INSATALLATION MANUAL FOR A-M CONVERTER

PAC-SJ19MA-E

For models in which this component is used, see the separate sheet.

SAFTY PRECAUTIONS

- Before starting installation, read the "Safety Precautions" described below.
- The following precautions must be observed as it describes the serious matters for safety.
- The safety precautions are described with the degree of danger.

⚠ WARNING	When you handle wrong, it can lead to death or serious injury.
⚠ CAUTION	When you handle wrong, it can lead to injury or damage to building and furniture.

- After installation, make test operation and confirm that it works properly, and explain the safety precautions, operation method, and maintenance to your customers. Tell your customers to keep this installation manual together with operation manual with them, and when they give or sell this machine to other person put this installation manual and operation manual with it.

⚠ WARNING

The installation must be done by dealer or qualified person.
- If the customers do the installtion by themselves and it is not perfectly installed it can cause water leak, electric shock, or fire.

The installation must be done in accordance with this manual.
- If the installation is not perfectly done, it can cause water leak, electric shock, or fire.

Never try any modification.
- For repair, ask your dealer. If the machine is modified or repaired unperfectly, it can cause water leak, electric shock, or fire.

Never move or reinstall the machine by the customers.
- If the installation is not perfectly done, it can cause water leak, electric shock, or fire. Ask your dealer or qualified person.

The wiring must be securely done by using proper cable. The wires should be connected to the terminals not to have external force of the cable.
- Unperfect connections can cause heat or fire.

The terminal cover (panel) of the unit must be installed securely.
- Unperfect installation can cause fire or electric shock by dust or water.

The electric installation must be done by qualified person in accordance with this installation manual. Use the separate circuit only for this machine and use rated voltage and circuit breaker.
- If the electric circuit power is not sufficient or the wiring is not properly done, it can cause electric shock or fire.

Before electric wiring.

⚠ CAUTION

Install a circuit breaker depending upon the location.
- Without a circuit breaker, it can cause electric shock.

Use standard wires which meet current capacity.
- Otherwise, it can cause short-circuit, heat, or fire.

Wires must not have tension.
- It can cause snipping, heat, or fire.

Put ground wire.
- Never ground to gas pipe, water pipe, lightning conductor, or telephone ground wire. Unperfrect ground can cause short-circuit.

Use proper fuses
- If you use larger size fuses or needle wire, it can cause failure or fire.

Before test operation.

⚠ CAUTION

Turn the power on 12 hours or more before operation.
- If you start operation as soon as the power on, it can cause failure. Never turn the power off during season.

Never operate the machine without panel or guard off.
- It can cause serious injury being caught by rotating part or burns or electric shock by high voltage part.

Never operate the machine without air filter off.
- It can cause failure by dust.

Never operate the switches with your hand wet.
- It can cause electric shock.

Never touch refrigerant pipes while the machine running.
- The refrigerant pipes becomes high and low temperature while the machine running. If you touch the pipes by hand, it can cause chilblain or burn.

Never turn the power off as soon as the machine stops.
- Wait for 5 minutes or more. It can cause water leaks or failure.

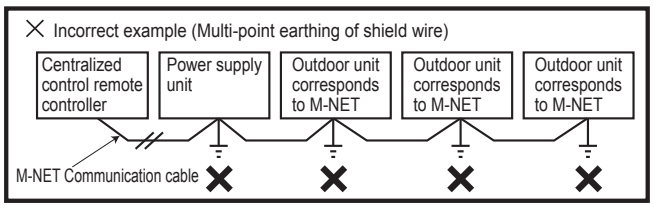
Wiring M-NET communication cable

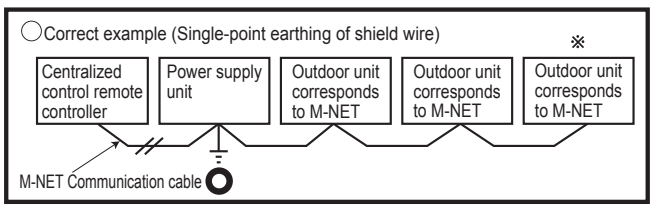
⚠ CAUTION

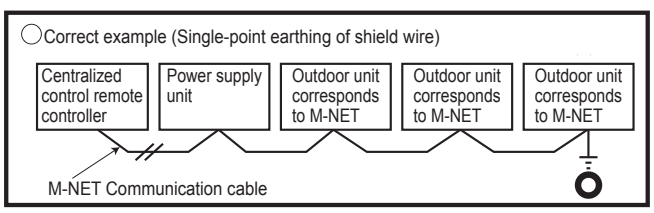
Earth the shield wire of M-NET communication cable at only one point of the connected devices.

- Failure to do so may result in communication error due to noise.
  Outdoor unit digital LED indicator reads “Ed” "A7" error.
  Centralized control remote controller reads “0403” "6607" error.

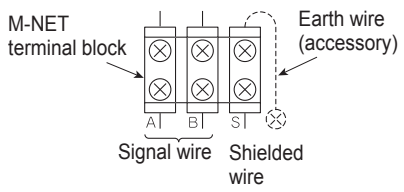
If the shield wire is earthed at two points or more, a circuit is formed between the earth and the shield wire.
A potential difference will occur due to the difference in electrical impedance between the earths, which may cause noise in the shield wire.
If the shield wire is earthed at one point only, the circuit will not be formed and noise will not generate.
To prevent communication error due to noise, earth the shield wire at one point only.



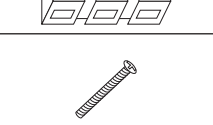
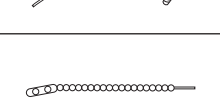
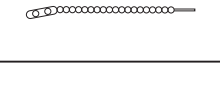




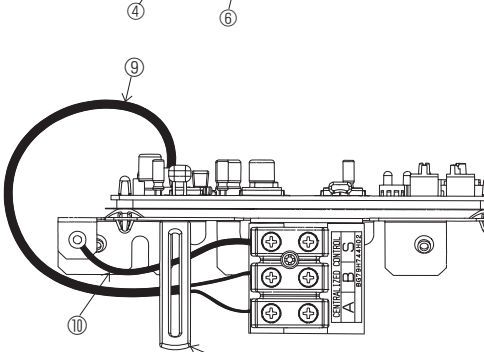
※ In case that the outdoor unit is grounded, connect the ground wire supplied as accessory to the S terminal (secondaly) of M-NET terminal block and M-NET Ground terminal inside of electric box with using screws supplied.



1. Parts list

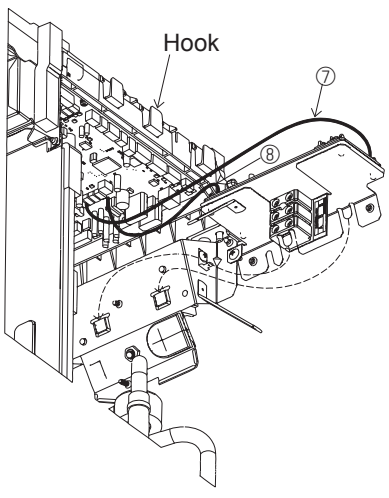
No.	Description	Figure	Q'ty	No.	Description	Figure	Q'ty
①	M-NET board (with insulation sheets and supports)		1	⑦	Lead wire (5 wires) for signals	 length: 280mm	1
②	Mounting plate (M-NET board)		1	⑧	Lead wire (3 wires) for power supply	 length: 300mm	1
③	Screw (M4×8)		2	⑨	Lead wire (M-NET)	length: 280mm	1
④	Terminal block (M-NET)		1	⑩	Earth wire and screw (M4×8)		1 each
⑤	Terminal screw (M3×20)		1	⑪	Cable tie		2
⑥	Label		1				

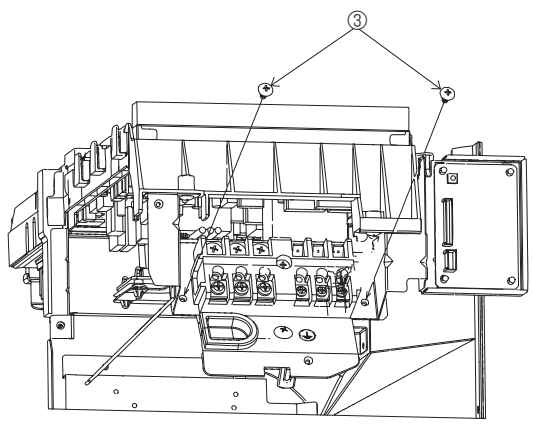
2. Installation procedures [Applicable models: Group A]



(1) Attach the M-NET board ① to the mounting plate ② as shown in the picture.
(2) Fix the terminal block ④ on the mounting plate ② with the screw ⑤.
※ For positioning the terminal block ④, place the boss on the terminal block ④ through the hole on the sheet metal.
(3) Attach the label ⑥ to the side of the terminal block ④ as shown in the picture.
(4) Use the lead wire ⑨ to connect CN2M on the M-NET board to the terminals A and B. (non-polarized)
※ The screws on the terminal block should be tight.
※ If connecting the earth wire ⑩, perform it in this step.
(5) Fix the lead wire with the clamp on the back of the mounting plate ②.
(6) Use the lead wire ⑦ to connect CN5 on the M-NET board to CNMNT on the outdoor control board.
※ To facilitate the connection, disconnect the wires in front of the control board and remove the clamp(s) on the wires coming out of the compressor in advance.
(7) Use the lead wire ⑧ to connect CND on the M-NET board to CNVMNT on the outdoor control board.
(8) Hook the mounting plate ② on the back of sheet metal on which the terminal block(s) for the power cord and the indoor and outdoor connecting cable are mounted, and fix the mounting plate ② with the screws ③.
(9) Fix the lead wire ⑦ by passing the lead wire ⑦ through the hook on the board casing.
(10) Bundle the lead wires ⑦ and ⑧ together with the cable tie ⑪ if necessary.

Note1: Connect the shield wire of M-NET communication cable to the earth wire and screw ⑩ if necessary.
Note2: Connect the wires as they were If any of the wires are disconnected during installation.
Note3: Take great care not to pinch the lead wire when installing panels.





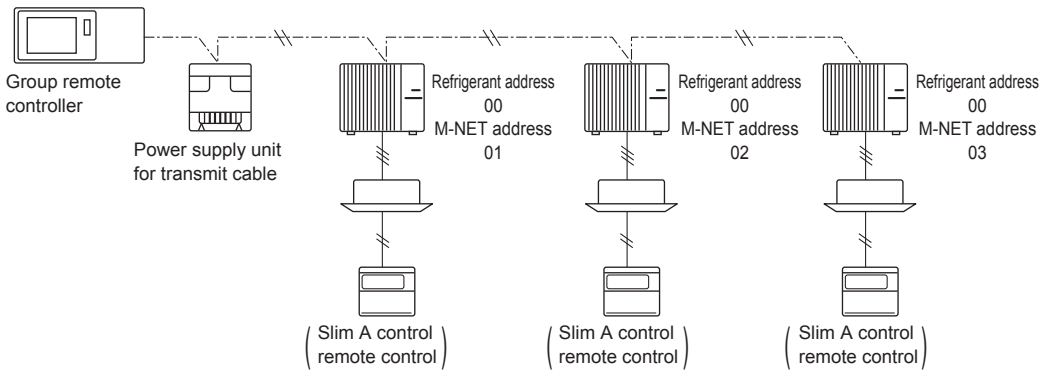
3. Wiring method for M-NET

(1) Attention

① Outside of the unit, the wires for transmission (called for transmit wires later) should keep away (5 cm or more) from power cable not to receive electric noise. (Never put the transmit wires and power cable in the same cable pipe.)

② Never supply voltage 220V-240V to the terminals (TB7) for transmission. If the voltage is supplied, it can break the electronic parts on the M-NET board.

③ Use the shielded cable (CVVS, CPEVS) of 1.25mm square thickness with 2 wires for the transmission cable. Never use transmit wires of different system with a cable which contains multi wires. The communication of transmit signals will not work properly and it can cause wrong operation.



Between the outdoor units, it is OK that only M-NET wiring (2 wires, no polarity) is done.

(2) M-NET address setting

Make M-NET setting and refrigerant address setting on only outdoor unit.
There is no address settings for outdoor unit and remote controller like City Multi system.
The M-NET address setting for taking into centralized control system should be done only to the outdoor unit.
The address set number should be 1-50 same as for City Multi indoor unit and make set in order of number for the same group.

	A control slim	City Multi (M-NET)
Indoor unit	—	1~50
Outdoor unit	1~50	51~100
Remote controller	—	101~150
System controller	201~250	
Group remote controller	201~250	

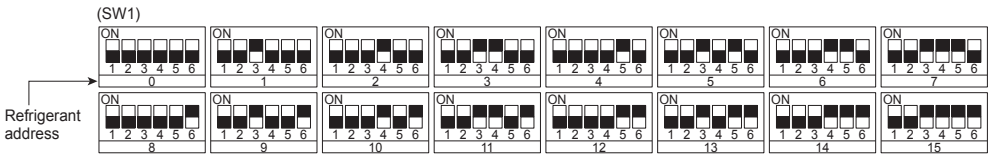
The setting should be done by rotary switches SW11 (1st digit) and SW12 (2nd digit) on M-NET board of the outdoor unit. (Factory settings are all zero.)

[Example]

M-NET address No.		1	2	~	50
Switch setting	SW11 (1st digit)				
	SW12 (2nd digit)				

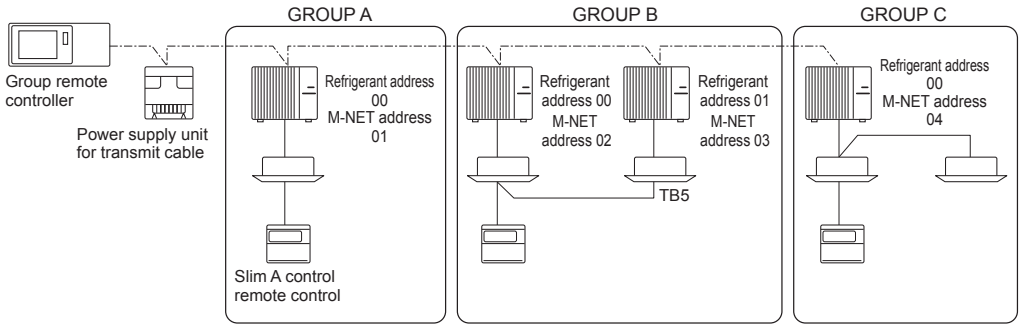
(3) Refrigerant address setting

In case that the A control Slim is set for group between different refrigerant (when multiple refrigerant system is set in one group), it is necessary to make refrigerant address setting besides the wiring for remote controller (TB5) between the indoor untis.
In case that the group setting is not done, be sure to leave the refrigerant address set for 00. The refrigerant address is set by dip switch SW1 (3-6) on the outdoor controller of the outdoor unit.
Factory settings are all OFF (Refrigerant address 00).

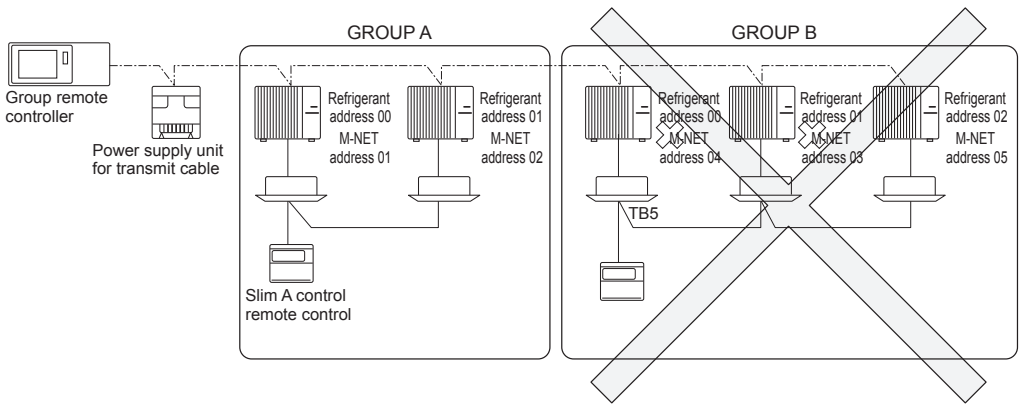


(4) Limitation for address settings

In case of group operation, the M-NET address settings and the refrigerant address settings should be done with the procedure above. However, make the minimum M-NET address settings in the group for the outdoor unit which has the refrigerant address 00.



※It does not matter if the refrigerant address settings are same with the different group.



※ It is not good with the above setting in the group B because the outdoor unit which has the refrigerant address 00 does not have the minimum M-NET address 3 in the group. Make the outdoor unit of the refrigerant address set with the minimum address in the group like the group A.

(5) Switch 1-2 setting

SW1-2 Selection	Function	Function details	Initial setting	Effective timing
ON SW1 ■ is the switch position.	Turn the switch ON when MA remote controller or wireless remote controller is connected to indoor unit. converter: M-NET board MA RC : MA remote controller RC : wireless remote controller	<FUNCTION> Set the connection of MA-remote controller or wireless remote controller to the indoor unit. ON : exist (initial setting) OFF : not exist <NOTE> In case of switch is ON, transmission error between converter and M-NET remote controllers does not be detected, and converter operates continuousl	ON	Always
OFF SW1 ■ is the switch position.	Turn the switch OFF when MA remote controller or wireless remote controller is NOT connected to indoor unit. converter: M-NET board M-NET RC: M-NET remote controller			

M-NET board