

3 CONNECTING THE PIPE

5. ADDITIONAL CHARGE

Refrigerant suitable for a piping length of 20 m is charged in the outdoor unit at the factory.
When the piping is longer than 20 m, additional charging is necessary.
For the additional amount, see the table below.

Pipe length	20 m	30 m	g/m
Additional refrigerant (R410A)			
Cooling model	None	300 g	30 g/m
Reverse cycle model	None	400 g	40 g/m

Pipe length	40 m	50 m	g/m
Additional refrigerant (R410A)			
Cooling model	600 g	900 g	30 g/m
Reverse cycle model	800 g	1200 g	40 g/m

CAUTION

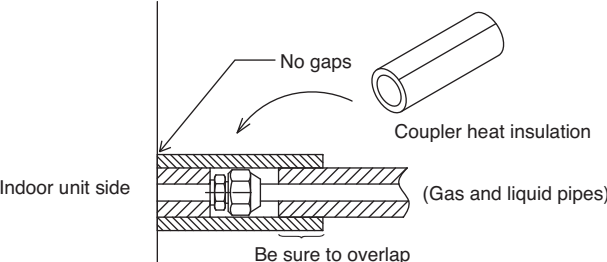
- When moving and installing the air conditioner, do not mix gas other than the specified refrigerant R410A inside the refrigerant cycle.
- When charging the refrigerant R410A, always use an electronic balance for refrigerant charging (to measure the refrigerant by weight).
- When charging the refrigerant, 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 50 m. If the units are further apart than this, correct operation cannot 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)



CAUTION

There should be no gaps between the insulation and the product.

4 POWER

WARNING

- The rated voltage of this product is 400 V 3 ø 50 Hz.
 - Before turning on, verify that the voltage is within the 342 V to 457 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 0.16 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.

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.

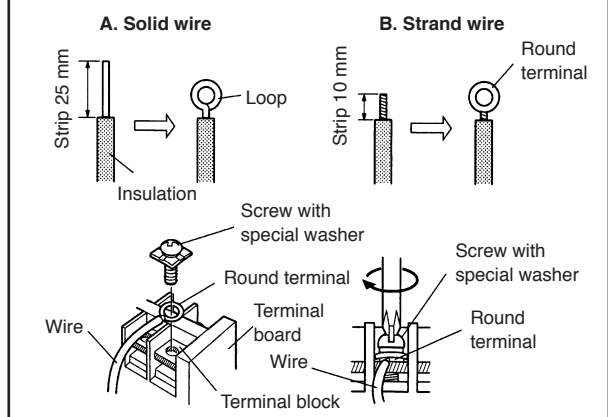
HOW TO CONNECT WIRING TO THE TERMINALS

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 pliers, bend the solid wire to form a loop suitable for the terminal screw.
- Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

B. For strand wiring

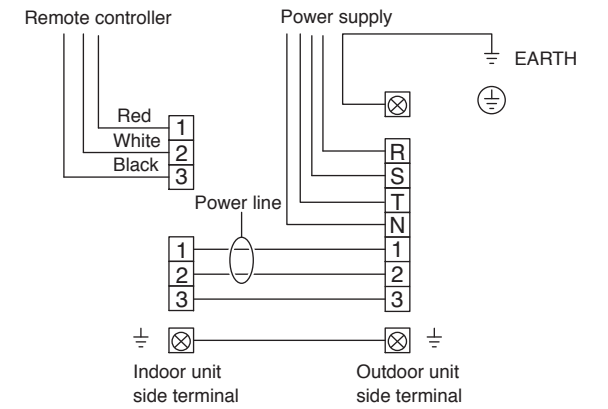
- Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 10 mm to expose the strand wiring.
- Using a screwdriver, remove the terminal screw(s) on the terminal board.
- Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped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



CAUTION

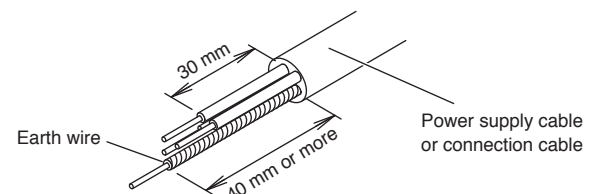
Do not bundle the remote controller cable, or wire the remote controller cable in parallel, with the indoor unit connection wire (to the outdoor unit) and the power supply cable. It may cause erroneous operation.

1. CONNECTION DIAGRAMS



2. CONNECTION CABLE PREPARATION

Keep the earth wire longer than the other wires.

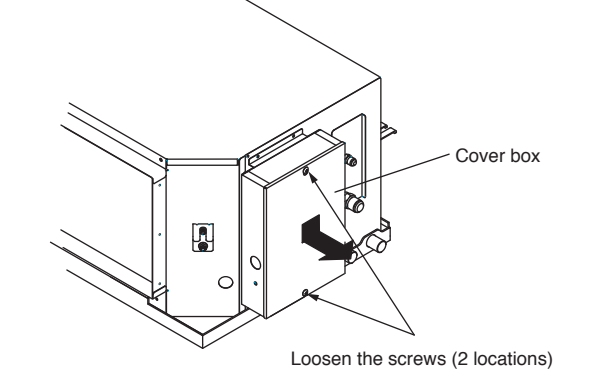


3. INDOOR UNIT

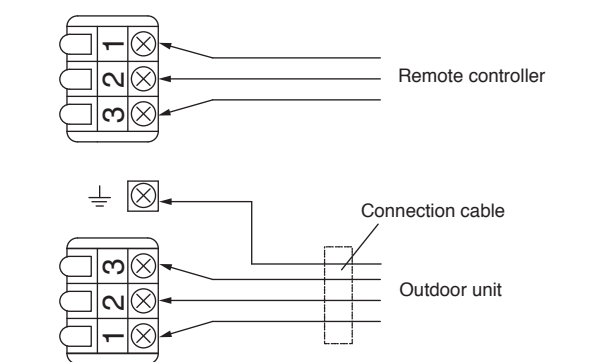
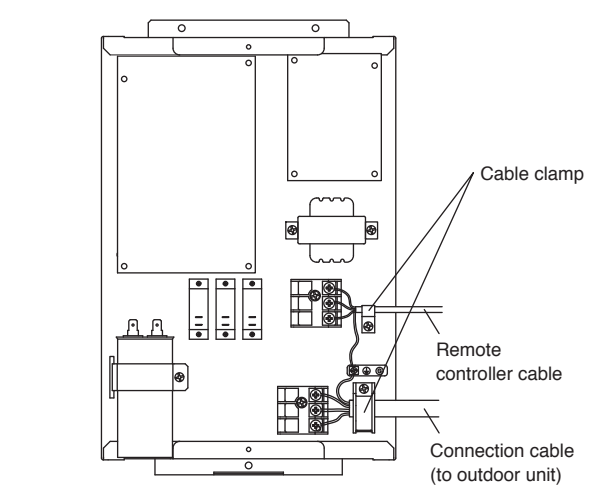
CAUTION

- Use care not to mistake the power supply cable and connection wires when installing.
- Install so that the wires for the remote controller will not come in contact with other connection wires.

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



- After wiring is complete, secure the remote controller cable, connection cable, and power supply cable with the cable clamps.
- Install the control box cover.

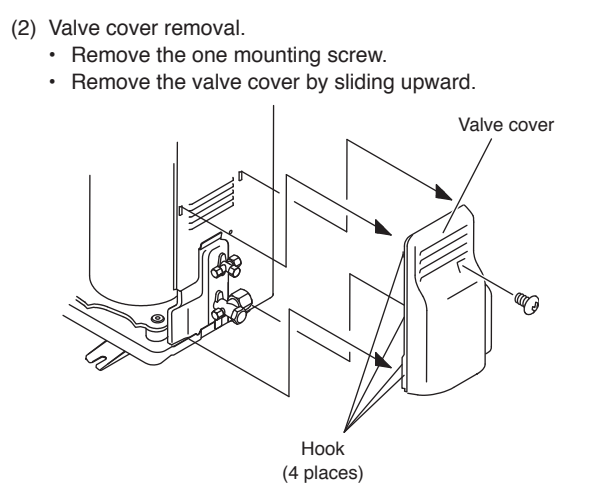
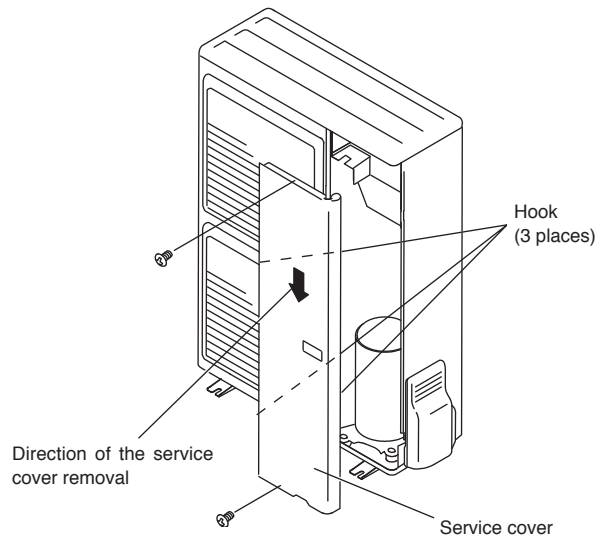


4. OUTDOOR UNIT

CAUTION

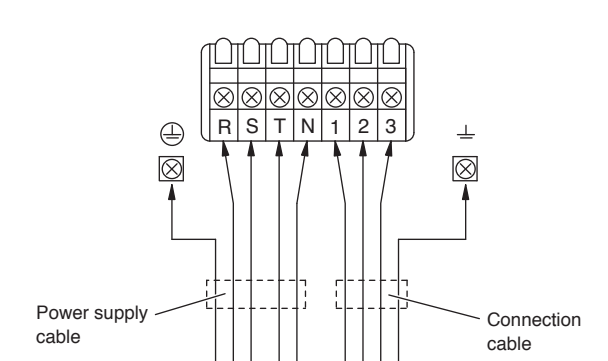
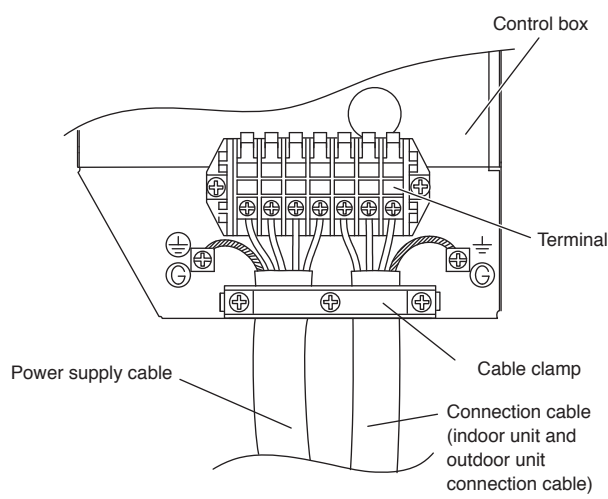
When connecting the power supply cable, make sure that the phase of the power supply matches with the phase of the terminal board. If the phases do not match, the compressor will rotate in reverse and will not be able to compress.

- Service cover removal
 - Remove the two mounting screws.
 - Remove the service cover by pushing downwards.

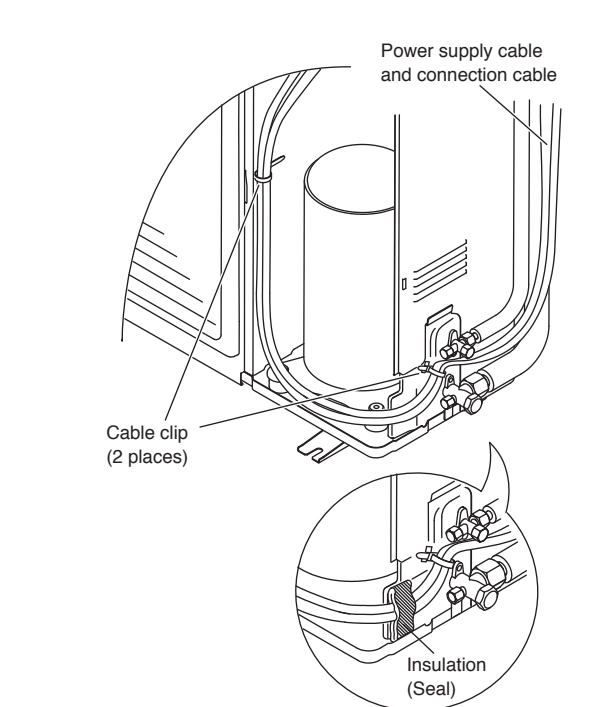


- Connect the power supply cable and the connection cable to terminal.

- Fasten the power supply cable and connection cable with cable clamp.

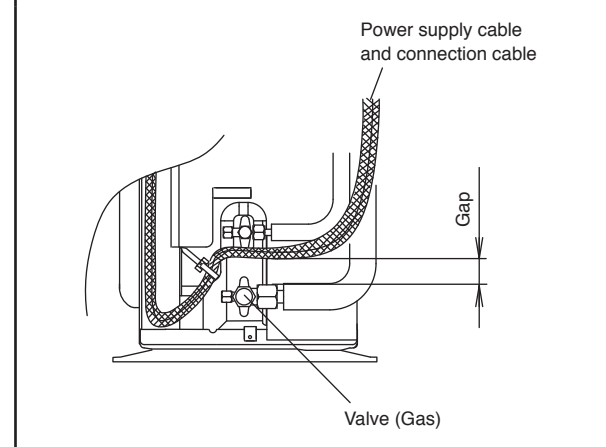


- Power supply cable and connection cable should be fixed with cable clip as shown in the figure. Fill in a gap at the entrance of the cords with insulation (seal).



CAUTION

Do not make power supply cable and connection cable come in contact with valve (Gas).



- Put the service cover and valve cover back after completion of the work.

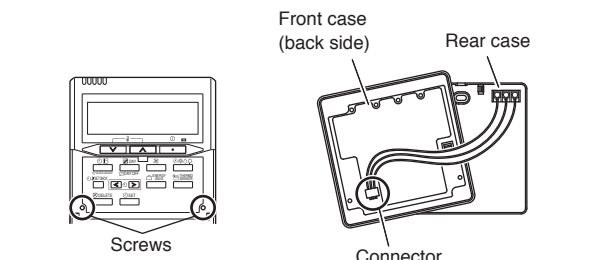
6 REMOTE CONTROLLER SETTING

CAUTION

- 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.

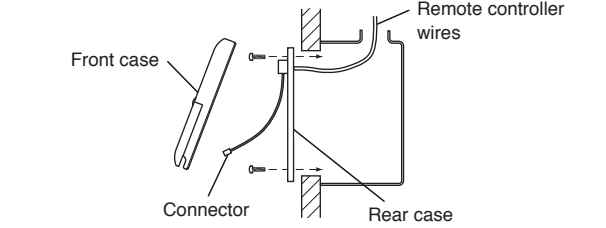
1. INSTALLING THE REMOTE CONTROLLER

- 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 rear case to the wall, etc. with the two tapping screws.
Refer to the following information to install the remote controller wires.

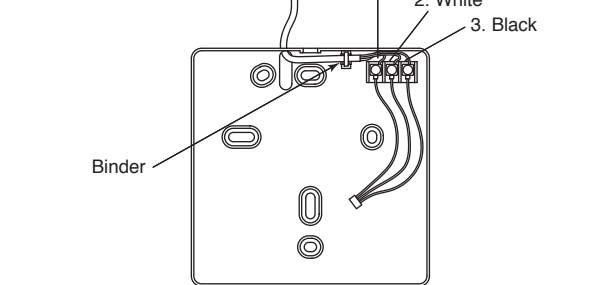


Install the remote controller wires so as not to be direct touched with your hand.

2. ROUTING THE REMOTE CONTROLLER WIRES

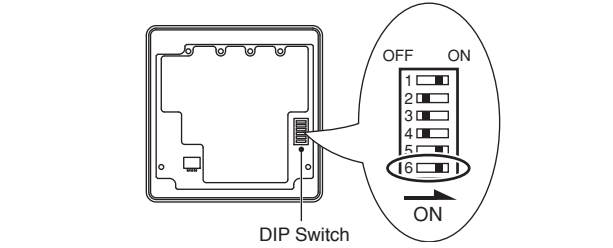
- Install the remote controller wires to the terminals on the top of the rear case as shown in the following figure.
- Fasten the wires with the binder.

(Example)



3. SETTING THE DIP SWITCHES

When using a battery (memory backup)



Change the DIP switch setting to use batteries. (The DIP switch is not set to use batteries at the factory.)
Change DIP switch No. 6 from OFF to ON.
If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

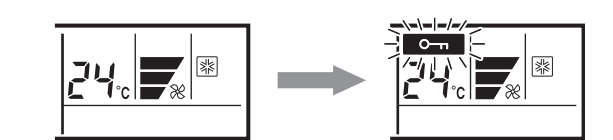
4. SETTING THE ROOM TEMPERATURE DETECTION LOCATION

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.

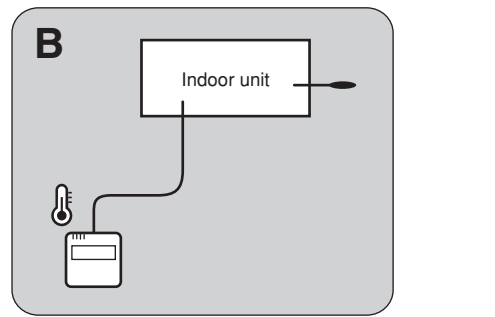
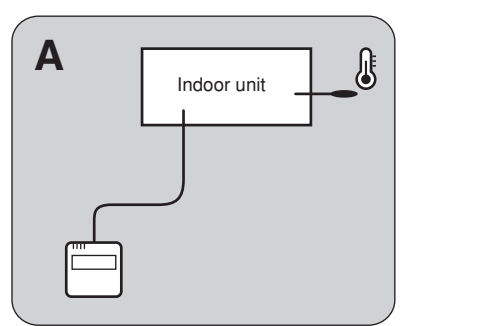
- When the THERMO SENSOR button is pressed, the lock display flashes because the function is locked at the factory.



B. Remote controller setting

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

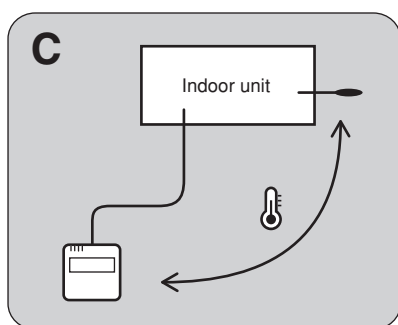
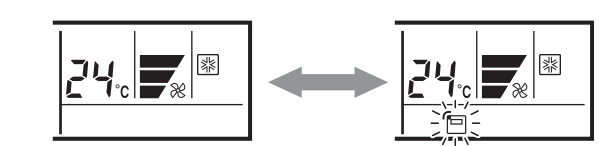
- Press the THERMO SENSOR button for 5 seconds or more to unlock the function. The thermo sensor display flashes and then disappears when the function is unlocked.
- Press the THERMO SENSOR button. The thermo sensor display appears.
- Press the THERMO SENSOR button again for 5 seconds or more to lock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

7 TEST RUN

CAUTION

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

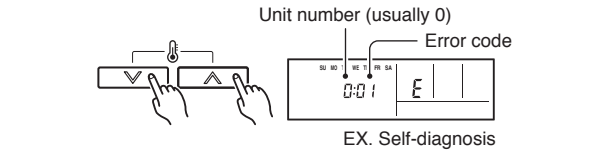
- Stop the air conditioner operation.
- Press the MODE button and the FAN button simultaneously for 2 seconds or more to start the test run.
- Press the START/STOP button to stop the test run.

[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 A/V 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 A/V 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

Error code	Error contents
0C	Discharge pipe temperature sensor or compressor temperature sensor open
0d	Discharge pipe temperature sensor or compressor temperature sensor short-circuited
0E	Outdoor high pressure error
0F	Discharge pipe temperature or compressor temperature error
11	Model error
12	Indoor fan error
13	Outdoor signal error
14	Outdoor EEPROM error

2. OUTDOOR UNIT LEDS

Heat & Cool model (reverse cycle) only

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.

LED1	LED2	Error contents
flash	flash	Model abnormal or EEPROM error
1 flash	Lighting	Power source connection error
2 flash	Lighting	Discharge temp. sensor error
3 flash	Lighting	Heat exchanger temp. sensor error
4 flash	Lighting	Outdoor temp. sensor error
5 flash	Lighting	Communication signal error
6 flash	Lighting	Indoor unit error
7 flash	Lighting	Discharge temp. error
8 flash	Lighting	High pressure error
9 flash	Lighting	Compressor temp. error
10 flash	Lighting	Compressor temp. sensor error
	Dislighting	No error. Protect operation

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.

8 SPECIAL INSTALLATION METHODS

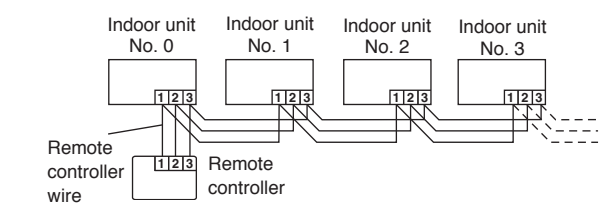
CAUTION

- 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

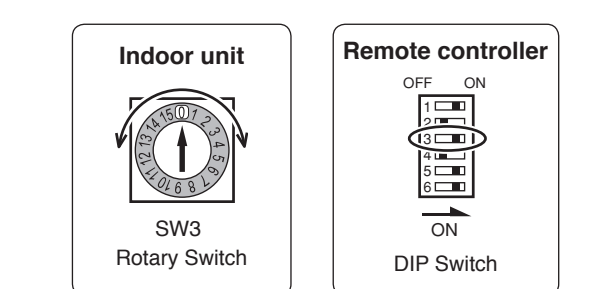
A number of indoor units can be operated at the same time using a single remote controller.

- Wiring method (indoor unit to remote controller)



- Rotary switch setting (indoor unit)
Set the unit number of each indoor unit using the rotary switch on the indoor unit circuit board. The rotary switch is normally set to 0.

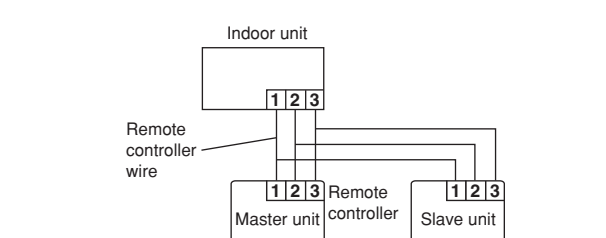
- DIP switch setting (remote controller)
Change DIP switch No. 3 on the remote controller from OFF to ON.



2. DUAL REMOTE CONTROLLERS (OPTIONAL)

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

- Wiring method (indoor unit to remote controller)



[DIP-SWITCH SETTING]

Indoor unit

	NO.	SW state		Detail
		OFF	ON	
SW2 DIP- Switch	1	— *	—	Remote sensor setting
	2	Edge *	Pulse	Control input setting
	3	Validity *	Invalidity	Auto restart setting

Remote controller

	NO.	SW state		Detail
		OFF	ON	
DIP-Switch	1		*	Dual remote controller setting
	2	*		
	3	One unit *	Multiple unit	Group control setting
	4	Heat & Cool model	Cooling only model	Model setting
	5	Invalidity	Validity *	Auto changeover setting
	6	Invalidity *	Validity	Memory backup setting

*: Factory setting