

# Refrigerant R410A Cassette Type SPLIT TYPE AIR CONDITIONER INSTALLATION INSTRUCTION SHEET

(PART NO. 9365388068-04)

For authorized service personnel only.

<b>WARNING</b>	This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.
<b>CAUTION</b>	This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.

## This air conditioner uses new refrigerant HFC (R410A).

The basic installation work procedures are the same as conventional refrigerant (R22) models. However, pay careful attention to the following points:

- Since the working pressure is 1.6 times higher than that of conventional refrigerant (R22) models, some of the piping and installation and service tools are special. (See the table below.) Especially, when replacing a conventional refrigerant (R22) model with a new refrigerant R410A model, always replace the conventional piping and flare nuts with the R410A piping and flare nuts.
- Models that use refrigerant R410A have a different charging port thread diameter to prevent erroneous charging with conventional refrigerant (R22) and for safety. Therefore, check beforehand. [The charging port thread diameter for R410A is 1/2 UNF 20 threads per inch.]
- Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant (R22) models. Also, when storing the piping, securely seal the openings by pinching, taping, etc.
- When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable.

## Special tools for R410A

Tool name	Contents of change
Gauge manifold	Pressure is 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 the gauge with seals -0.1 to 5.3 MPa (-76 cmHg to 53 kgf/cm <sup>2</sup> ) for high pressure, -0.1 to 3.8 MPa (-76 cmHg to 38 kgf/cm <sup>2</sup> ) for low pressure.
Charge hose	To increase pressure resistance, the hose material and base size were changed.
Vacuum pump	A conventional vacuum pump can be used by installing a vacuum pump adapter.
Gas leakage detector	Special gas leakage detector for HFC refrigerant R410A.

## Copper pipes

It is necessary to use seamless copper pipes and it is desirable that the amount of residual oil is less than 40 mg/10 m. Do not use copper pipes having a collapsed, deformed or discolored portion (especially on the interior surface). Otherwise, the expansion valve or capillary tube may become blocked with contaminants. 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 that in the table even when it is available on the market.

## Thicknesses of Annealed Copper Pipes (R410A)

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

## STANDARD PARTS

The following installation parts are furnished. Use them as required.

### INDOOR UNIT ACCESSORIES

Name and Shape	Qty	Application
Coupler heat insulation	2	For indoor side pipe joint
Special nut A (large flange)	4	For installing indoor unit
Special nut B (small flange)	4	For installing indoor unit
Template	1	For ceiling hole cutting
Blower cover insulation	2	For discharged air
Hook wire	2	For installing intake grille
Binder	1 (small)	For fixing the remote controller cable
Remote controller	1	
Tapping screw (flush heads)	2	For installing the remote controller
Remote controller cable	1	For connecting the remote controller

### OUTDOOR UNIT ACCESSORIES

Drain pipe	1	For outdoor unit drain piping work. (May not be supplied, depending on the model.)
Drain cap	1	

## OPTIONS

The following options are available.  
 • ADDITIONAL GRILLE ASSY: UTG-AGEA-W (P/N 9002230002)

## INSTALLATION PROCEDURE

Install the air conditioner as follows:

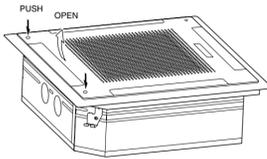
### 1 INDOOR UNIT INSTALLATION

#### WARNING

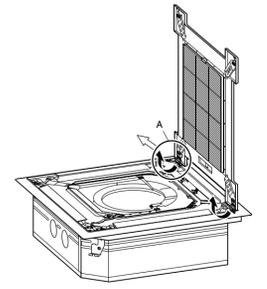
- Install the air conditioner in a location which can withstand a load at least five times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.
- If the job is done with the panel frame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

#### REMOVING THE INTAKE GRILLE

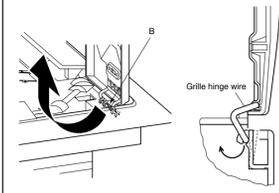
- Push the intake grille pushbuttons (two places).
- Open the intake grille.



- Remove the grille hinge wire.



- Pull up while pressing the B section.

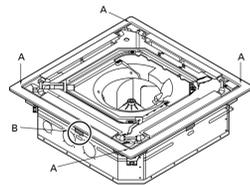


- Remove the intake grille.

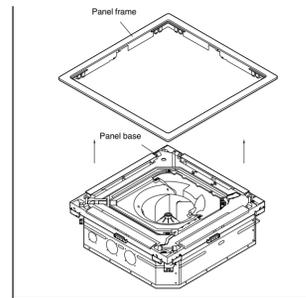
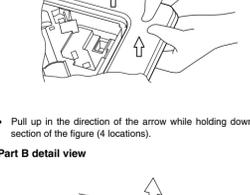
#### REMOVING THE PANEL FRAME

- Pull up the corner sections (A) of the panel frame as shown in the figure (4 locations).

#### Part A detail view



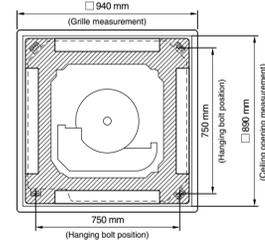
#### Part B detail view



#### CAUTION

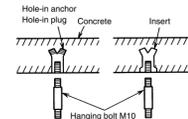
Always remove the panel frame after removing the intake grille.

### 1. POSITION THE CEILING HOLE AND HANGING BOLTS



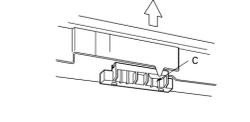
### 2. HANGING PREPARATIONS

- Firmly fasten the hanging bolts as shown in the figure or by another method.
- Install the hanging bolts at a place where they would be capable of holding a weight of at least 400 N (50 kgf) per bolt.



- Pull up in the direction of the arrow while holding down the C section of the figure (4 locations).

#### Part B detail view



#### WARNING

- For the air conditioner to operate satisfactorily, install it as outlined in this installation instruction sheet.
- Connect the indoor unit and outdoor unit with the air conditioner piping and cables available standards parts. This installation instruction sheet describes the correct connections using the installation set available from our standard parts.
- Installation work must be performed in accordance with national wiring standards by authorized personnel only.
- 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.
- Do not use an extension cable.
- Do not turn on the power until all installation work is complete.
- Be careful not to scratch the air conditioner when handling it.
- After installation, explain correct operation to the customer, using the operating manual.
- Let the customer keep this installation instruction sheet because it is used when the air conditioner is serviced or moved.

## SELECTING THE MOUNTING POSITION

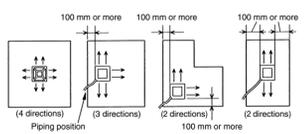
#### WARNING

Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not topple or fall.

#### CAUTION

- Do not install where there is the danger of combustible gas leakage.
- Do not install near heat sources.
- If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.

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. Decide the mounting position together with the customer as follows: The discharge direction can be selected as shown below.



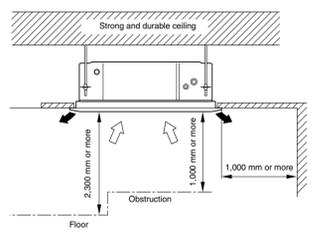
#### CAUTION

Since 2-way outlet as shown below causes performance problems, do not set it.

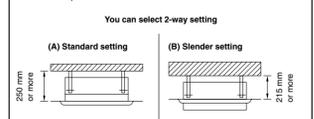


### INDOOR UNIT

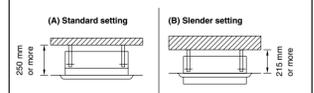
- Install the indoor unit on a place having a sufficient strength so that it withstands against the weight of the indoor unit.
- The inlet and outlet ports should not be obstructed; the air should be able to blow all over the room.
- Leave the space required to service the air conditioner.
- The ceiling rear height as shown in the figure.
- A place from where the air can be distributed evenly throughout the room by the unit.
- A place from where drainage can be extracted outdoors easily.
- Install the unit where noise and vibrations are not amplified.



This mechanism enables the cassette body to move 35 mm downward and realizes installation to the space of 215 mm. No special works and option is needed.



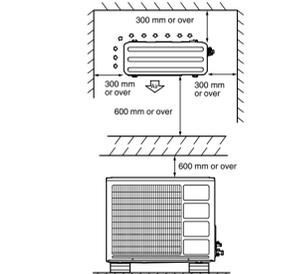
#### You can select 2-way setting



### OUTDOOR UNIT

#### WARNING

- Install the unit where it will not be tilted by more than 5°.
- When installing the outdoor unit where it may be exposed to strong wind, fasten it securely.
- If possible, do not install the unit where it will be exposed to direct sunlight. (If necessary, install a blind that does not interfere with the air flow.)
- Install the outdoor unit in a place where it will be free from being dirty or getting wet by rain as much as possible.
- Install the unit when connection to the indoor unit is easy.
- During heating operation, drain water flows from the outdoor unit. Therefore, install the outdoor unit in a place where the drain water flow will not be obstructed.
- Do not place animals and plants in the path of the warm air.
- Take the air conditioner weight into account and select a place where noise and vibration are small.
- Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.
- Provide the space shown in the figure so that the air flow is not blocked. Also for efficient operation, leave open three of the four directions front, rear, and both sides.
- Do not set the unit directly on the ground because it will cause trouble.
- Set the unit on a strong stand, such as one made of concrete blocks to minimize shock and vibration.



## SAFETY PRECAUTIONS

#### WARNING

- During installation, make sure that the refrigerant pipe is attached firmly before you run the compressor. Do not operate the compressor until the condition of refrigerant piping not attached properly with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.
- During the pump-down operation, make sure that the compressor is turned off before you remove the refrigerant piping. Do not remove the connection pipe while the compressor is in operation with 2-way or 3-way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.
- When installing and relocating the air conditioner, do not mix gases other than the specified refrigerant (R410A) to enter the refrigerant cycle. If air or other gas enters the refrigerant cycle, the pressure inside the cycle will rise to an abnormally high value and cause breakage, injury, etc.

## CONNECTION PIPE REQUIREMENT

#### CAUTION

The maximum lengths of this product are shown in the following table. If the units are further apart than this, correct operation can not be guaranteed.

Diameter	Pipe length		Maximum height (between indoor and outdoor)
	MAX.	MIN.	
Liquid	15.88 mm (5/8 in.)	25 m	15 m
Gas	15.88 mm (5/8 in.)	25 m	15 m

- 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).

## ELECTRICAL REQUIREMENT

- Electric wire size and breaker capacity:

	Power supply cable (mm <sup>2</sup> )		Connection cable (mm <sup>2</sup> )		Breaker capacity (A)
	MAX.	MIN.	MAX.	MIN.	
3 phase TYPE	2.5	1.5	2.5	1.5	10
1 phase TYPE	4.0	3.5			30

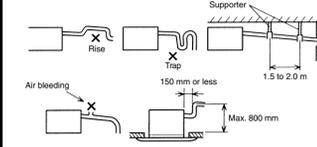
- Always use HD7RN-F or equivalent to the connection cable.
- Install all electrical works in accordance to the standard.
- Install the disconnect device with a contact gap of at least 3 mm in all poles nearby the units. (Both indoor unit and outdoor unit)
- Install the circuit breaker nearby the units.

## 2 INSTALLING DRAIN PIPE

#### CAUTION

Install the drain pipe in accordance with the instructions in this installation instruction sheet and keep the area warm enough to prevent condensation. Problems with the piping may lead to water leaks.

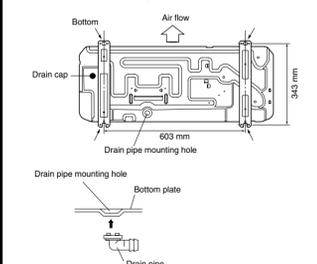
- NOTE: Install the drain pipe.
- Install the drain pipe with downward gradient (1/50 to 1/100) and so there are no rises or traps in the pipe.
  - Use general hard polyvinyl chloride pipe (VP25) (outside diameter 32 mm) and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
  - When the pipe is long, install supporters.
  - Do not perform air bleeding.
  - Always heat insulate the indoor side of the drain pipe.
  - When desiring a high drain pipe height, raise it up to 800 mm or less from the ceiling within a range of 150 mm from the body. A rise dimension over this range will cause leakage.



## 3 OUTDOOR UNIT INSTALLATION

### 1. OUTDOOR UNIT PROCESSING

When the outdoor unit will be exposed to strong wind, fasten it with bolts at the four places indicated by the arrows.

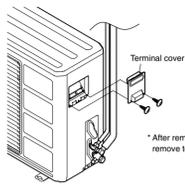


#### CAUTION

If this product is used in an area where the temperature falls below freezing for long periods of time, do not connect the drain pipe. Instead, allow the water to drain into a drain pan.

## 2. OUTDOOR UNIT CONNECTION CABLE AND PIPE CONNECTION PREPARATIONS

- Remove outdoor unit terminal cover.



- Connect the piping, connection cable and power supply cable.

## 4 CONNECTING THE PIPING

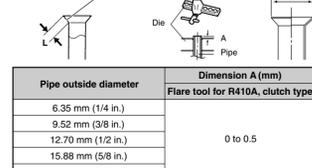
#### CAUTION

- 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.
- While welding the pipes, be sure to blow dry nitrogen gas through them.
- The maximum lengths of this product are shown in the table. If the units are further apart than this, correct operation can not be guaranteed.

### 1. FLARING

- 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 the 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. Use the special R410A flare tool, or the conventional flare tool.

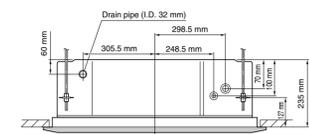
Check if (L) is flared uniformly and is not cracked or scratched.



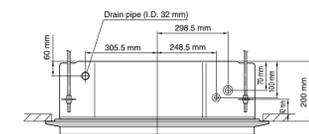
Pipe outside diameter	Dimension A (mm)	
	Flare tool for R410A, clutch type	0 to 0.5
6.35 mm (1/4 in.)	9.1	
9.52 mm (3/8 in.)	13.2	
12.70 mm (1/2 in.)	16.6	
15.88 mm (5/8 in.)	19.7	
19.05 mm (3/4 in.)	24.0	

Pipe outside diameter	Dimension B (mm)	
	9.1	13.2
6.35 mm (1/4 in.)	9.1	
9.52 mm (3/8 in.)	13.2	
12.70 mm (1/2 in.)	16.6	
15.88 mm (5/8 in.)	19.7	
19.05 mm (3/4 in.)	24.0	

### (A) Standard setting



### (B) Slender setting



## 3. BODY INSTALLATION

[The ceiling rear height is 235 mm or more.] [Standard setting]

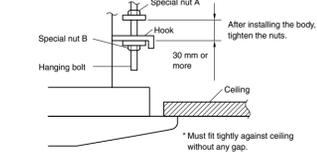
[The ceiling rear height is 200 mm or more.] [Slender setting]

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

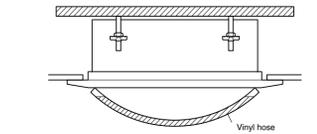
Using a level, or vinyl hose filled with water, fine adjust so that the body is level.

#### WARNING

Perform final tightening by tightening the double nut firmly.

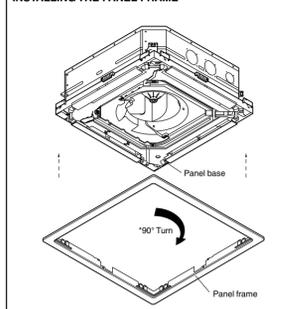


\* Must fit tightly against ceiling without any gap.



\* Allowable space between the unit and the ceiling 5 mm or less

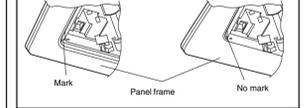
## INSTALLING THE PANEL FRAME



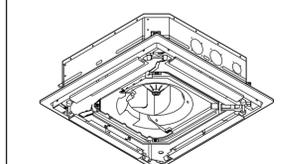
\* With slender setting, turn the panel frame 90° as shown in the diagram above.

Grille setting method has been changed at the marked positions on the panel frame and panel base.

### (A) Standard setting (B) Slender setting



### (Example)



\* Appearance of slender setting

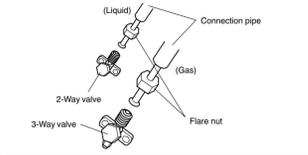
#### CAUTION

Hold the torque wrench at its grip, keeping it in the right angle with the pipe, in order to tighten the flare nut correctly.

Flare nut	Tightening torque
6.35 mm (1/4 in.) dia.	16 to 18 N·m (160 to 180 kgf·cm)
9.52 mm (3/8 in.) dia.	30 to 42 N·m (300 to 420 kgf·cm)
12.70 mm (1/2 in.) dia.	49 to 61 N·m (490 to 610 kgf·cm)
15.88 mm (5/8 in.) dia.	63 to 75 N·m (630 to 750 kgf·cm)
19.05 mm (3/4 in.) dia.	90 to 110 N·m (900 to 1100 kgf·cm)

### Outdoor unit

Tighten the flare nut of the connection pipe at the outdoor unit valve connector. The tightening method is the same as that as the indoor side.



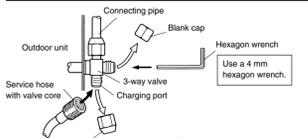
#### CAUTION

- Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation! There is no extra refrigerant in the outdoor unit for air purging!
- Use a vacuum pump for R410A exclusively. Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.

### 4. VACUUM

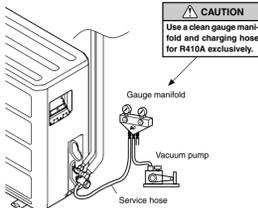
- Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve by the service hoses.
- Vacuum the indoor unit and the connecting pipes until the pressure gauge indicates -0.1 MPa (-76 cmHg).
- When -0.1 MPa (-76 cmHg) is reached, operate the vacuum pump for at least 30 minutes.
- Disconnect the service hoses and fit the cap to the charging valve to the specified torque.
- Remove the blank caps, and fully open the spindles of the 2-way and 3-way valves with a hexagon wrench [Torque: 6-7 N·m (60 to 70 kgf·cm)].
- Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque.

Blank cap	Tightening torque	
	(Gas)	(Liquid)
6.35 mm (1/4 in.)	20 to 25 N·m (200 to 250 kgf·cm)	
9.52 mm (3/8 in.)	20 to 25 N·m (200 to 250 kgf·cm)	
12.70 mm (1/2 in.)	28 to 32 N·m (280 to 320 kgf·cm)	
15.88 mm (5/8 in.)	30 to 35 N·m (300 to 350 kgf·cm)	
19.05 mm (3/4 in.)	35 to 40 N·m (350 to 400 kgf·cm)	
Charging port cap	12.5 to 16 N·m (125 to 160 kgf·cm)	



(Continued to the next page)

#### 4 CONNECTING THE PIPE



#### 5. ADDITIONAL CHARGE

Refrigerant suitable for a piping length of 7.5 m is charged in the outdoor unit at the factory. When the piping is longer than 7.5 m, additional charging is necessary. For the additional amount, see the table below.

Pipe length	Heat & Cool (Reverse cycle)	Additional refrigerant			
		7.5 m (25 ft)	10 m (33 ft)	15 m (49 ft)	20 m (66 ft)
None	100 g (3.5 oz)	300 g (10.6 oz)	500 g (17.6 oz)	700 g (24.7 oz)	
	50 g (1.8 oz)	150 g (5.3 oz)	250 g (8.8 oz)	350 g (12.3 oz)	

Between 7.5 m and 25 m, when using a connection pipe other than that in the table, charge additional refrigerant with 40 g (1.4 oz)/1 m (3.3 ft) (Reverse cycle model), 20 g (0.71 oz)/1 m (3.3 ft) (Cooling model) as the criteria.

#### CAUTION

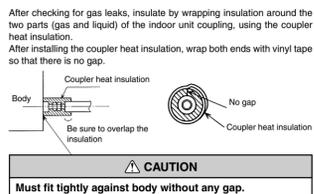
- When moving and installing the air conditioner, do not mix gas other than the specified refrigerant (R410A) inside the refrigerant cycle.
- When charging the refrigerant R410A, always use an electronic balance for refrigerant charging (to measure the refrigerant by weight).
- When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable.
- Add refrigerant from the charging valve after the completion of the work.
- The maximum length of piping is 25 m. If the units are further apart than the maximum pipe length, correct operation can not be guaranteed.

#### 6. GAS LEAKAGE INSPECTION

#### CAUTION

- After connecting the piping, check the all joints for gas leakage with gas leak detector.
- When inspecting gas leakage, always use the vacuum pump for pressure. Do not use nitrogen gas.

#### 7. HEAT INSULATION ON THE PIPE JOINTS (INDOOR SIDE ONLY)



#### 5 ELECTRICAL WIRING

#### WARNING

- Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.
- Match the terminal board numbers and connection cable colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
- Connect the connection cables firmly to the terminal board. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cable with the cable clamp. (If the insulator is chafed, electric leakage may occur.)
- Always connect the ground wire.

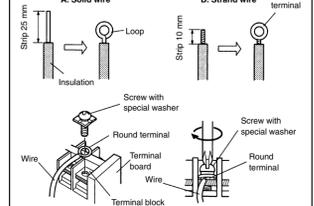
#### HOW TO CONNECT WIRING TO THE TERMINALS

#### A. For solid core wiring (or F-cable)

- Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 25 mm to expose the solid wire.
- Using a screwdriver, remove the terminal screw(s) on the terminal board.
- Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- Position the round terminal wire, and replace and tighten the terminal screw using a screwdriver.

#### B. For strand wiring

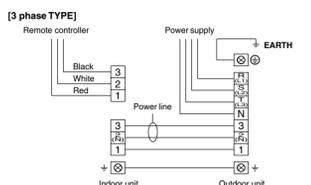
- Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 10 mm to expose the strand wiring.
- Using a screwdriver, remove the terminal screw(s) on the terminal board.
- Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- Position the round terminal wire, and replace and tighten the terminal screw using a screwdriver.



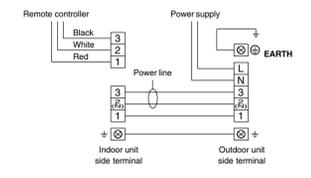
#### CAUTION

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.

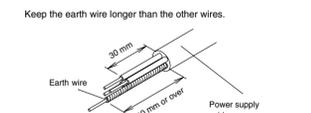
#### 1. CONNECTION DIAGRAMS



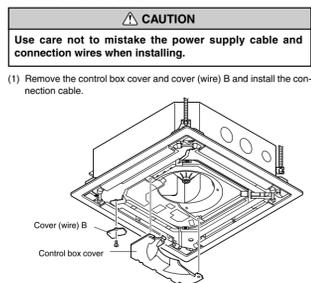
#### 1 phase TYPE



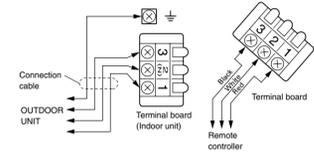
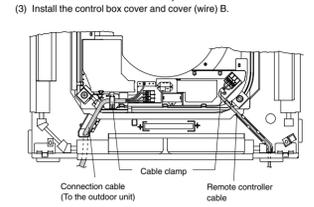
#### 2. CONNECTION CABLE PREPARATION



#### 3. INDOOR UNIT SIDE



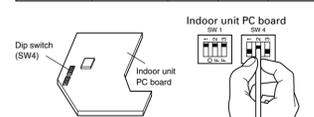
#### 4. OUTDOOR UNIT SIDE



#### Ceiling height setting

Set the DIP switch for the ceiling height according to the table below.

Ceiling height (m)	DIP-SW4		
	1	2	3
2.5 - 3.0	Normal	OFF	OFF
3.0 - 3.5	High ceiling 1	ON	OFF
More than 3.5	High ceiling 2	OFF	ON
Less than 2.5	Low ceiling	ON	ON



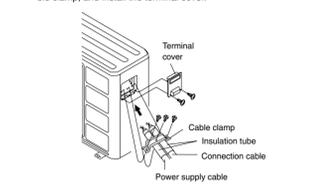
#### CAUTION

- If the setting for a low ceiling is selected, the capacity of the air conditioner decreases slightly.
- Do not set any switches other than those specified in this sheet or the remote controller installation instruction sheet. The air conditioner may not operate correctly if any switches other than those specified are changed.

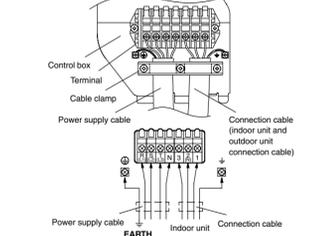
#### 6 GRILLE INSTALLATION

When connecting the power supply cable, make sure that the phase of the power supply matches with the phase of the terminal board. If the phases do not match, the compressor will rotate in reverse and will not be able to compress.

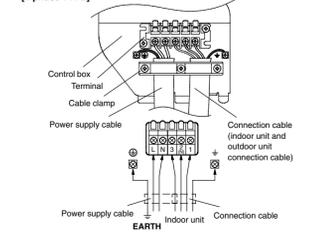
- Remove the terminal cover of the outdoor unit, and insert the end of the connection cable and the power supply cable into the terminal board.
- Fasten the connection cable and the power supply cable with the cable clamp, and install the terminal cover.



#### 3 phase TYPE



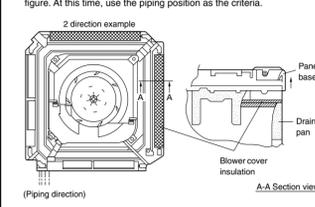
#### 1 phase TYPE



When routing the ground wires, leave slack as shown in the illustrations.

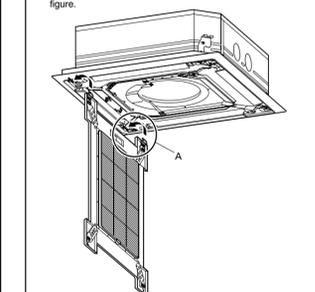
#### BLOWER COVER INSULATION

Install the blower cover insulation only when the outlet direction is not specified. Two blower cover insulations are packed with the indoor unit. Install the blower cover insulation at the diffuser position shown in the figure. At this time, use the piping position as the criteria.

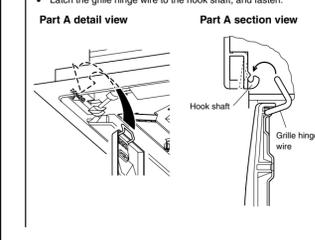


#### INSTALLING THE INTAKE GRILLE

(1) Mount the grille hinge wire to the hook shaft as shown in the figure.

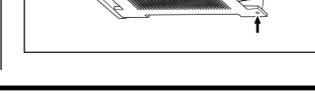
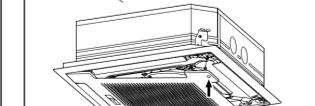
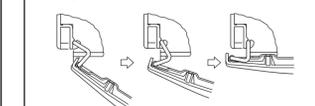
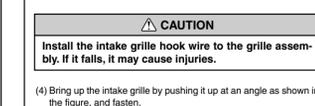
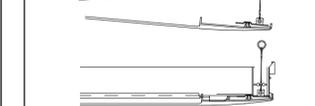
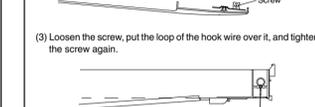
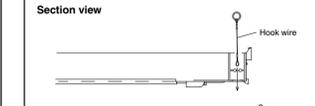
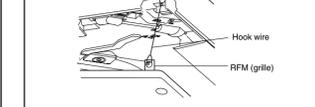


Latch the grille hinge wire to the hook shaft, and fasten.



#### 7 POWER

Pass the hook wire through the panel base from the rear side as shown in the figure, and fasten to the reinforced metal fitting of the intake grille using a screw.



#### CAUTION

- [3 phase TYPE] The rated voltage of this product is 400 V 3N - 50 Hz. Before turning on, verify that the voltage is within the 342 V to 457 V range. [1 phase TYPE] The rated voltage of this product is 230 V - 50 Hz. Before turning on, verify that the voltage is within the 198 V to 264 V range.
- Always use a special branch circuit and install a special receptacle to supply power to the air conditioner.
- Use a special branch circuit breaker and receptacle matched to the capacity of the air conditioner. (Install in accordance with standard.)
- Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
- Install a leakage special branch circuit breaker in accordance with the related laws and regulations and electric company standards.

#### CAUTION

- The power source capacity must be the sum of the air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.
- This air conditioner must be connected to a power source that has an electrical impedance of 0.159 Ω or less or has a supply current of 100 A or greater. If the power supply does not meet the specifications, contact the power company.

#### 8 REMOTE CONTROLLER SETTING

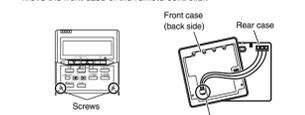
When detecting the room temperature using the remote controller, please set up the remote controller according to the following conditions. If the remote controller is not well set, the correct room temperature will not be detected, and thus the abnormal conditions like "not cooled" or "not heated" will occur even if the air conditioner is running normally.

- A location with an average temperature for the room being airconditioned.
- Not directly exposed to the outlet air from the air conditioner.
- Out of direct sunlight.
- Away from the influence of other heat sources.

- When installing the remote controller and cable near a source of electromagnetic waves, separate the remote controller from the source of the electromagnetic waves and use shielded cable.
- Do not touch the remote controller PC board and PC board parts directly with your hands.

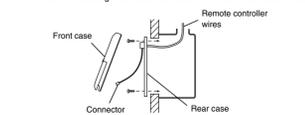
#### 1. INSTALLING THE REMOTE CONTROLLER

- 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.

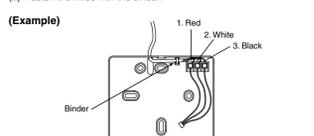
When installing the front case, connect the connector to the front case.



Install the remote controller wires so as not to be direct touched with your hand.

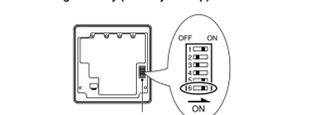
#### 2. ROUTING THE REMOTE CONTROLLER WIRES

- Install the remote controller wires to the terminals on the top of the rear case as shown in the following figure.
- Fasten the wires with the binder.



#### 3. SETTING THE DIP SWITCHES

When using a battery (memory backup)

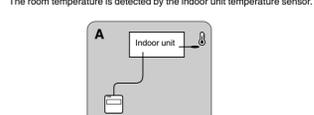


#### 4. SETTING THE ROOM TEMPERATURE DETECTION LOCATION

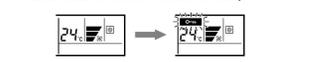
The detection location of the room temperature can be selected from the following three examples. Choose the detection location that is best for the installation location.

#### A. Indoor unit setting (factory setting)

The room temperature is detected by the indoor unit temperature sensor.

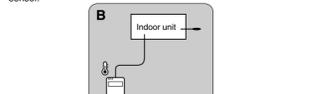


- When the THERMO SENSOR button is pressed, the lock display flashes because the function is locked at the factory.



#### B. Remote controller setting

The room temperature is detected by the remote controller temperature sensor.



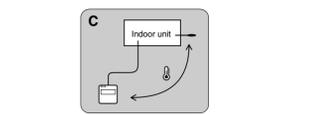
#### 2. TEST RUN

- Press the THERMO SENSOR button for 5 seconds or more to unlock the function. The thermo sensor display flashes and then disappears when the function is unlocked.
- Press the THERMO SENSOR button. The thermo sensor display appears.
- Press the THERMO SENSOR button again for 5 seconds or more to lock the function. The thermo sensor display disappears and then remains on when the function is locked.
- Make sure that the function is locked.

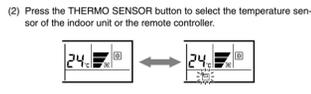


#### C. Indoor unit/remote controller setting (room temperature sensor selection)

The temperature sensor of the indoor unit or the remote controller can be used to detect the room temperature.



- Press the THERMO SENSOR button for 5 seconds or more to unlock the function. The thermo sensor display flashes and then disappears when the function is unlocked.
- Press the THERMO SENSOR button to select the temperature sensor of the indoor unit or the remote controller.



#### CAUTION

When select the "Remote controller setting", if the detected temperature value between the temperature sensor of the indoor unit and the temperature sensor of the remote controller varies significantly, it is likely to return to the control status of temperature sensor of the indoor unit temporarily.

As the temperature sensor of remote controller detects the temperature near the wall, when there is a certain difference between the room temperature and the wall temperature, the sensor will not detect the room temperature correctly sometimes.

Especially when the outer side of the wall on which the sensor is positioned is exposed to the open air, it is recommended to use the temperature sensor of the indoor unit to detect the room temperature when the indoor and outdoor temperature difference is significant.

The temperature sensor of the remote controller is not only used when there is a problem in the detection of the temperature sensor of the indoor unit.

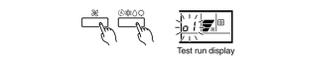
#### NOTES

If the function to change the temperature sensor is used as shown in examples A and B (other than example C), 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 TEST RUN

Supply power to the crankcase heater for at least 12 hours before the start of operation in winter.

- Stop the air conditioner operation.
- Press the MODE button and the FAN button simultaneously for 2 seconds or more to start the test run.
- Press the START/STOP button to stop the test run.

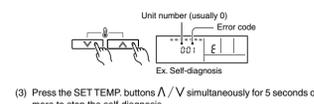


#### [SELF-DIAGNOSIS]

When the error indication "E:EE" is displayed, follow the following items to perform the self-diagnosis. "E:EE" indicates an error has occurred.

#### 1. REMOTE CONTROLLER DISPLAY

- Stop the air conditioner operation.
- Press the SET TEMP. buttons  $\Delta$  /  $\nabla$  simultaneously for 5 seconds or more to start the self-diagnosis. Refer to the following tables for the description of each error code.



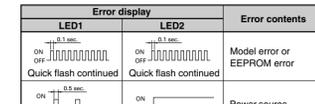
- Press the SET TEMP. buttons  $\Delta$  /  $\nabla$  simultaneously for 5 seconds or more to stop the self-diagnosis.

Error code	Error contents
00	Communication error (indoor unit ← remote controller)
01	Communication error (indoor unit → outdoor unit)
02	Room temperature sensor open
03	Room temperature sensor short-circuited
04	Indoor heat exchanger temperature sensor open
05	Indoor heat exchanger temperature sensor short-circuited
06	Outdoor heat exchanger temperature sensor open
07	Outdoor heat exchanger temperature sensor short-circuited
08	Power source connection error
09	Float switch operated
0A	Outdoor temperature sensor open
0b	Outdoor temperature sensor short-circuited
0C	Discharge pipe temperature sensor open
0d	Discharge pipe temperature sensor short-circuited
0E	Outdoor high pressure error
0F	Discharge pipe temperature error

#### 2. OUTDOOR UNIT LEDS

When a malfunction occurs in the outdoor unit, the LEDs on the circuit board light to indicate the error. Refer to the following table for the description of each error according to the LEDs.

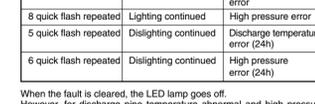
Error display	Error contents
LED1	Model error or EEPROM error
LED2	Power source connection error
1 quick flash repeated	Lighting continued
2 quick flash repeated	Lighting continued
3 quick flash repeated	Lighting continued
4 quick flash repeated	Lighting continued
5 quick flash repeated	Lighting continued
6 quick flash repeated	Lighting continued
7 quick flash repeated	Lighting continued
8 quick flash repeated	Lighting continued
5 quick flash repeated	Dislighting continued
6 quick flash repeated	Dislighting continued



When the fault is cleared, the LED lamp goes off. However, for discharge pipe temperature abnormal and high pressure abnormal, the LED lamp lights continuously for 24 hours, as long as the power is not turned off.

#### 3. CHECKING DRAINAGE

To check the drain, remove the water cover and fill with 2 to 3 l of water as shown in the figure. The drain pump operates when operating in the cooling mode.



#### 10 SPECIAL INSTALLATION METHODS

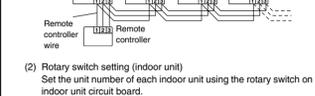
When setting the rotary switch and DIP switches, do not touch any other parts on the circuit board directly with your bare hands.

#### Be sure to turn off the main power.

#### 1. GROUP CONTROL SYSTEM

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

- Wiring method (indoor unit to remote controller)



#### 2. DUAL REMOTE CONTROLLERS (OPTIONAL)

Two separate remote controllers can be used to operate the indoor units.

- Wiring method (indoor unit to remote controller)



#### 2. DIP SWITCH SETTING (remote controller)

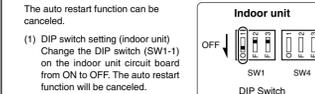
Set the remote controller DIP switch Nos. 1 and 2 according to the following table.

Number of remote controllers	Master unit		Remote controller
	DIP-SW No. 1	DIP-SW No. 2	
1 (Normal)	ON	OFF	OFF ON
2 (Dual)	OFF	OFF	

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

#### 3. CANCELING AUTO RESTART

When the air conditioner power was temporarily turned off by a power failure etc., it restarts automatically after the power recovers. (Operated by setting before the power failure)



#### [DIP-SWITCH SETTING]

#### Indoor unit

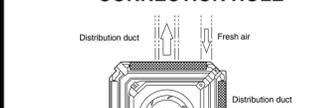
NO.	SW state	Detail
1	OFF	Validity
2	ON	Auto restart setting
3	ON	Temperature correction setting for heating
4	ON	Remote controller setting
5	ON	Air flow setting

#### Remote controller

NO.	SW state	Detail
1	OFF	Validity
2	ON	Dual remote controller setting
3	ON	Multiple unit
4	ON	Group control setting
5	ON	Model setting
6	ON	Auto changeover setting
7	ON	Memory backup setting

\*: Factory setting

#### 11 OPENING THE DUCT CONNECTION HOLE

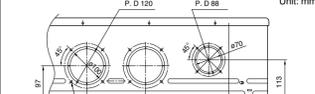


#### CAUTION

- When performing hole opening work, be careful not to damage the drain pan.
- When connecting the distribution duct, to make the air flow easily, block the outlet port with the blower cover insulation as shown by the hatched lines in the figure. For the blocking direction, refer to blower cover insulation figure.

#### 1. DIMENSION

Screw position and connection hole which are fresh air duct and distribution duct.



#### 2. DISTRIBUTION DUCT AND FRESH AIR DUCT HOLE PROCESSING