26
15.88 (5/8)	29
19.05 (3/4)	36

4.3.2 Bending pipes

- If pipes are shaped by hand, be careful not to collapse them.
- Do not bend the pipes in an angle more than 90°.
- When pipes are repeatedly bend or stretched, the material will harden, making it difficult to bend or stretch them any more.
- Do not bend or stretch the pipes more than three times.

⚠ CAUTION

- To prevent breaking of the pipe, avoid sharp bends.
- If the pipe is bent repeatedly at the same place, it will break.

4.3.3. Pipe connection

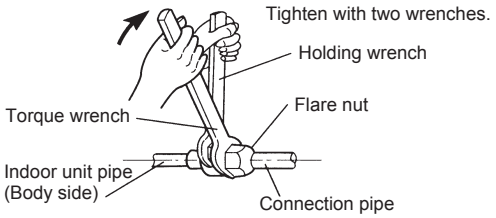
⚠ CAUTION

- Be sure to apply the pipe against the port on the indoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.
- Do not remove the flare nut from the indoor unit pipe until immediately before connecting the connection pipe.
- Do not use mineral oil on flared part. Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
- Be sure to connect the gas pipe after connecting the liquid pipe completely.

(1) Detach the caps and plugs from the pipes.
(2) Center the pipe against the port on the indoor unit, and then turn the flare nut by hand.
(3) When the flare nut is tightened properly by your hand, hold the body side coupling with a separate spanner, then tighten with a torque wrench. (See the table below for the flare nut tightening torques.)

⚠ CAUTION

- Hold the torque wrench at its grip, keeping it in the right angle with the pipe, in order to tighten the flare nut correctly.
- Tighten the flare nuts with a torque wrench using the specified tightening method. Otherwise, the flare nuts could break after a prolonged period, causing refrigerant to leak and generate a hazardous gas if the refrigerant comes into contact with a flame.



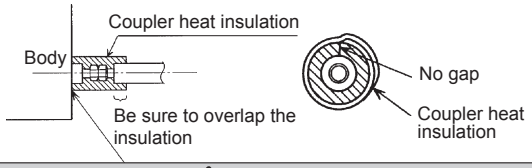
Flare nut [mm (in.)]	Tightening torque [N·m (kgf·cm)]
6.35 (1/4) dia.	16 to 18 (160 to 180)
9.52 (3/8) dia.	32 to 42 (320 to 420)
12.70 (1/2) dia.	49 to 61 (490 to 610)
15.88 (5/8) dia.	63 to 75 (630 to 750)
19.05 (3/4) dia.	90 to 110 (900 to 1,100)

4.6. Installing heat insulation

⚠ CAUTION

- After checking for gas leaks (refer to the Installation Manual of the outdoor unit), perform this section.
- Install heat insulation around both the large (gas) and small (liquid) pipes. Failure to do so may cause water leaks.

After checking for gas leaks, insulate by wrapping insulation around the two parts (gas and liquid) of the indoor unit coupling, using the Coupler Heat Insulation.
After installing the Coupler Heat Insulation, wrap both ends with vinyl tape so that there is no gap.

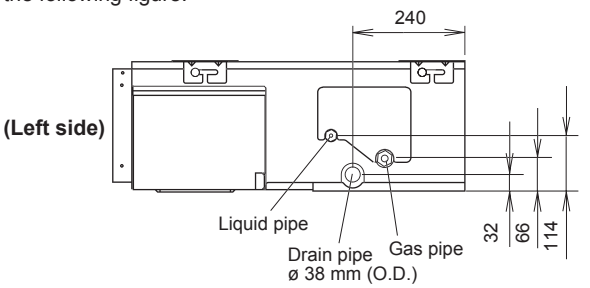


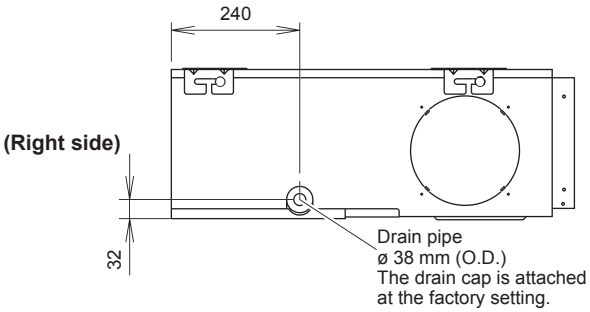
⚠ CAUTION

- Must fit tightly against body without any gap.

5. INSTALLING DRAIN HOSE

Install the drain hose according to the measurements given in the following figure.





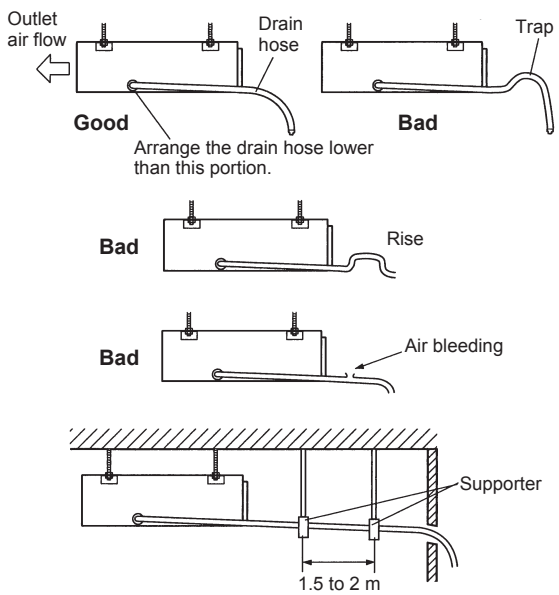
Unit : mm

⚠CAUTION

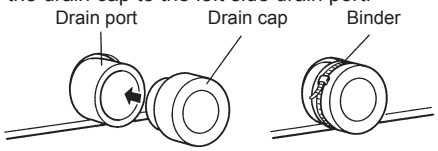
- Install the drain hose in accordance with the instructions in this Installation Manual and keep the area warm enough to prevent condensation. Problems with the piping may lead to water leaks.

NOTE: INSTALL THE DRAIN HOSE

- Install the drain hose with downward gradient (1/50 to 1/100) and so there are no rises or traps in the hose.
- Use general hard polyvinyl chloride pipe (VP25) [outside diameter 38 mm] and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
- When the hose is long, install supporters.
- Do not perform air bleeding.
- Always heat insulate the indoor side of the drain hose.



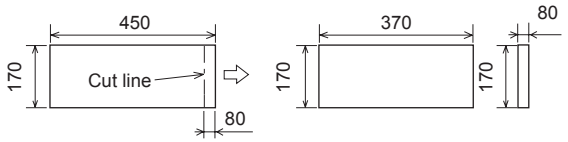
- When the unit is shipped from the factory, the drain port is on the left side (control box side).
- When using the drain port on the right side of the unit, reinstall the drain cap to the left side drain port.

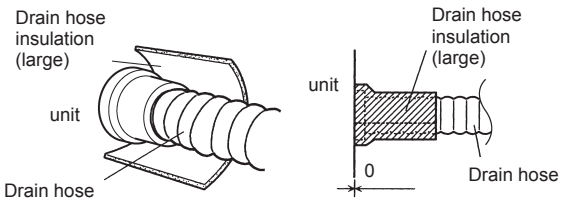


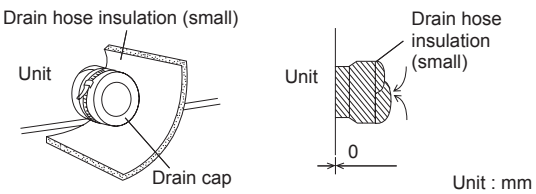
⚠CAUTION

- Always check that the drain cap is installed to the unused drain port and is fastened with the Binder.
  If the drain cap is not installed, or is not sufficiently fastened by the Binder, water may drip during the cooling operation.

- Cut the drain hose insulation at a position approximately 80 mm from the end with cutters, etc.
- Stick the large drain hose insulation at the drain hose installation side.
- Stick the small drain hose insulation at the drain cap side.







Unit : mm

- Cover the drain cap with the drain hose insulation.

6. ELECTRICAL WIRING

⚠ WARNING

- Electrical work must be performed in accordance with this Manual by a person certified under the national or regional regulations. Be sure to use a dedicated circuit for the unit.
  An insufficient power supply circuit or improperly performed electrical work can cause serious accidents such as electric shock or fire.

- Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.

- Use the included connection cables and power cables or ones specified by the manufacturer. Improper connections, insufficient insulation, or exceeding the allowable current can cause electric shock or fire.

- For wiring, use the prescribed type of wires, connect them securely, making sure that there are no external forces of the wires applied to the terminal connections. Improperly connected or secured wires can cause serious accidents such as overheating the terminals, electric shock, or fire.
- Do not modify the power cables, use extension cables, or use any branches in the wiring. Improper connections, insufficient insulation, or exceeding the allowable current can cause electric shock or fire.
- Match the terminal block numbers and connection cable colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
- Securely connect the connection cables to the terminal blocks. In addition, secure the cables with wiring holders. Improper connections, either in the wiring or at the ends of the wiring, can cause a malfunction, electric shock, or fire.
- Always fasten the outside covering of the connection cable with the cable clamp. (If the insulator is chafed, electric leakage may occur.)
- Securely install the electrical box cover on the unit. An improperly installed electrical box cover can cause serious accidents such as electric shock or fire through exposure to dust or water.
- Install sleeves into any holes made in the walls for wiring. Otherwise, a short circuit could result.
- Install a ground leakage breaker. In addition, install the ground leakage breaker so that the entire AC main power supply is cut off at the same time. Otherwise, electric shock or fire could result.
- Install a ground leakage breaker. If a ground leakage breaker is not installed, it may cause electric shock or fire.
- Always connect the ground wire. Improper grounding work can cause electric shocks..
- Install the remote controller wires so as not to be direct touched with your hand.

6.1. Electrical requirement

Connection cable (mm^2)	
MAX.	MIN.
2.5	1.5

- Use conformed cable with Type 245 IEC57.
- Perform all electrical work according to the standard.
- Install circuit breakers, which have the terminal spacing of more than 3 mm, in a place of near the indoor unit and outdoor unit.

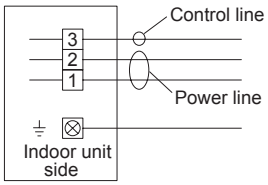
⚠ CAUTION

- Be sure to execute the electrical work according to the Laws of each country and the Installation Instructions. In addition, be sure to set as exclusive line and use the rated voltage and circuit breaker.

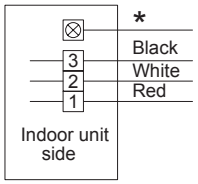
6.2. Wiring method

6.2.1. Connection diagrams

- Connection cable (to outdoor unit)



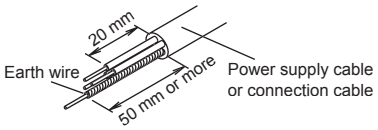
- Wired remote controller cable



* Ground the remote controller if it has a ground wire.

6.2.2. Connection cable preparation

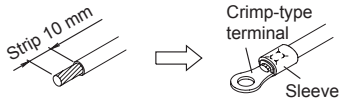
- Keep the earth wire longer than the other wires



- Use a 4-core wire cable.

How to connect wiring to the terminals. (For strand wiring)

(1) Use crimp-type terminals with insulating sleeves as shown in the figure below to connect to the terminal block.
(2) Securely crimp the crimp-type terminals to the wires using an appropriate tool so that the wires do not come loose.

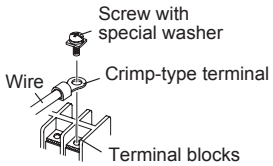


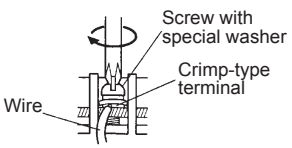
(3) Use the specified wires, connect them securely, and fasten them so that there is no stress placed on the terminals.
(4) Use an appropriate screwdriver to tighten the terminal screws. Do not use a screwdriver that is too small, otherwise, the screw heads may be damaged and prevent the screws from being properly tightened.
(5) Do not tighten the terminal screws too much, otherwise, the screws may break.
(6) See the table below for the terminal screw tightening torques.

⚠ WARNING

- Use crimp-type terminals and tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause serious damage inside the unit.

Tightening torque [N·m (kgf·cm)]	
M4 screw	1.2 to 1.8 (12 to 18)
M5 screw	2.0 to 3.0 (20 to 30)



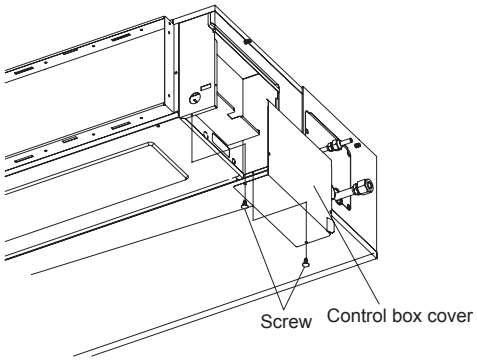


6.2.3. Wiring procedure

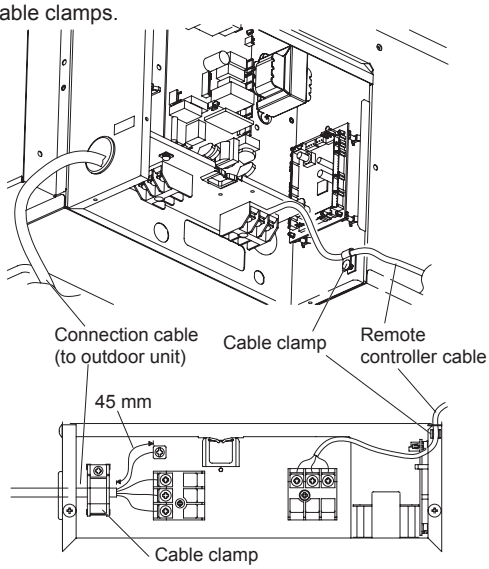
⚠ CAUTION

- Use care not to mistake the power supply cable and connection wires when installing.

(1) Remove the control box cover and install each connection wire.



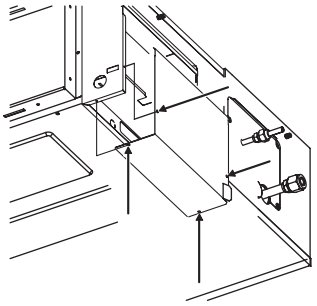
(2) After wiring is complete, secure the remote controller cable, connection cable, and power supply cable with the cable clamps.



⚠CAUTION

- Tighten the indoor unit connection cable (to the outdoor unit) and power supply indoor and outdoor unit terminal board connections firmly with the terminal board screws. Faulty connection may cause a fire.
- If the indoor unit connection cable (to the outdoor unit) and power supply are wired incorrectly, the air conditioner may be damaged.
- Wire the indoor unit connection cable (to the outdoor unit) by matching the numbers of the outdoor and indoor units terminal board numbers as shown in terminal label.
- Ground both the indoor and outdoor units by attaching a ground wire.
- Unit shall be grounded in compliance with the applicable local and national codes.

(3) Install control box cover.



Adjust the position of the screws for control box cover according to the installation.

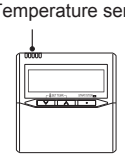
⚠CAUTION

- Do not bundle the remote controller cable, or wire the remote controller cable in parallel, with the indoor unit connection wire (to the outdoor unit) and the power supply cable. It may cause erroneous operation.

7. REMOTE CONTROLLER SETTING

⚠ CAUTION

- In order to detect the room temperature correctly when using the temperature sensor of the remote controller, do not install the remote controller in a place where it will be exposed to direct sunlight or directly below the air outlet of the indoor unit.

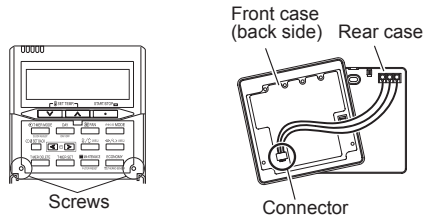


- Do not touch the remote controller PC board and PC board parts directly with your hands.
- Install the remote controller wires so as not to be direct touched with your hand.
- Do not wire the remote controller cable and the bus wire together with or parallel to the connection cables, transmission cables, and power supply cables of the indoor and outdoor units. It may cause erroneous operation.
- When installing the bus wire near a source of electromagnetic waves, use shielded wire.
- Do not set the DIP switches, either on the air conditioner or the remote controller, in any way other than indicated in this manual or the manual that is supplied with the air conditioner. Doing so may result in an accident.

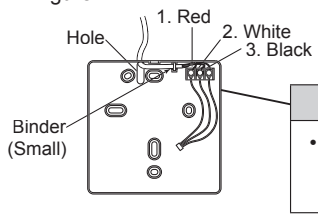
7.1. Installing the remote controller

Open the operation panel on the front of the remote controller, remove the two screws indicated in the following figure, and then remove the front case of the remote controller.

When installing the remote controller, remove the connector from the front case. The wires may break if the connector is not removed and the front case hangs down.
When installing the front case, connect the connector to the front case.



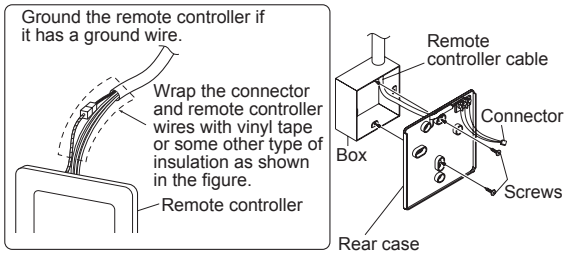
When remote controller cable is embedded
(1) Embed the remote controller cable and box.
(2) Pass the remote controller cable through the hole in the rear case and connect the remote controller cable to the remote controller terminal blocks specified in figure.
(3) Clamp the remote controller cable sheath with the binder as shown in figure.
(4) Cut off the excess binder.
(5) Install the rear case to the wall, box, etc., with two screws figure.

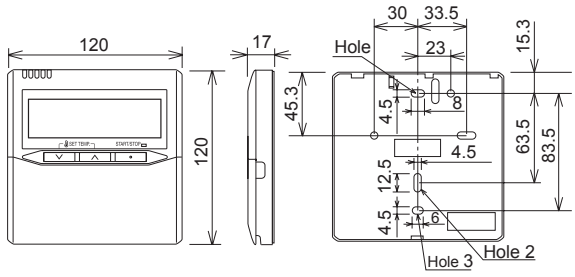


⚠ CAUTION

- When connecting the remote controller wires, do not overtighten the screws.

[Example]



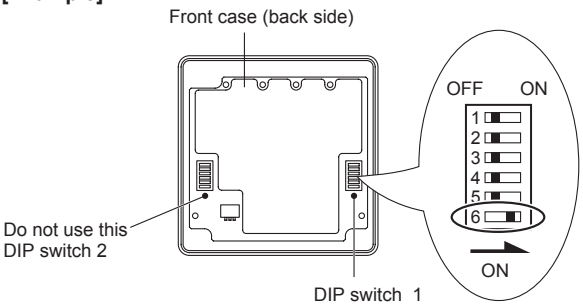


Unit: mm

7.2. Setting the dip switches

Set the remote controller DIP switches.

[Example]



	NO.	SW state		Detail
		OFF	ON	
DIP switch 1	1	♦		Cannot be used. (Do not change)
	2	♦		Dual remote controller setting * Refer to **13.2. Dual remote controllers**
	3	♦		Cannot be used. (Do not change)
	4	♦		Cannot be used. (Do not change)
	5	♦		Cannot be used. (Do not change)
	6	♦ Invalidity	Validity	Memory backup setting * Set to ON to use batteries for the memory backup. If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

(♦ : Factory setting)

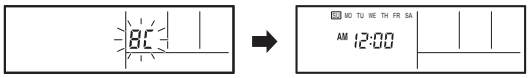
8. FUNCTION SETTING

⚠ CAUTION

- Confirm whether the wiring work for outdoor unit has been finished.
- Confirm whether the ccover for electric control box on the outdoor unit is close.

8.1. Turning on the power

(1) Check the remote controller wiring and DIP switch settings.
(2) Install the front case.
When installing the front case, connect the connector to the front case.
(3) Check the indoor and outdoor unit wiring and circuit board switch settings, and then turn on the indoor and outdoor units. After “8C” has flashed on the set temperature display for several seconds, the clock display will appear in the center of the remote controller display.
The clock display will appear in the center of the remote controller display.

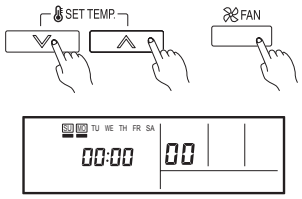


8.2. Function setting

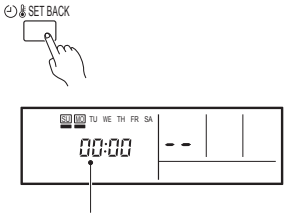
- This procedure changes to the function settings used to control the indoor unit according to the installation conditions. Incorrect settings can cause the indoor unit malfunction.
- After the power is turned on, perform the “FUNCTION SETTING” according to the installation conditions using the remote controller.
- The settings may be selected between the following two: Function Number or Setting Value.
- Settings will not be changed if invalid numbers or setting values are selected.

Operation Method

(1) Press the set temperature buttons (⩛) (⩓) and fan control button simultaneously for more than 5 seconds to enter the function setting mode.

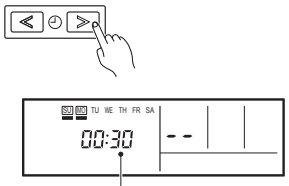


(2) Press the SET BACK button to select the indoor unit number.



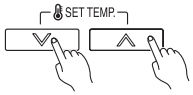
Unit number of INDOOR UNIT

(3) Press the set time buttons to select the function number.

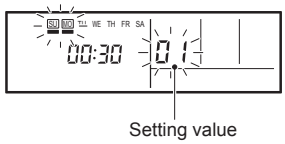


Function number

(4) Press the set temperature buttons (⩛) (⩓) to select the setting value.
The display flashes as shown to the right during setting value selection.



(5) Press the TIMER SET button to confirm the setting. Press the TIMER SET button for a few seconds until the setting value stops flashing.
If the setting value display changes or if "- -" is displayed when the flashing stops, the setting value has not been set correctly. (An invalid setting value may have been selected for the indoor unit.)



Setting value

(6) Repeat steps 2 to 5 to perform additional settings. Press the set temperature buttons (⩛) (⩓) and fan control button simultaneously again for more than 5 seconds to cancel the function setting mode. In addition, the function setting mode will be automatically canceled after 1 minute if no operation is performed.

(7) After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

Setting the Static Pressure

Setting Description	Function Number	Setting Value
Normal	21	00
High static pressure 1		01
High static pressure 2		02
High static pressure 3		03

Determine the wind volume in each mode i.e., applicable range of static pressure, refering to **9. STATIC PRESSURE CHARACTERISTICS**. (The unit is factory-set to "00".)

Setting the Cooler Room Temperature Correction

• Depending on the installed environment, the room temperature sensor may require a correction. The settings may be selected as shown in the table below. (The unit is factory-set to "00".)

Setting Description	Function Number	Setting Value
Standard	30	00
Lower control		01

Setting the Heater Room Temperature Correction

• Depending on the installed environment, the room temperature sensor may require a correction. The settings may be changed as shown in the table below. (The unit is factory-set to "00".)

Setting Description	Function Number	Setting Value
Standard	31	00
Lower control		01
Slightly warmer control		02
Warmer control		03

Setting Other Functions

• The following settings are also possible, depending on the operating conditions. (The unit is factory-set to "00".)

Auto Restart

Setting Description	Function Number	Setting Value
Yes	40	00
No		01

Indoor Room Temperature Sensor Switching Function (Wired remote controller only)

Setting Description	Function Number	Setting Value
No	42	00
Yes		01

• If setting value is "00", room temperature is controlled by the indoor unit temperature sensor.
• If setting value is "01", room temperature is controlled by either indoor unit temperature sensor or remote control unit sensor.

Setting Record

• Record any changes to the settings in the following table.

Setting	Setting Value
Static pressure	
Cooler room temperature correction	
Heater room temperature correction	
Auto restart	
Indoor room temperature sensor switching function	

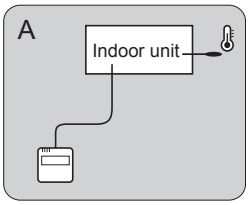
After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

8.3. Setting the room temperature detection location

The detection location of the room temperature can be selected from the following two examples. Choose the detection location that is best for the installation location.

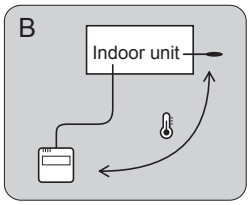
A. Indoor unit setting (factory setting)
The room temperature is detected by the indoor unit temperature sensor.

(1) When the THERMO SENSOR button is pressed, the lock display flashes because the function is locked at the factory.



B. Indoor unit/remote controller setting (room temperature sensor selection)

The temperature sensor of the indoor unit or the remote controller can be used to detect the room temperature.
(1) Enable the room temperature sensor selection in FUNCTION SETTING, which will be described later.
(2) Press the THERMO SENSOR button for 5 seconds or more to select the temperature sensor of the indoor unit or the remote controller.



NOTE
If the function to change the temperature sensor is used as shown in examples A (other than example B), be sure to lock the detection location.
If the function is locked, the lock display will flash when the THERMO SENSOR button is pressed.

9. STATIC PRESSURE CHARACTERISTIC

⚠CAUTION
• If the applicable static pressure does not match the static pressure mode, the static pressure mode maybe changed to another mode automatically.

RECOMMENDED RANGE OF EXTERNAL STATIC PRESSURE [Pa]
30 to 150

1. STATIC PRESSURE MODE

It is necessary to set up a static pressure mode for each usage of static pressure.
Determine the applicable range of static pressure in each mode and wind volume, referring to the Technical manual.

2. MODE SETTING

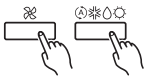
It is possible to change the setting of static pressure mode.
Refer to **8. FUNCTION SETTING**.

10. TEST RUN

CHECK ITEMS
(1) Is operation of each button on the remote control unit normal?
(2) Does each lamp light normally?
(3) Do not air flow direction louvers operate normally?
(4) Is the drain normal?
(5) Is there any abnormal noise and vibration during operation?
• Do not operate the air conditioner in the running state for a long time.

[Operation method]

• For the operation method, refer to the Operating Manual.
(1) If the operation lamp is on, press the Start/Stop button to turn it off.
(2) Press the Master Control Button and Fan Control Button at the same time for more than two seconds to start the test operation.
The operation lamp will light up and " " will be displayed on the set temperature display.
* Perform the test operation for 60 minutes.




Test run display

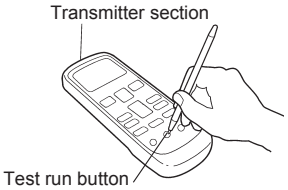
(3) Press the start/stop button to stop the test running.

f "C0" appears in the unit number display, there is a remote controller error

Unit number	Error code	Content
C0	1d	Incompatible indoor unit is connected
C0	1c	Indoor unit ↔ remote controller communication error

[Using the wireless remote control] (Option)

• For the operation method, refer to the operating manual.
• The outdoor unit may not operate depending on the room temperature.
In this case, press the test run button on the remote control unit while the air conditioner is running. (Point the transmitter section of the remote control unit toward the air conditioner and press the test run button with the tip of a ballpoint pen, etc.)



• To end test operation, press the remote control unit START/STOP button.
(When the air conditioner is run by pressing the test run button, the OPERATION Lamp and TIMER Lamp will simultaneously flash slowly.)

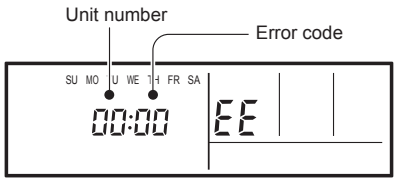
11. CHECK LIST

Pay special attention to the check items below when installing the indoor unit(s). After installation is complete, be sure to check the following check items again.

CHECK ITEMS	If not performed correctly	CHECK BOX
Has the indoor unit been installed correctly?	Vibration, noise, indoor unit may drop	
Has there been a check for gas leaks (refrigerant pipes)?	No cooling, No heating	
Has heat insulation work been completed?	Water leakage	
Does water drain easily from the indoor units?	Water leakage	
Are the wires and pipes all connected completely?	No operation, heat or burn damage	
Is the connection cable the specified thickness?	No operation, heat or burn damage	
Are the inlets and outlets free of any obstacles?	No cooling, No heating	
After installation is completed, has the proper operation and handling been explained to the user?		

12. ERROR CODES

[Troubleshooting at the remote control LCD]
This is possible only on the wired remote control.
[Self-diagnosis]
If an error occurs, the following display will be shown.
("EE" will appear in the set room temperature display.)

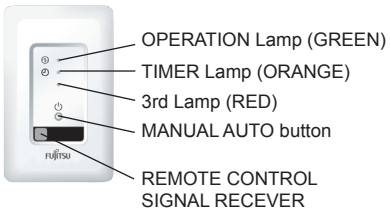


Ex. Self-diagnosis

Error code	Error contents
01 13 26 27	Indoor signal error
00	Wired remote controller abnormal
02	Indoor room temperature sensor error
04	Indoor heat exchanger temperature sensor (middle) error
28	Indoor heat exchanger temperature sensor (inlet) error
09	Float switch operated
0c	Outdoor discharge pipe temperature sensor error
06	Outdoor heat exchanger temperature sensor (outlet) error
0A	Outdoor temperature sensor error
0E	Heat sink thermistor (Inverter) error
15	Compressor temperature sensor error
1d	2-way valve temperature sensor error
1E	3-way valve temperature sensor error
29	Outdoor heat exchanger temperature sensor (middle) error
2d	Heat sink thermistor (P.F.C) error
20	Indoor manual auto switch abnormal
2A	Power supply frequency detection error
17	IPM protection
18	CT error
1A	Compressor location error
1b	Outdoor fan error
1F	Connected indoor unit abnormal
1c	Outdoor unit computer communication error
2E	Inverter error
12	Indoor fan abnormal
0F	Discharge temperature error
24	Excessive high pressure protection on cooling
2c	4-way valve abnormal
16	Pressure switch abnormal, Pressure sensor abnormal
2b	Compressor temperature error
2F	Low pressure error
19	Active filter abnormal
25	PFC circuit error
30	Refrigerant circuit address set-up error
31	Master unit, Slave unit set-up error
32	Connected the indoor number set-up error
33	P.F.C. printed circuit board error

Troubleshooting (Option)

[Troubleshooting with the Receiver unit display]
Troubleshooting at the display is possible either on the wired or wireless remote control.



The OPERATION, TIMER and 3rd Lamp operate as follows table according to the error contents.

OPERATION Lamp	TIMER Lamp	3rd Lamp	Error contents
×	(2 times)○	×	Indoor signal error
×	(3 times)○	×	
×	(4 times)○	×	
×	(5 times)○	×	
×	(8 times)○	×	Wired remote controller abnormal
(2 times)○	(2 times)○	×	Indoor room temperature sensor error
(2 times)○	(3 times)○	×	Indoor heat exchanger temperature sensor (middle) error
(2 times)○	(4 times)○	×	Indoor heat exchanger temperature sensor (inlet) error
(2 times)○	(6 times)○	×	Float switch operated
(3 times)○	(2 times)○	×	Outdoor discharge pipe temperature sensor error
(3 times)○	(3 times)○	×	Outdoor heat exchanger temperature sensor (outlet) error
(3 times)○	(4 times)○	×	Outdoor temperature sensor error
(3 times)○	(7 times)○	×	Heat sink thermistor (Inverter) error
(3 times)○	(8 times)○	×	Compressor temperature sensor error
(3 times)○	×	(2 times)○	2-way valve temperature sensor error
(3 times)○	×	(3 times)○	3-way valve temperature sensor error
(3 times)○	×	(4 times)○	Outdoor heat exchanger temperature sensor (middle) error
(3 times)○	×	(5 times)○	Heat sink thermistor (P.F.C) error
(4 times)○	(2 times)○	×	Indoor manual auto switch abnormal
(4 times)○	(4 times)○	×	Power supply frequency detection error
(5 times)○	(2 times)○	×	IPM protection
(5 times)○	(3 times)○	×	CT error
(5 times)○	(5 times)○	×	Compressor location error
(5 times)○	(6 times)○	×	Outdoor fan error
(5 times)○	(7 times)○	×	Connected indoor unit abnormal
(5 times)○	(8 times)○	×	Outdoor unit computer communication error
(5 times)○	×	(2 times)○	Inverter error
(6 times)○	(2 or 3 times)○	×	Indoor fan abnormal
(7 times)○	(2 times)○	×	Discharge temperature error
(7 times)○	(3 times)○	×	Excessive high pressure protection on cooling
(7 times)○	(4 times)○	×	4-way valve abnormal
(7 times)○	(5 times)○	×	Pressure switch abnormal, Pressure sensor abnormal
(7 times)○	(6 times)○	×	Compressor temperature error
(7 times)○	(7 times)○	×	Low pressure error
(8 times)○	(2 or 3 times)○	×	Active filter abnormal
(8 times)○	(4 times)○	×	PFC circuit error
(8 times)○	(6 times)○	×	P.F.C. printed circuit board error
(9 times)○	(2 times)○	×	Refrigerant circuit address set-up error
(9 times)○	(3 times)○	×	Master unit, Slave unit set-up error
(9 times)○	(4 times)○	×	Connected the indoor number set-up error

○:0.5s ON/0.5s OFF (Flash) ×:OFF

13. SPECIAL INSTALLATION METHODS

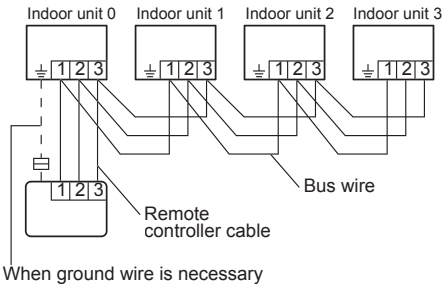
⚠ CAUTION

- When setting DIP switches, do not touch any other parts on the circuit board directly with your bare hands.
- Be sure to turn off the main power.

13.1. Group control system

A number of indoor units can be operated at the same time using a single remote controller.

(1) Wiring method (indoor unit to remote controller)



(2) DIP switch setting (Indoor unit)

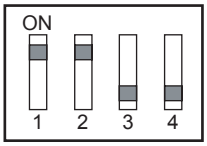
Set the unit number of each indoor unit using the DIP switches on the indoor unit circuit board. (See the following table and figure.)

The DIP switches are normally set to make the unit number 0.

Indoor unit

Unit number	DIP SWITCH No.			
	1	2	3	4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

Example : No. 3



NOTE

Be sure to set the unit numbers sequentially.

(3) Remote controller setting

1. Turn on all of the indoor units.
   *1 Turn on the indoor unit with the unit number 0 last. (Within 1 minute)
   *2 When the indoor units are turned on, error codes 01 and 31 will be displayed; however, these error codes will be deleted by setting the remote controller. Therefore, continue with the setting procedure.
2. Set the refrigerant circuit address. (Assign the same number to all of the indoor units connected to an outdoor unit.)

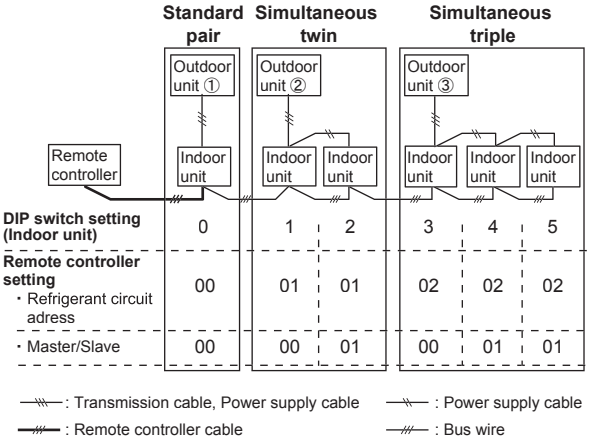
Refrigerant circuit address	Function Number	Setting Value
	02	00~15

3. Set the “master” and “slave” settings. (Set the indoor unit that is connected to the outdoor unit using a transmission cable as the “master”.)

	Function Number	Setting Value
Master	51	00
Slave		01

4. After completing the function settings, turn off all of the indoor units, and then turn them back on.
   * If error code 01, 1F, 30, 31, or 32 is displayed, there may be an incorrect setting. Perform the remote controller setting again.

NOTE
When different indoor unit models are connected using the group control system, some functions may no longer be available.
If the group control system contains multiple units that are operated simultaneously, connect and set the units as shown below.

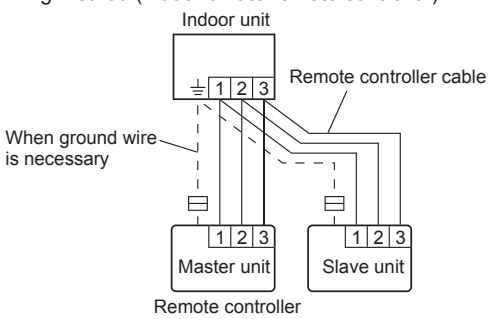


*Make sure that the indoor unit with the unit number 0 is connected to the outdoor unit using a transmission cable.

13.2. Dual remote controllers

- Two separate remote controllers can be used to operate the indoor units.
- The timer and self-diagnosis functions cannot be used on the slave units.

(1) Wiring method (indoor unit to remote controller)

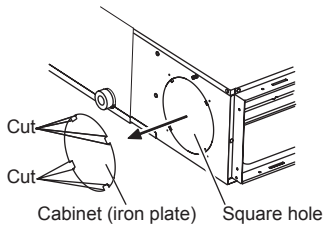


(2) Remote controller DIP switch 1 setting
Set the remote controller DIP switch 1 No. 2 according to the following table.

Number of remote controllers	Master unit	Slave unit
	DIP SW 1 No. 2	DIP SW 1 No. 2
1 (Normal)	OFF	–
2 (Dual)	OFF	ON

14. FRESH AIR INTAKE

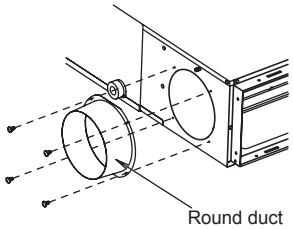
(Processing before use)
(1) When taking in fresh air, cut a slit shaped cabinet in the left side of the outer case with nippers.



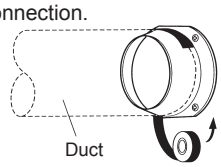
⚠CAUTION

- When removing the cabinet (iron plate), be careful not to damage the indoor unit internal parts and surrounding area (outer case).
- When processing the cabinet (iron plate), be careful not to injure yourself with burrs, etc.

(2) Install the round flange (option parts) to the fresh air intake.



(3) Connect the duct to the round flange.
(4) Seal with a band and vinyl tape, etc. so that air does not leak from the connection.



15. CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:
(1) Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control unit operations.
(2) Air filter removal and cleaning, and how to use the air louvers.
(3) Give the operating and installation manuals to the customer.