

AIR CONDITIONER INDOOR UNIT Cassette type

CAUTION

R410A REFRIGERANT

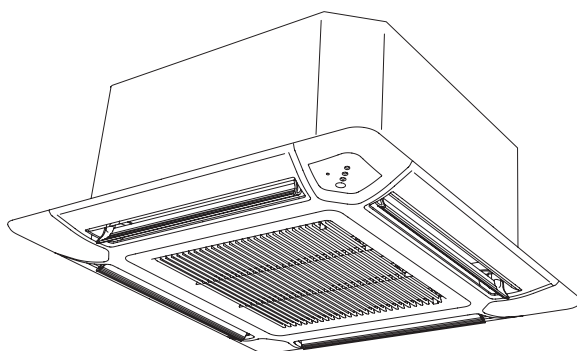
This Air Conditioner contains and operates with refrigerant R410A.

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.



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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.

2.2. 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. ABOUT THE UNIT

2.1. Precautions for using R410A refrigerant

WARNING





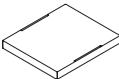





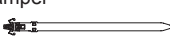
- Do not introduce any substance other than the prescribed refrigerant into the refrigeration cycle. If air enters the refrigeration cycle, the pressure in the refrigeration cycle will become abnormally high and cause the piping to rupture.
- If there is a refrigerant leak, make sure that it does not 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.

2.3. 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 fall, 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.


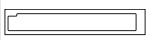
Name and Shape	Q'ty	Description
Coupler heat insulation (Large) 	1	For indoor side pipe joint (gas pipe)
Coupler heat insulation (Small) 	1	For indoor side pipe joint (liquid pipe)
Special nut A (Large flange) 	4	For installing the indoor unit
Special nut B (Small flange) 	4	For installing the indoor unit
Template (Carton top) 	1	For positioning the indoor unit
Remote controller 	1	For air conditioner operation
Battery 	2	For remote controller
Remote controller holder 	1	For installing the remote controller
Screw 	2	For mounting the remote controller holder
Binder 	2	For electrical wiring
Wire clasper 	1	For electrical wiring

(*1) This part is not furnished for AUT* series

2.4. Cassette grille accessories

Name and Shape	Q'ty	Description
Connector cover 	1	For covering connector
Screw 	4	For mounting cassette grille
Screw 	1	For mounting connector cover

2.5. Optional parts

Exterior	Parts name	Model No.	Summary
	Wired remote controller	UTB-*UD	Unit control is performed by wired remote controller
	Air outlet shutter plate	UTR-YDZB	Install the plate at outlet when carrying out 3-way direction operation

Wired remote controller is recommended using simultaneous twin or triple connection.

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.

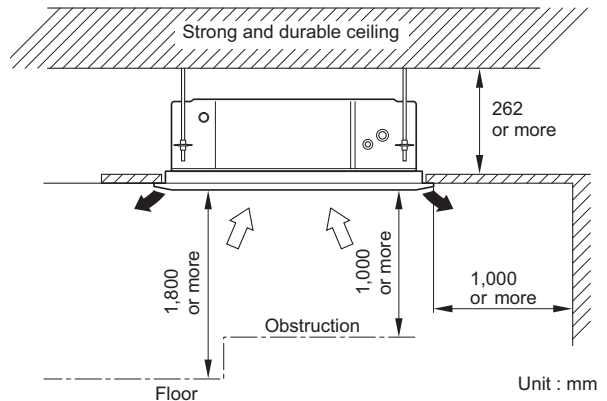
⚠ CAUTION

- 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.

- (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) A place from where the air can be distributed evenly throughout the room by the unit.
- (5) Install the unit where connection to the outdoor unit is easy.
- (6) Install the unit where the connection pipe can be easily installed.
- (7) Install the unit where the drain pipe can be easily installed.
- (8) Install the unit where noise and vibrations are not amplified.
- (9) Take servicing, etc., into consideration and leave the spaces. Also install the unit where the filter can be removed.

3.2. Installation dimension

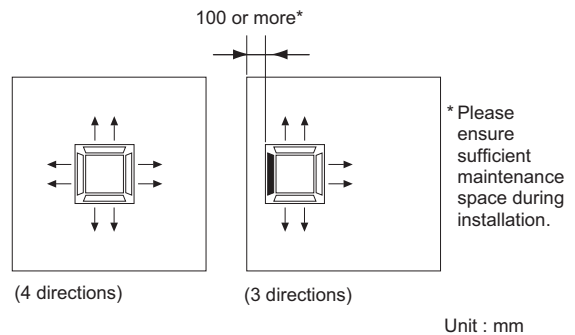
- The ceiling rear height as shown in the figure.



- This product can be installed at a height of up to 3.0 m. Perform the Function Setting on the remote control in accordance with the installed height. (See **9. FUNCTION SETTING**)

Discharge direction setting

- The discharge direction can be selected as shown below.



- For a 3-way outlet, make sure to perform the Function Setting on the remote control. Also, make sure to use the optional shutter plate to block the outlet.
- The ceiling height cannot be set in the 3-way outlet mode. Therefore, do not change the setting in the setting the ceiling height. (See **9. FUNCTION SETTING**)
- When the outlet is shut, be sure to install the optional Air outlet shutter plate kit. For the details of installation, please refer to Installation Manual of kit.

3.3. Installation the unit

⚠ WARNING

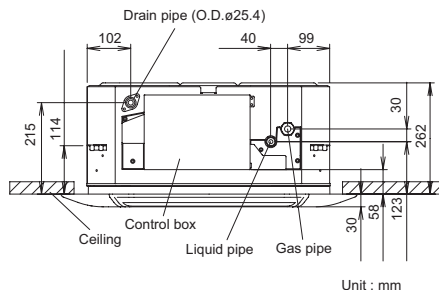
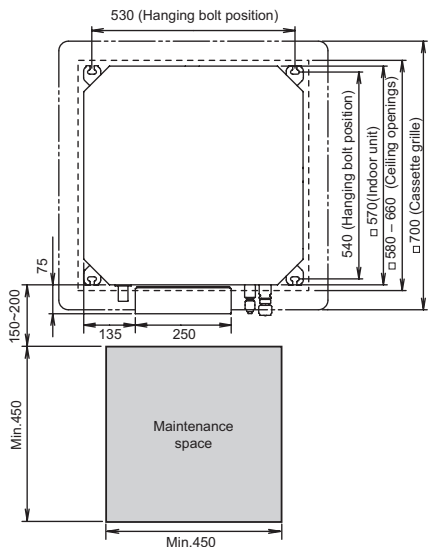
- Install the air conditioner in a location which can withstand a load of at least five times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.
- If the job is done with the panel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

3.3.1. Position the ceiling hole and hanging bolts

Ceiling openings and hanging bolt installation diagram.

⚠ WARNING

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



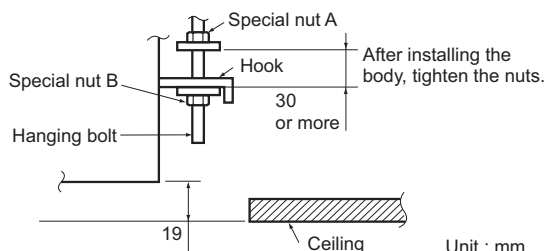
- Be sure to keep sufficient space in the designated position for future maintenance.

3.3.2. Body installation

- (1) Install special nut A, then special nut B onto the hanging bolt.
- (2) Raise the body and mount its hooks onto the hanging bolt between the special nuts.
- (3) Turn special nut B to adjust the height of the body.

⚠ WARNING

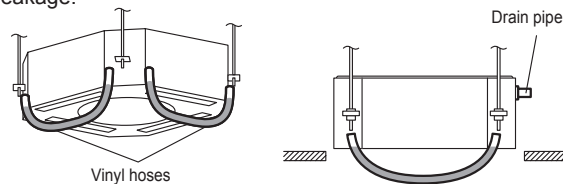
- Perform final tightening by tightening the double nut firmly.
- Be sure to install the body horizontally and adjust the height below the body and the ceiling surface properly.



3.3.3. Leveling

Using a level, or vinyl hose filled with water, fine adjust so that the body is level.

Inclined installation so as the drain pipe side is higher may cause a malfunction of the float switch, and may cause water leakage.



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 the 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 and the diameter of connecting pipe or for difference of its elevation.

- Use pipe with water-resistant heat insulation.

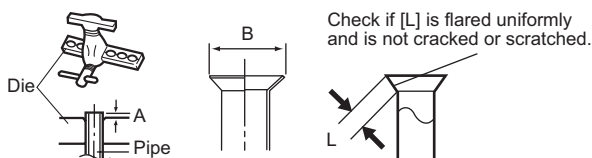
⚠ CAUTION

- 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 0.045W/(m·K) or less (at 20 °C).

4.3. Flare connection (pipe connection)

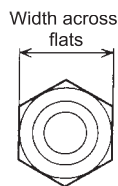
4.3.1. Flaring

- Use special pipe cutter and flare tool exclusive for R410A.
- Cut the connection pipe to the necessary length with a pipe cutter.
 - Hold the pipe downward so that cuttings will not enter the pipe and remove any burrs.
 - 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. Leakage of refrigerant may result if other flare nuts are used.
 - 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]	Dimension B _{0.4} [mm]
	Flare tool for R410A, clutch type	
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 at 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

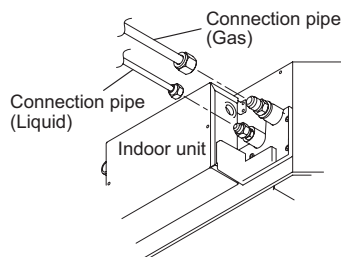
- To prevent breaking of the pipe, avoid sharp bends.
- If the pipe is bent repeatedly at the same place, it will break.

4.3.3. Pipe connection

⚠ CAUTION

- Be sure to apply the pipe against the port on the indoor unit and the outdoor 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.

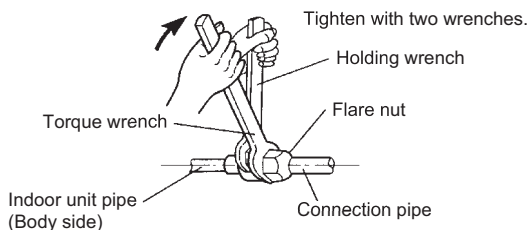
- Detach the caps and plugs from the pipes.
- Center the pipe against the port on the indoor unit, and then turn the flare nut by hand.



- 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.



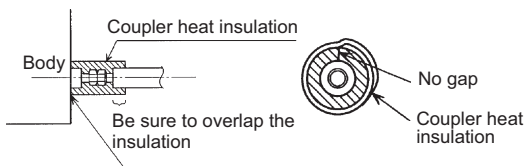
Flare nut [mm (in.)]	Tightening torque [N·m (kgf·cm)]
6.35 (1/4) dia.	16 to 18 (160 to 180)
9.52 (3/8) dia.	32 to 42 (320 to 420)
12.70 (1/2) dia.	49 to 61 (490 to 610)
15.88 (5/8) dia.	63 to 75 (630 to 750)
19.05 (3/4) dia.	90 to 110 (900 to 1,100)

4.4. 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 PIPES

WARNING

- Do not insert the drain piping into the sewer where sulfurous gas occurs. (Heat exchange erosion may occur.)
- Insulate the parts properly so that water will not drip from the connection parts.
- Check for proper drainage after the construction by using the visible portion of transparent drain port and the drain piping final outlet on the body.

CAUTION

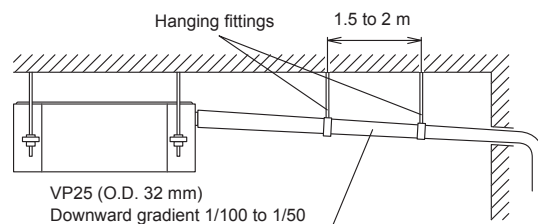
- Do not apply adhesive agent on the drain port of the body. (Use the attached drain hose and connect the drain piping.)

Note

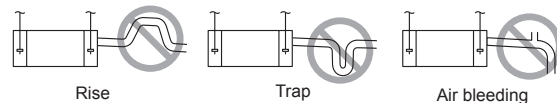
Install the drain pipe.

- Install the drain pipe with downward gradient (1/50 to 1/100) and so there are no rises or traps in the pipe.
- Use general hard polyvinyl chloride pipe (VP25) [outside diameter 32 mm] and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
- When the pipe is long, install supporters.
- Do not perform air bleeding.
- Always heat insulate the indoor side of the drain pipe.
- If it is impossible to have sufficient gradient of pipe, perform drain lift-up.

Drain pipe	Pipe size
	VP25 (O.D. 32 mm)

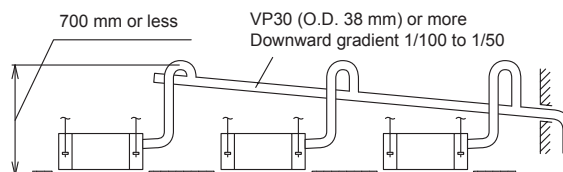
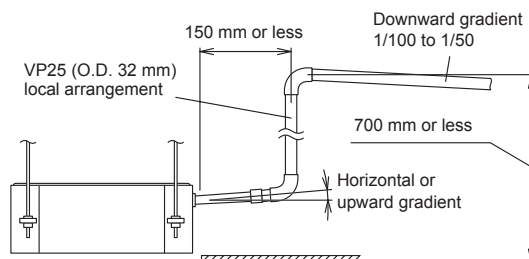


PROHIBITED:



When lifting up drain:

- Height of inclined pipe should be less than 700 mm from the ceiling. A rise dimension over this range will cause leakage.
- Lift up the pipe vertically at the position of 150 mm or less from the unit.



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 transmission 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 cable and bus wire so as not to be direct touched with your hand.

6.1. Electrical requirement

	Power supply cable Transmission cable	Earth cable
Conductor size (mm ²)	1.5	1.5(MIN.)
	Conductor size (mm ²)	Max length (m)
Bus wire	0.3(MIN.)	500*

*This length shall be the total extended length in the system of the group.

- Use conformed cable with Type 245 IEC57. (Power supply cable or transmission cable)
- 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.
- Wiring size must comply with the applicable local and national code.

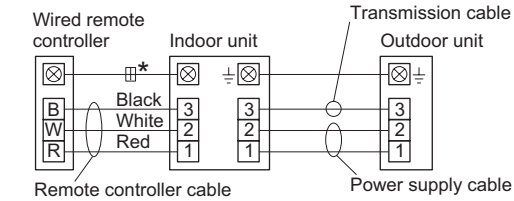
CAUTION

- 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

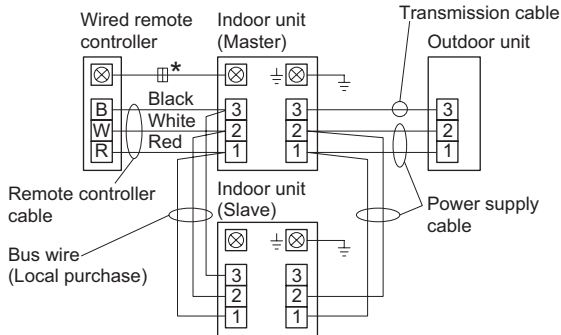
(Standard pair)



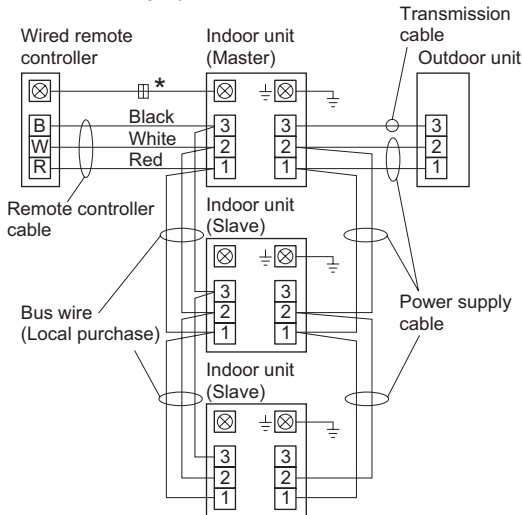
- *Ground the remote controller if it has a ground wire.

Wired remote controller is recommended using simultaneous twin or triple connection.

(Simultaneous twin)



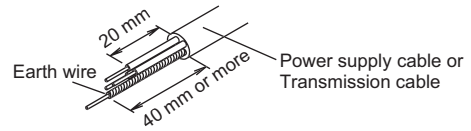
(Simultaneous triple)



- Connect the remote controller wires to the master unit.
- *Ground the remote controller if it has a ground wire.

6.2.2. Connection cable preparation

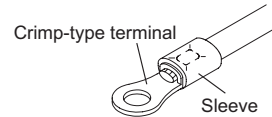
- Keep the earth wire longer than the other wires.



How to connect wiring to the terminals.

(For strand wiring)

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



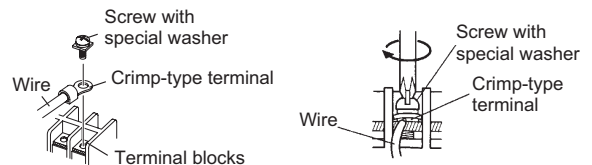
- Use the specified wires, connect them securely, and fasten them so that there is no stress placed on the terminals.
- Use an appropriate screwdriver to tighten the terminal screws. Do not use a screwdriver that is too small, otherwise, the screw heads may be damaged and prevent the screws from being properly tightened.
- Do not tighten the terminal screws too much, otherwise, the screws may break.
- 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 heavy damage inside the unit.

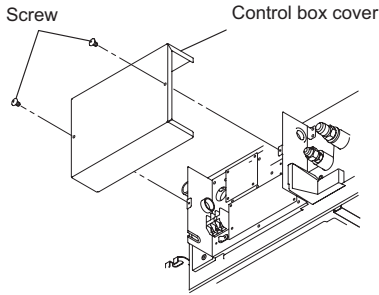
Tightening torque [N·m (kgf·cm)]

M4 screw	1.2 to 1.8 (12 to 18)
M5 screw	2.0 to 3.0 (20 to 30)

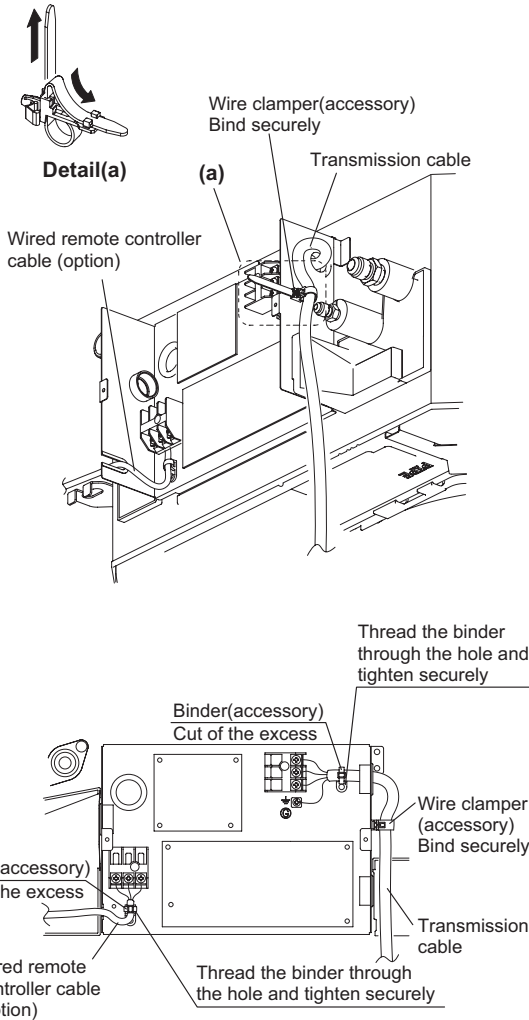


6.2.3. Wiring procedure

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



- (2) After wiring is complete, secure the remote controller cable and transmission cable with the attached the binder and the clumper.



- (3) Install control box cover.

CAUTION

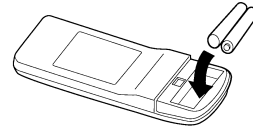
- Do not bundle the remote controller cable, or wire the remote controller cable in parallel, with the indoor unit connection wire (to the outdoor unit) and the power supply cable. It may cause erroneous operation.

7. REMOTE CONTROLLER SETTING

Refer to the installation manual enclosed with the remote control unit when the wired remote control unit (option) is used.

7.1. Load batteries (R03/LR03 × 2)

- Press and slide the battery compartment lid on the reverse side to open it. Slide in the direction of the arrow while pressing the ▼ mark.
- Insert batteries.
Be sure to align the battery polarities (⊕ ⊖) correctly.
- Close the battery compartment lid.



CAUTION

- Take care to prevent infants from accidentally swallowing batteries.
- When not using the Remote Control Unit for an extended period, remove the batteries to avoid possible leakage and damage to the unit.
- If leaking battery fluid comes in contact with your skin, eyes, or mouth, immediately wash with copious amounts of water, and consult your physician.
- Dead batteries should be removed immediately and disposed of properly, either in a battery collection receptacle or to the appropriate authority.
- Do not attempt to recharge dry batteries.

NOTE:

- Never mix new and used batteries, or batteries of different types.
- Batteries should last about one year under normal use. If the Remote Control Unit's operating range becomes appreciably reduced, replace the batteries and press the RESET button with the tip of a ballpoint pen or other small object.

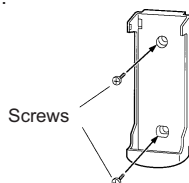
7.2. Installing the remote control unit holder

⚠ CAUTION

- Check that the indoor unit correctly receives the signal from the remote control unit, then install the remote control unit holder.
- Select the remote control unit holder selection site by paying careful attention to the following: Avoid places in direct sunlight. Select a place that will not be affected by the heat from a stove, etc.

- Install the remote control unit with a distance of 7 m between the remote control unit and the photocell as the criteria. However, when installing the remote control unit, check that it operates positively.
- Install the remote control unit holder to a wall, pillar, etc., with the tapping screw.

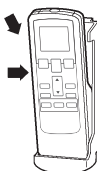
(1) Mount the holder.



(2) Set the remote control unit.

Insert

Press in



(3) To remove the remote control unit (when use at hand).

Slide up

Pull out

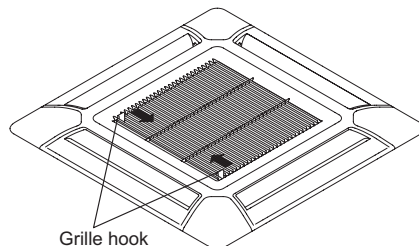


8. CASSETTE GRILLE INSTALLATION

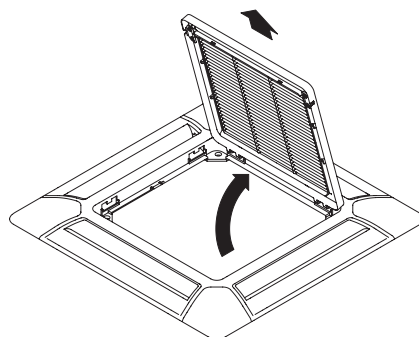
- Installation according to the Installation instruction sheet Cassette grille.
- Be sure to confirm there is no gap between the panel and main unit after installing the Cassette grille.

8.1. Remove the intake grille

(1) Slide the 2 grille hook.

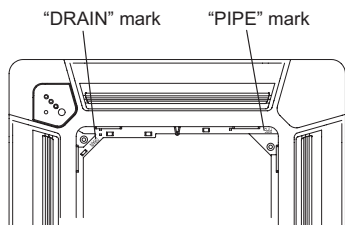


(2) Open the intake grille and remove.

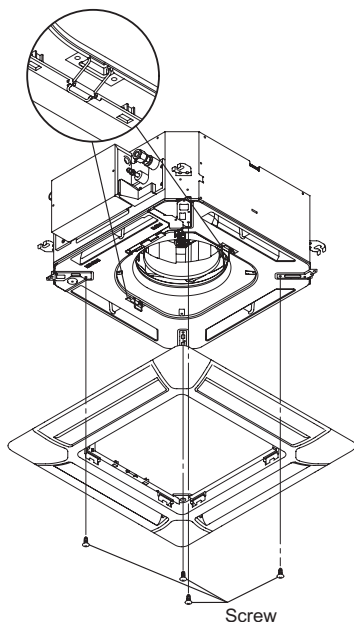


8.2. Installing the panel to indoor unit

(1) Install the cassette grille on the indoor unit.

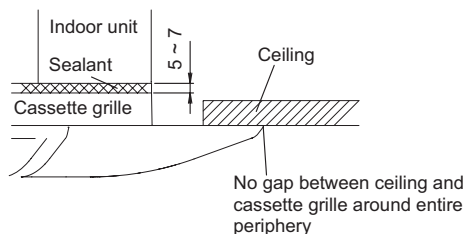


- Align the stamped marks on the cassette grille against the pipe and the drain of the indoor unit.

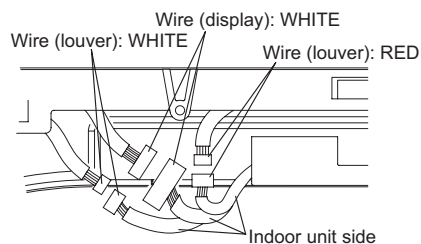


⚠ CAUTION

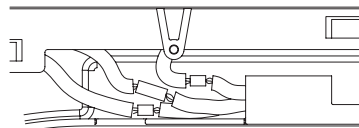
- Use only the supplied screws to install the cassette grille.



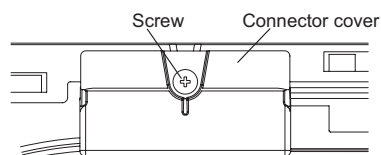
(2) Connect the connector.



- Arrange the wires as illustrated below.



(3) Attach the connector cover.



8.3. Attach the intake grille

The installation is the reverse of "REMOVING THE INTAKE GRILLE".

The intake grille can be rotated and installed 4 ways to suit the user's preference.

⚠ CAUTION

- The louver angle cannot be changed if the power is not on. (If moved by hand, it may be damaged.)
- The grille assembly is directionally relative to the air conditioner body.
- Install so that there is no gap between the grille assembly and the air conditioner body.
- The cassette grille equips with an accessory to prevent the grill completely open. Be sure to read the INSTALLATION SHEET included with the cassette grille before installation.

9. FUNCTION SETTING

⚠ CAUTION

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

- 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.
- Refer to the installation manual enclosed with the remote control unit when the wired remote control unit (option) is used.

9.1. Operation method

- While pressing the FAN button and SET TEMP. (▲) simultaneously, press the RESET button to enter the function setting mode.

STEP 1

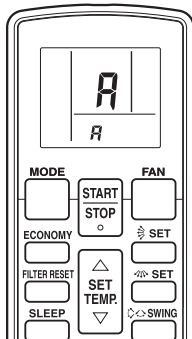
Selecting the Remote Control Unit Signal Code

Use the following steps to select the signal code of the remote control unit.

(Note that the air conditioner cannot receive a signal code if the air conditioner has not been set for the signal code.)

The signal codes that are set through this process are applicable only to the signals in the FUNCTION SETTING. For details on how to set the signal codes through the normal process, refer to SELECTING THE REMOTE CONTROL UNIT SIGNAL CODE.

- (1) Press the SET TEMP. (▲) (▼) button to change the signal code between **A-b-c-d**.
Match the code on the display to the air conditioner signal code. (initially set to **A**) (If the signal code does not need to be selected, press the MODE button and proceed to STEP 2.)
- (2) Press the TIMER MODE button and check that the indoor unit can receive signals at the displayed signal code.
- (3) Press the MODE button to accept the signal code, and proceed to STEP 2.



The air conditioner signal code is factory-set to A. Contact your retailer to change the signal code.

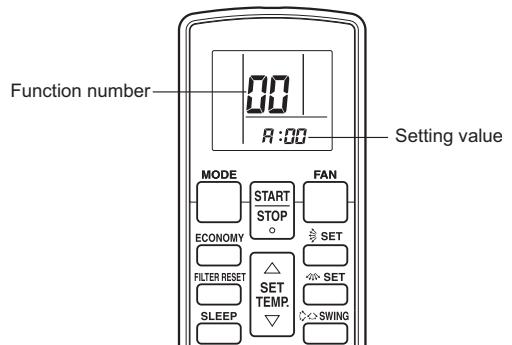
The remote control unit resets to signal code A when the batteries in the remote control unit are replaced. If you use a signal code other than signal code A, reset the signal code after replacing the batteries.

If you do not know the air conditioner signal code setting, try each of the signal codes (**A-b-c-d**) until you find the code which operates the air conditioner.

STEP 2

Selecting the Function Number and Setting Value

- (1) Press the SET TEMP. (▲) (▼) buttons to select the function number. (Press the MODE button to switch between the left and right digits.)
- (2) Press the FAN button to proceed to setting the value. (Press the FAN button again to return to the function number selection.)
- (3) Press the SET TEMP. (▲) (▼) buttons to select the setting value. (Press the MODE button to switch between the left and right digits.)
- (4) Press the TIMER MODE button, and START/STOP button, in the order listed to confirm the settings.
- (5) Press the RESET button to cancel the function setting mode.
- (6) After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.



⚠ CAUTION

- After turning off the power, wait 30 seconds or more before turning it on again. The FUNCTION SETTING doesn't become effective if it doesn't do so.

9.2. Function setting

Setting the Ceiling Height

- Select the setting values in the table below according to the height of the ceiling. (The setting value is factory-set to "00".)

Setting Description	Function Number	Setting Value
Standard (2.7 m)	20	00
High ceiling (3.0 m)		01

The ceiling height values are for the 4-way outlet.
Do not change this setting in the 3-way outlet mode.

Setting the Outlet Directions

- Select the setting values in the table below for using a 3-way outlet. (The setting value is factory-set to "00".)

Setting Description	Function Number	Setting Value
4-way	22	00
3-way		01

Setting the Filter Sign

- The indoor unit has a sign to inform the user that it is time to clean the filter.
- Select the time setting for the filter sign display interval in the table below according to the amount of dust or debris in the room. (The setting value is factory-set to "00".)
- If you do not wish the filter sign to be displayed, select the setting value for "No indication".

Setting Description	Function Number	Setting Value
Standard (2,500 hours)	11	00
Long interval (4,400 hours)		01
Short interval (1,250 hours)		02
No indication		03

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 setting value 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 setting value 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 setting value 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
Ceiling height	
Outlet directions	
Filter sign	
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.

9.3. Selecting the remote control unit signal code

[When using the wireless remote controller]

When two or more air conditioners are installed in a room and the remote control unit is operating an air conditioner other than the one you wish to set, change the signal code of the remote control unit to operate only the air conditioner you wish to set (four selections possible).

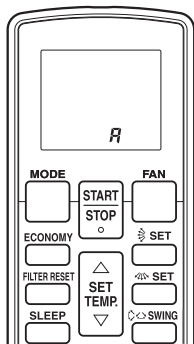
When two or more air conditioners are installed in a room, please contact your retailer to set the individual air conditioner signal codes.

Confirm the setting of the remote control unit signal code and the printed circuit board setting.
If these are not confirmed, the remote control unit cannot be used to operate for the air conditioner.

Selecting the Remote Control Unit Signal Code

Use the following steps to select the signal code of the remote control unit. (Note that the air conditioner cannot receive a signal code if the air conditioner has not been set for the signal code.)

- (1) Press the START/STOP button until only the clock is displayed on the remote control unit display.
- (2) Press the MODE button for at least five seconds to display the current signal code (initially set to **A**).
- (3) Press the SET TEMP. (▲) (▼) button to change the signal code between **A→b→c→d**. Match the code on the display to the air conditioner signal code.
- (4) Press the MODE button again to return to the clock display. The signal code will be changed.



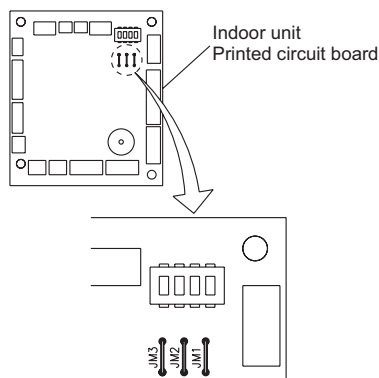
If no buttons are pressed within 30 seconds after the signal code is displayed, the system returns to the original clock display. In this case, start again from step 1

The air conditioner signal code is set to A prior to shipment. Contact your retailer to change the signal code.

The remote control unit resets to signal code A when the batteries in the remote control unit are replaced. If you use a signal code other than signal code A, reset the signal code after replacing the batteries.
If you do not know the air conditioner signal code setting, try each of the signal codes (**A→b→c→d**) until you find the code which operates the air conditioner.

Indoor unit setting

Jumper wire		Remote control unit signal code
JM1	JM2	
Connect	Connect	A (Primary setting)
Disconnect	Connect	b
Connect	Disconnect	c
Disconnect	Disconnect	d



9.4. Special installation methods

This possible only the wired remote control. (Option)

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.

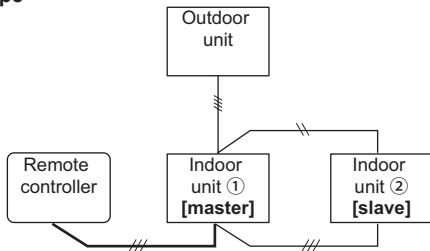
9.4.1. Simultaneous multi-system operation

- By combining with an outdoor unit, 2 units for twin and 3 units for triple indoor units, can be switched ON/OFF simultaneously.
- When different indoor unit models are connected some functions may no longer be available.

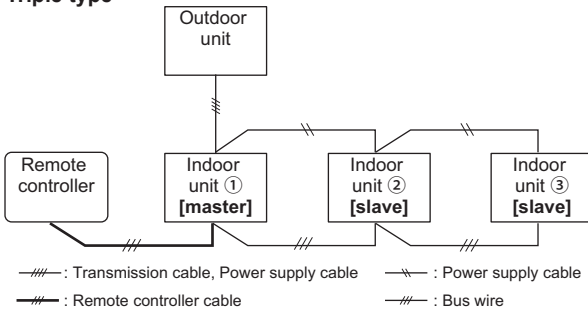
(1) Wiring method

- Refer to 6.ELECTRICAL WIRING for wiring procedure and wiring method.
- The indoor unit is connected the outdoor unit using a transmission cable is "master".
- Connect the remote controller wire to the master unit.

Twin type



Triple type

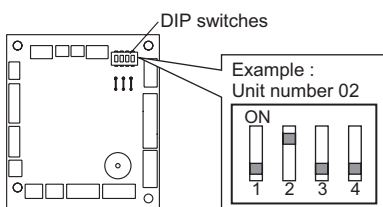


(2) DIP switch setting (Indoor unit)

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 00.

Indoor unit	Unit number	DIP SWITCH No.			
		1	2	3	4
①	00	OFF	OFF	OFF	OFF
②	01	ON	OFF	OFF	OFF
③	02	OFF	ON	OFF	OFF



Circuit board in the control box of indoor unit.

NOTE

Be sure to set the unit numbers sequentially.

(3) Remote controller setting

1. Turn on all of the indoor units.

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 master and slave settings.

Set the indoor unit that is not connected to the outdoor unit using a transmission cable as the "01".

(The setting value is factory-set to "00".)

Indoor unit	Unit number	Function Number	Setting Value
①	00	51	00(Master)
②	01		01(Slave)
③	02 (Only triple type)		01(Slave)

3. 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.

Twin type

DIP switch setting (Indoor unit) • Unit number	00	01
	00	01
	00	01
Remote controller setting		
• Unit number	00	01
• Setting value (Master/Slave)	00	01

Triple type

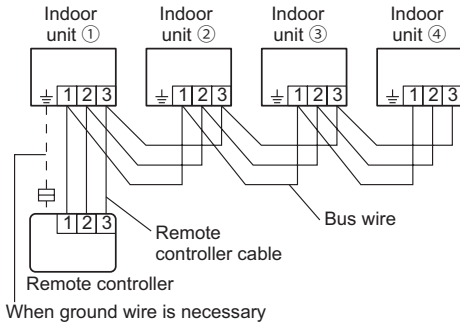
DIP switch setting (Indoor unit) • Unit number	00	01	02
	00	01	02
	00	01	02
Remote controller setting			
• Unit number	00	01	02
• Setting value (Master/Slave)	00	01	01

— — — : Transmission cable, Power supply cable — — — : Power supply cable
— — — : Remote controller cable — — — : Bus wire

9.4.2. 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 00.

Indoor unit	Unit number	DIP SWITCH No.			
		1	2	3	4
①	00	OFF	OFF	OFF	OFF
②	01	ON	OFF	OFF	OFF
③	02	OFF	ON	OFF	OFF
④	03	ON	ON	OFF	OFF
⑤	04	OFF	OFF	ON	OFF
⑥	05	ON	OFF	ON	OFF
⑦	06	OFF	ON	ON	OFF
⑧	07	ON	ON	ON	OFF
⑨	08	OFF	OFF	OFF	ON
⑩	09	ON	OFF	OFF	ON
⑪	10	OFF	ON	OFF	ON
⑫	11	ON	ON	OFF	ON
⑬	12	OFF	OFF	ON	ON
⑭	13	ON	OFF	ON	ON
⑮	14	OFF	ON	ON	ON
⑯	15	ON	ON	ON	ON

1. Turn on all of the indoor units.

*1 Turn on the indoor unit with the unit number 00 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. (The unit is factory-set to "00")

Indoor unit	Unit number	Function Number	Setting Value
①	00	02	00~15
②	01		
③	02		
④	03		
⑤	04		
⑥	05	03	00~15
⑦	06		
⑧	07		
⑨	08		
⑩	09		
⑪	10	04	00~15
⑫	11		
⑬	12		
⑭	13		
⑮	14		
⑯	15	05	00~15
⑰	16		
⑱	17		
⑲	18		
⑳	19		

3. 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.

Outdoor unit	Indoor unit	Indoor unit	Indoor unit	Indoor unit
Outdoor unit ①	Indoor unit ①	Indoor unit ②	Indoor unit ③	Indoor unit ④
DIP switch setting (Indoor unit)				
• Unit number				
00	01	02	03	
Remote controller setting				
• Unit number				
00	01	02	03	
• Setting value (Refrigerant circuit address)				
00	01	02	03	

— : Transmission cable, Power supply cable — : Power supply cable
— : Remote controller cable — : Bus wire

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.

	Standard pair	Simultaneous twin	Simultaneous triple
	Outdoor unit ①	Outdoor unit ②	Outdoor unit ③
	Indoor unit ①	Indoor unit ②	Indoor unit ④
		Indoor unit ③	Indoor unit ⑤
			Indoor unit ⑥
DIP switch setting (Indoor unit)	00	01	02
• Unit number			
Remote controller setting	00	01	02
• Unit number			
Refrigerant circuit address setting (Function number 02)	00	01	02
• Unit number			
• Setting value	00	01	02
Master/Slave setting (Function number 51)	00	01	02
• Unit number			
• Setting value	00	01	02

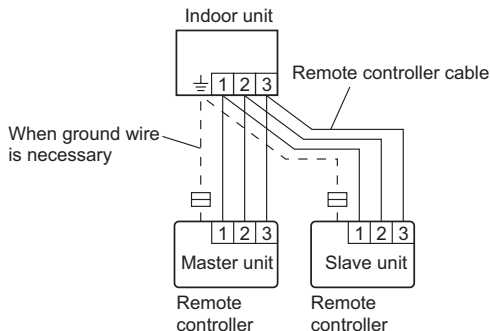
— : Transmission cable, Power supply cable — : Power supply cable
— : Remote controller cable — : Bus wire

*Make sure that the indoor unit with the unit number 00 is connected to the outdoor unit using a transmission cable.

9.4.3. 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 unit of remote controller.

(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.

	DIP SW 1-No. 2
Master unit	OFF
Slave unit	ON

10. TEST RUN

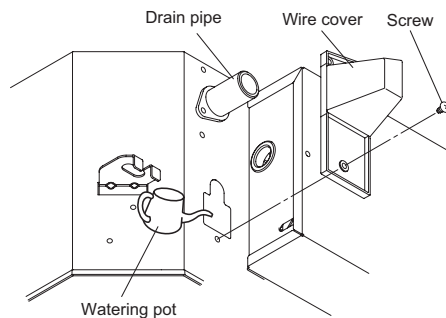
CHECK ITEMS

- Is operation of each button on the remote control unit normal?
 - Does each lamp light normally?
 - Do not air flow direction louvers operate normally?
 - Is the drain normal?
 - Is there any abnormal noise and vibration during operation?
- Do not operate the air conditioner in the running state for a long time.

CHECKING DRAINAGE.

To check the drain, remove the water cover and fill with 1 liter of water as shown in the figure.

The drain pump operates when operating in the cooling mode.



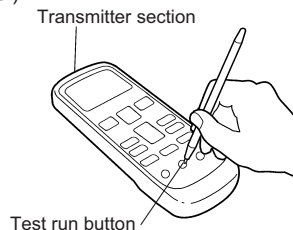
• Test running

When the air conditioner is run by pressing the remote control unit test run button, the OPERATION and TIMER lamps flash slowly at the same time.

[Operation method]

- For the operation method, refer to the operating manual.
- The outdoor unit may not operate depending on the room temperature.

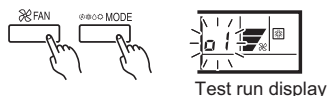
In this case, press the test run button on the remote control unit while the air conditioner is running. (Point the transmitter section of the remote control unit toward the air conditioner and press the test run button with the tip of a ball-point pen, etc.)



- 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.)

[Using the wired remote control] (Option)

- For the operation method, refer to the operating manual.
- Stop the air conditioner operation.
 - Press the master control button and the fan control button simultaneously for 2 seconds or more to start the test run.



Test run display

- Press the start/stop button to stop the test run.

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?		

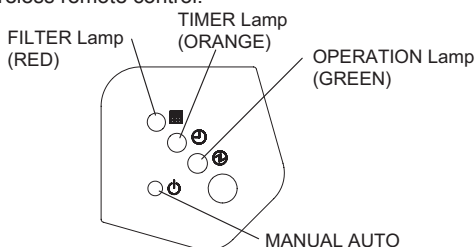
12. ERROR CODES

If you use a wired type remote control, error codes will appear on the remote control display. If you use a wireless remote control, the lamp on the photo detector unit will output error codes by way of blinking patterns. See the lamp blinking patterns and error codes in the table below.

Troubleshooting

[Troubleshooting with the indoor display]

Troubleshooting at the display is possible either on the wired or wireless remote control.



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

OPERATION Lamp	TIMER Lamp	FILTER 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)○	×	P.F.C. 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

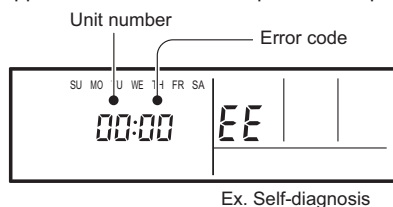
○:0.5s ON/0.5s OFF (Flash) ×:OFF

[Troubleshooting at the remote control LCD] (Option)

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.)



Error code	Error contents
01	Indoor signal error
13	
26	
27	
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	P.F.C. 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

13. 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.
 - (4) If the signal code is changed, explain to the customer how it changed (the system returns to signal code A when the batteries in the remote control unit are replaced).
- * (4) is applicable to using wireless remote control.