

**LOW AMBIENT COOLING PARTS (FAN CONTROLLER)
for MITSUBISHI ELECTRIC AIR CONDITIONERS**

PAC-205FC



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Note

1. Please read this manual to have the correct, safe install before installation.
2. The customer must not install and not transfer the unit by themselves.
(Safety and the function cannot be secured.)

1. Safety precautions.

Danger and the extent caused when wrong handling is done are divided by displaying  warning and  attention and are explained.

Before operating the unit, make sure you read all the "Safety precautions".
"Safety precautions" lists important points about safety. Please be sure to follow them.
This equipment may be not applicable to EN61000-3-2:1995 and EN61000-3-3:1995. This equipment may cause the adverse effect on the same supply system. Please report to or take consent by the supply authority before connection to the system.

The display and its meaning are given below.	
 Warning	Erroneous handling gives a high possibility to induce serious results such as death or heavy injury.
 Caution	Erroneous handling may induce serious injury depending on the situation.

Warning.

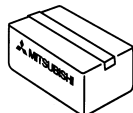
Carefully read the labels affixed to the main unit.

1.1 Before installation.

The Installation Manual details the suggested installation method. Any structural alteration necessary for installation must comply with local building code requirements.

The unit should not be installed by the user. (Safety and the function cannot be secured)

Please do installed construction after stopping the unit.



Warning.


- Ask your dealer or specialized subcontractor for installation.
Conducting installation work by yourself improperly may cause a fire, electric shock or water leakage.
- For installation, conduct the work correctly by following the Installation Manual.
Improper installation may cause a fire, electric shock or water leakage.
- Arrange the configuration of wiring not to bring up the panel and terminal cover, and fasten the panel and terminal cover securely.
The poor mounting of the panel or terminal cover may cause the heat generation of the terminal connection, a fire or electric shock.
- Use only the specified cables for wiring. The connections must be made secured without tension the terminals.
Improper connection or fastening can cause a fire or electric shock.
- All electric work must be performed by licensed technician, according to local regulations and the instructions given in this manual.
Power lines with insufficient capacity or improper electric work may result in electrical shock or fire.
- Never repair the unit, remodel or transfer it to another site by yourself.
If they are performed improperly, electric shock or fire may result.
If you need to have the unit repaired or moved, consult your dealer.
- The terminal block cover of unit must be firmly attached to prevent entry of dust and moisture.
Improper mounting of the cover cause electric shock or fire.

Caution.

1) Before doing electrical work.

- When installing the power lines, do not apply tension to the cables.
The tighten or loosen the connections may cause generate heat and cause fire.
- For the power lines, use standard cables of sufficient current capacity.
Otherwise, current leakage, overheating or fire may occur.

2) Before constructing the installation or transfer.

- Do not touch the metal edges inside the unit without wearing glove on your hands.
Touching directly it may injure your hands. 
- Do not wash the unit with water.
If washed with water, electric shock may be caused.
- Do not use the unit under a special atmosphere.
Installing the unit at the following places may cause a trouble, a place where is much machine oil, salt, humidity or dust, spa district, a place full of sulfur gas, volatile gas, or corrosive gas, a place near high frequency processing machine.
- For special use as for foods, animals/plants, precision equipment or art objects, the applicability should be confirmed earlier.

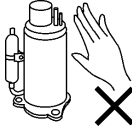
As the use for the applications other than that designed originally may result in the deterioration of the quality.
Consult your dealer in this regard.



- When the unit is installed at telecommunication centers or hospitals, take a proper provision against noise.

The erroneous operation of air conditioner may be induced by inverter equipment, independent power device, medical equipment or communication equipment.

3) Before starting.

- Do not touch the compressor or refrigerant piping without wearing glove on your hands.
Touching directly such the parts can cause a burn or frostbite as it becomes high or low temperature according to the refrigerant state. 
- At emergency (if you smell something burning), stop operation and turn the power source switch off.
Continuing the operation without eliminating the emergency state may cause a machine trouble, fire, or electric shock.

2. Outline

This fan controller apply to following units.

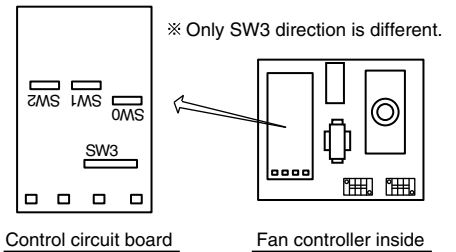
Model name	Q'TY	Model name	Q'TY
PUH-5,8,10 (side blow)	1 set	PUH-15,20	2 set
PUH-7,8,10 (upper blow)		PRG-15,20	
PU-7,8,10		PRHG-15,20	
PRG-8,10			
PRHG-8,10			

These units can be operated on cooling mode at the low ambient temperature with this optional FAN CONTROLLER. Please read carefully this manual and install following this.

3. Caution

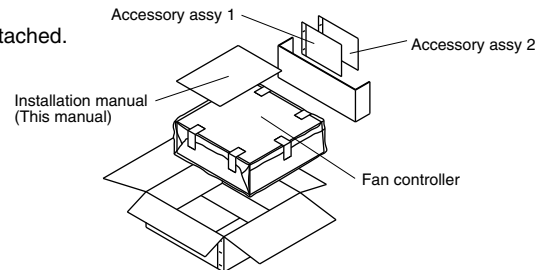
- Fan controller changes the outdoor fan speed.
Strong wind is injurious to fan speed controller.
Please install the windproof when unit is influenced by strong wind such as install it on the place there is no building in surrounding or the rooftop
- As the case may be the operation with FAN CONTROLLER generate an electromagnetic sound from fan motor.
Please consider the soundproofing wall equipment etc. when using the fan controller in the place where the noise becomes a problem.
There is no worry which interferes to the unit though an electromagnetic sound might be generated from fan motor.
- When shipping the fan controller, the dip switch on the control circuit board is set as follows.
Do not change factory set of all dip switches.

SW0	SW1	SW2	SW3
<p>(3,4 ON)</p>	<p>(All OFF)</p>	<p>(1,3 ON)</p>	<p>(1,3,4,5,6 ON)</p>



4. Parts

There are the following parts in this box, and confirm whether there are all attached.
There are two kinds of wiring sticker in this box.
Please select the pertinent one by model name.



Accessory assy 1

Name	Wiring sticker	Screw	Connector cap	Spring	Earth sticker	Grommet
Shape						
Amount	2	12	1	1	1	2

Accessory assy 2

Name	Attachment	Attachment	Attachment	Pipe cover	Band	Connector assy
Shape						
Amount	1	1	3	3	15	1

5. Installation

5-1. PU(H)-7,8,10

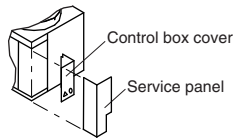
Please use the following parts during installation of fan controller.

There are two kinds of wiring sticker, please use writing as "ONLY PU(H)-7,8,10".

Use	Accessory assy 1					Accessory assy 2				
	① Wiring sticker	② Screw	③ Connector cap	④ Spring	⑤ Earth sticker	⑥ Grommet	⑦ Attachment	⑧ Pipe cover	⑨ Band	⑩ Connector assy
ONLY PU(H)-7,8,10										
	1	9	1	1	1	2	3	3	15	1
Not use	Accessory assy 1		Accessory assy 2							
	Wiring sticker	Screw	Attachment	Attachment						
	1	3	1	1						

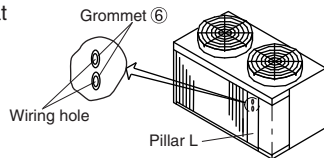
5-1-1. Install

1. The service panel and control box cover are removed.

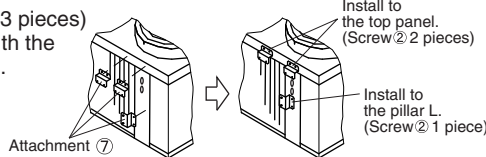


2. Penetrate the knockout holes at the pillar L.

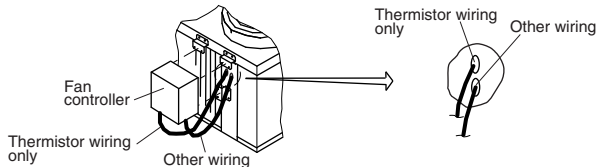
The grommet ⑥ (2 pieces) install to the hole for wiring in the pillar L.



3. The attachment ⑦ (3 pieces) install to the unit with the screw ② (6 pieces).

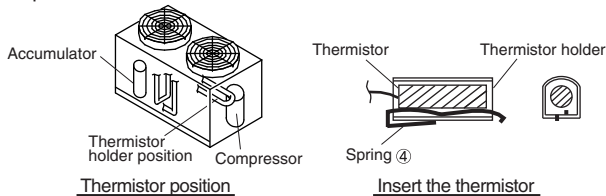


4. Wiring from the fan controller is passed through the hole of procedure 2. The thermistor and other wiring should use separate wiring hole. The fan controller install to the attachments with the screw ② (3 pieces).

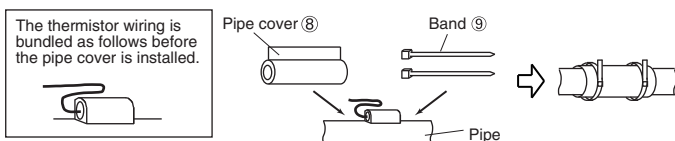


5. Confirm the thermistor holder position. The spring ④ insert in the thermistor holder.

The thermistor (black wiring) which is connected to the fan controller is put in the holder.

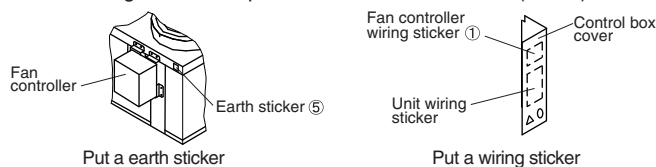


6. Please use the pipe cover ⑧ (1 piece) and fix with the band ⑨ (2 pieces).



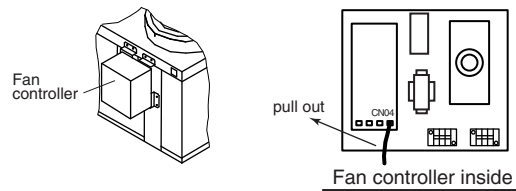
7. The earth sticker and wiring sticker are put on the following place.

1. The earth sticker ⑤ is put on the top panel.
2. The wiring sticker ① is put on the control box cover (inside).

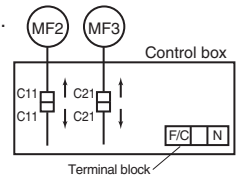


5-1-2. Wiring

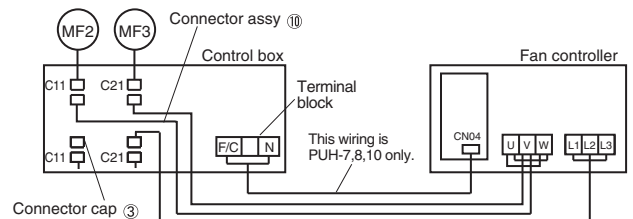
1. The wiring from the printed circuit board CN04 is pulled out. (In case of PU-7,8,10 only)



2. Disconnect connector C11 - C11 and C21 - C21. The connector C11 and C21 remove to the motor side and the control box side.

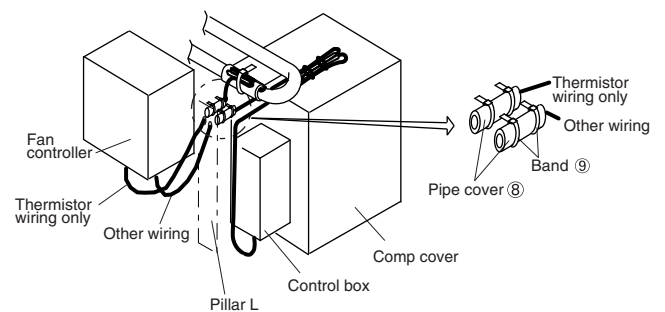


3. Cover the connector C11 (control box side) is cap with the connector cap ③. The connector assy ⑩ connect as shown in the figure below. When it is connected, the connector is connected in the control box. The wiring from CN04 connect to the terminal block (F/C, N) in the control box. (In case of PUH-7,8,10 only)



Please be careful, do not damage wires by the sheet metal edges or the fin, etc.

4. After connect wiring, to prevent wiring being damaged with the fin, the pipe cover ⑧ (2 pieces) and band ⑨ (4 pieces) are used. In that time, never bundle the thermistor wiring with other wiring.



5. After wiring ends, the wiring is bundled with a remaining band. Never bundle the thermistor and other wiring together.

6. Ensure there is not wiring mistake found, then only install the controller box cover and service panel.

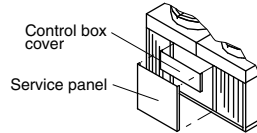
5-2. PUH-15,20

Please use the following parts during installation of fan controller. There are two kinds of wiring sticker, please use writing as "W881927". The fan controller is necessary for these models by two sets. (The following accessory parts show the fan controller one set.)

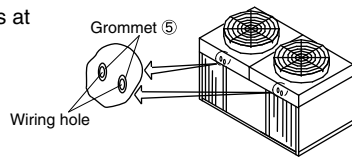
Use	Accessory assy 1					Accessory assy 2		
	① Wiring sticker	② Screw	③ Spring	④ Earth sticker	⑤ Grommet	⑥ Attachment	⑦ Pipe cover	⑧ Band
	1	5	1	1	2	1	3	15
Not use	Accessory assy 1			Accessory assy 2				
	Wiring sticker	Screw	Connector	Attachment	Attachment	Connector assy		
	ONLY PU(H)-7,8,10							
	1	7	1	1	3	1		

5-1-1. Install

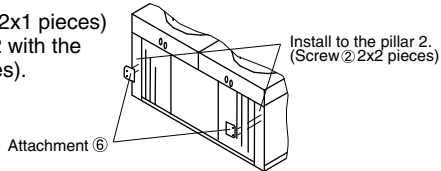
- The service panel and control box cover are removed.



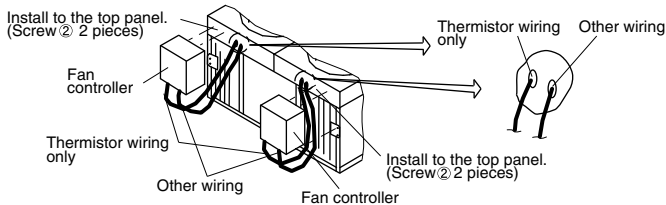
- Penetrate the knockout holes at the top panel. The grommet ⑤ (2x2 pieces) install to the hole for wiring in the top panel.



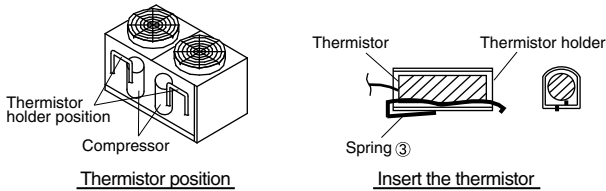
- The attachment ⑥ (2x1 pieces) install to the pillar 2 with the screw ② (2x2 pieces).



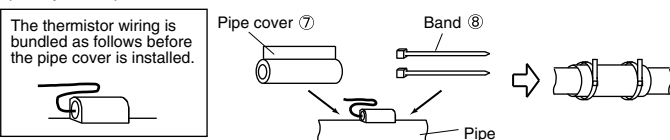
- Wiring from the fan controller is passed through the hole of procedure 2. The thermistor and other wiring should use separate wiring hole. The fan controller install to the attachments with the screw ② (2x1 pieces) and install to the top panel with the screw ② (2x2 pieces).



- Confirm the thermistor holder position. (2 places) The spring ③ (2x1 pieces) insert in the thermistor holder. The thermistor (black wiring) which is connected to the fan controller is put in the holder.

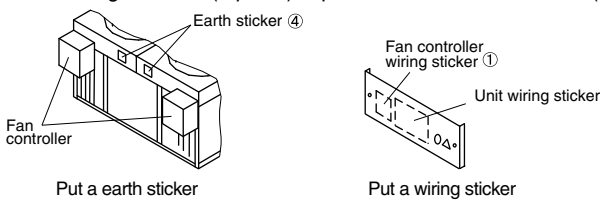


- Please use the pipe cover ⑦ (2x1 pieces) and fix with the band ⑧ (2x2 pieces).



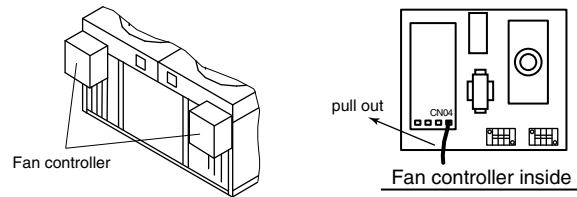
- The earth sticker and wiring sticker are put on an following place.

- The earth sticker ④ (2x1 pieces) is put on the top panel.
- The wiring sticker ① (1 piece) is put on the control box cover (inside).

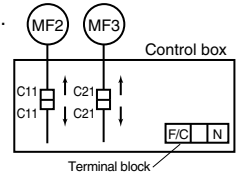


5-1-2. Wiring

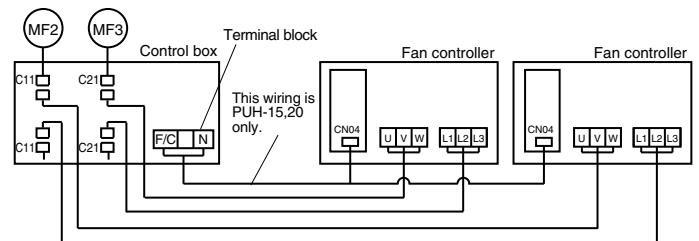
- The wiring from the printed circuit board CN04 is pulled out. (In case of PR-15,20 only)



- Disconnect connector C11 - C11 and C21 - C21. The connector C11 and C21 remove to the motor side and the control box side.

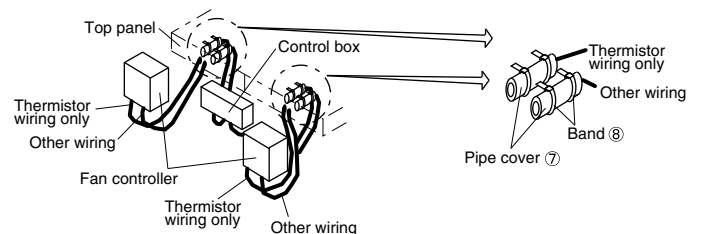


- When the fan controller is installed, the connector is connected in the control box. The wiring from CN04 connect to the terminal block (F/C, N) in the control box. (In case of PUH-15,20)



Please be careful, do not damage wires by the sheet metal edges or the fin, etc.

- After connect wiring, to prevent wiring being damaged with the fin, the pipe cover ⑦ (2x2 pieces) and band ⑧ (2x4 pieces) are used. In that time, never bundle the thermistor wiring with other wiring.



- After wiring ends, the wiring is bundled with a remaining band. Never bundle the thermistor and other wiring together.

- Ensure there is not wiring mistake found, then only install the controller box cover and service panel.

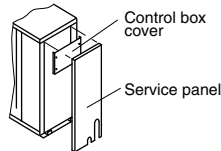
5-3. PUH-5,8,10 (Side blow type)

Please use the following parts during installation of fan controller.
There are two kinds of wiring sticker, please use writing as "W881927".

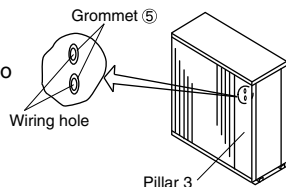
Use	Accessory assy 1				Accessory assy 2		
	① Wiring sticker	② Screw	③ Spring	④ Earth sticker	⑤ Grommet	⑥ Pipe cover	⑦ Band
	1	3	1	1	2	3	15
Not use	Accessory assy 1				Accessory assy 2		
	Wiring sticker	Screw	Connector	Attachment	Attachment	Attachment	Connector assy
	ONLY PU(H)-7,8,10						
	1	9	1	1	1	3	1

5-1-1. Install

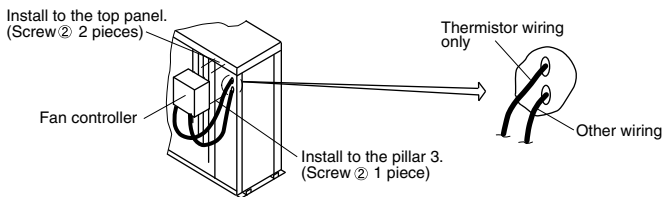
1. The service panel and control box cover are removed.



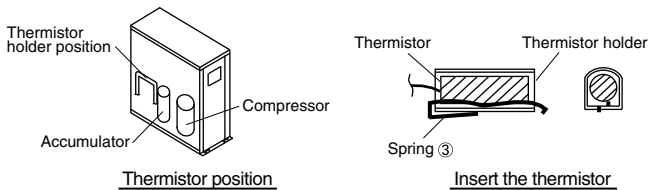
2. Penetrate the knockout holes at the pillar 3.
The grommet ⑤ (2 pieces) install to the hole for wiring in the pillar 3.



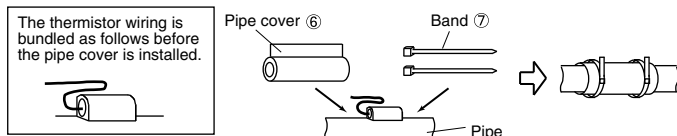
3. Wiring from the fan controller is passed through the hole of procedure 2.
The thermistor and other wiring should use separate wiring hole.
The fan controller install to the pillar 3 with the screw ② (1 piece) and install to the top panel with the screw ② (2 pieces).



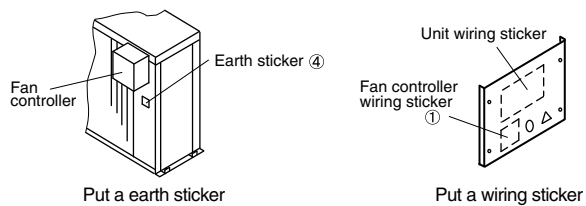
4. Confirm the thermistor holder position.
The spring ③ insert in the thermistor holder.
The thermistor (black wiring) which is connected to the fan controller is put in the holder.



5. Please use the pipe cover ⑥ (1 piece) and fix with the band ⑦ (2 pieces).

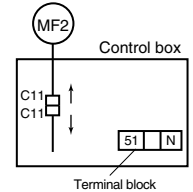


6. The earth sticker and wiring sticker are put on an following place.
 1. The earth sticker ④ is put on the pillar 3.
 2. The wiring sticker ① is put on the control box cover (inside).

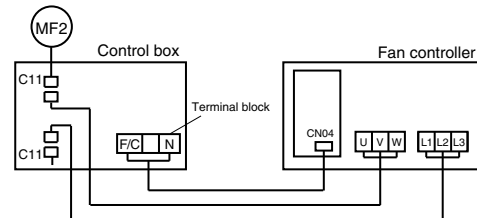


5-1-2. Wiring

1. Disconnect connector C11- C11.
The connector C11 removes to the motor side and the control box side.

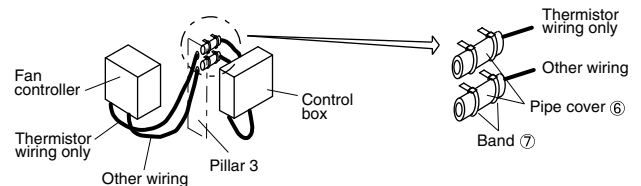


2. When the fan controller is installed, the connector is connected in the control box.
The wiring from CN04 connect to the terminal block (F/C, N) in the control box.



Please be careful, do not damage wires by the sheet metal edges or the fin, etc.

3. After connect wiring, to prevent wiring being damaged with the pipe header, the pipe cover ⑥ (2 pieces) and band ⑦ (4 pieces) are used.
In that time, never bundle the thermistor wiring with other wiring.



4. After wiring ends, the wiring is bundled with a remaining band.
Never bundle the thermistor and other wiring together.

5. Ensure there is not wiring mistake found, then only install the controller box cover and service panel.

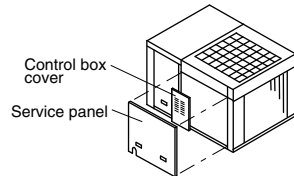
5-7. PRG-8,10

Please use the following parts during installation of fan controller.
There are two kinds of wiring sticker, please use writing as "W881927".

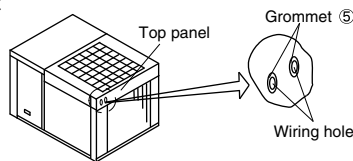
Use	Accessory assy 1				Accessory assy 2		
	① Wiring sticker	② Screw	③ Spring	④ Earth sticker	⑤ Grommet	⑥ Pipe cover	⑦ Band
	1	3	1	1	2	3	15
Not use	Accessory assy 1				Accessory assy 2		
	Wiring sticker	Screw	Connector	Attachment	Attachment	Attachment	Connector assy
	ONLY PU(H)-7,8,10						
	1	9	1	1	1	3	1

5-1-1. Install

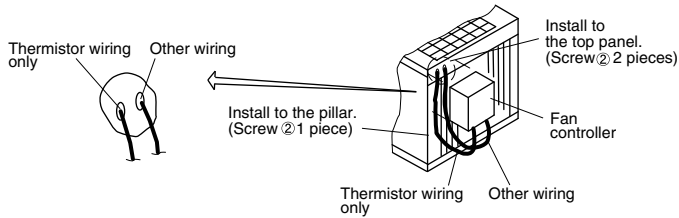
- The service panel and control box cover are removed.



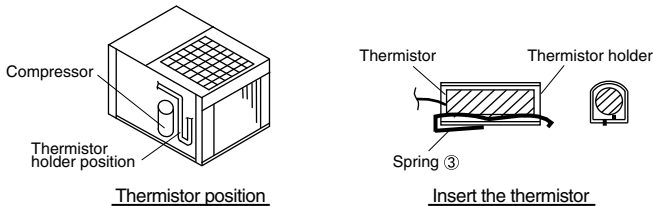
- Penetrate the knockout holes at the top panel.
The grommet ⑤ (2 pieces) install to the hole for wiring in the top panel.



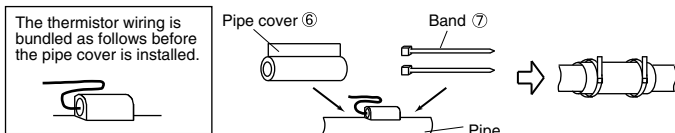
- Wiring from the fan controller is passed through the hole of procedure 2. The thermistor and other wiring should use separate wiring hole. The fan controller install to the top panel with the screw ② (2 pieces) and install to the pillar with the screw ② (1 piece).



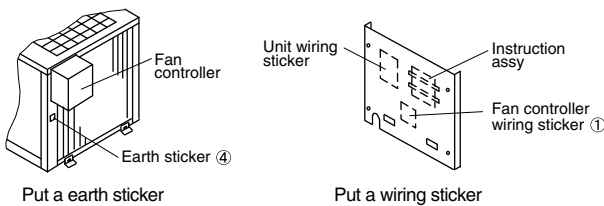
- Confirm the thermistor holder position.
The spring ③ insert in the thermistor holder. The thermistor (black wiring) which is connected to the fan controller is put in the holder.



- Please use the pipe cover ⑥ (1 piece) and fix with the band ⑦ (2 pieces).

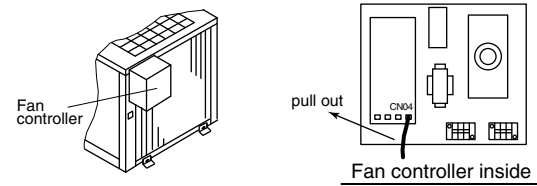


- The earth sticker and wiring sticker are put on an following place.
 - The earth sticker ④ is put on the pillar.
 - The wiring sticker ① is put on the service panel cover (inside).

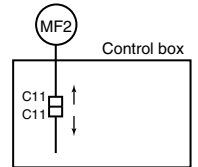


5-1-2. Wiring

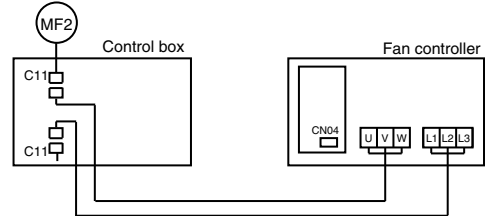
- The wiring from the printed circuit board CN04 is pulled out.



- Disconnect connector C11 - C11.
The connector C11 removes to the motor side and the control box side.

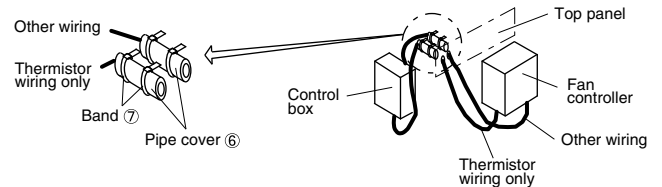


- When the fan controller is installed, the connector is connected in the control box.



Please be careful, do not damage wires by the sheet metal edges or the fin, etc.

- After connect wiring, to prevent wiring being damaged with the fin, the pipe cover ⑥ (2 pieces) and band ⑦ (4 pieces) are used. In that time, never bundle the thermistor wiring with other wiring.



- After wiring ends, the wiring is bundled with a remaining band. Never bundle the thermistor and other wiring together.

- Ensure there is not wiring mistake found, then only install the controller box cover and service panel.

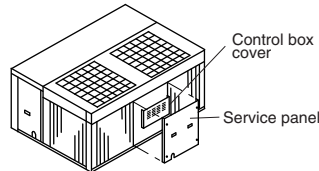
5-8. PRG-15,20

Please use the following parts during installation of fan controller. There are two kinds of wiring sticker, please use writing as "W881927". The fan controller is necessary for these models by two sets. (The following accessory parts show the fan controller one set.)

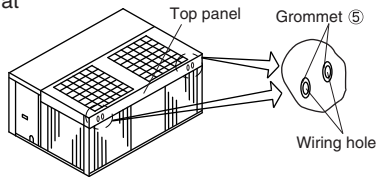
Use	Accessory assy 1					Accessory assy 2	
	① Wiring sticker	② Screw	③ Spring	④ Earth sticker	⑤ Grommet	⑥ Pipe cover	⑦ Band
	1	3	1	1	2	3	15
Not use	Accessory assy 1			Accessory assy 2			
	Wiring sticker	Screw	Connector	Attachment	Attachment	Attachment	Connector assy
	ONLY PU(H)-7,8,10	9	1	1	1	3	1

5-1-1. Install

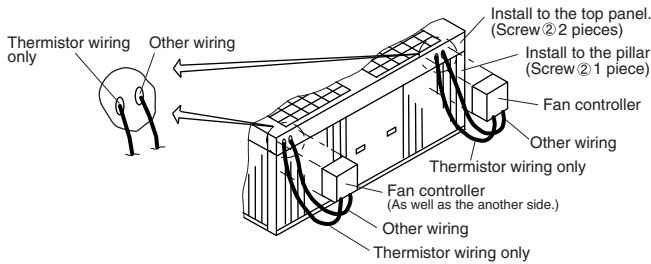
1. The service panel and control box cover are removed.



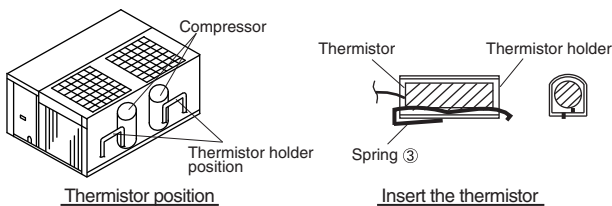
2. Penetrate the knockout holes at the top panel.
The grommet ⑤ (2x2 pieces) install to the hole for wiring in the top panel.



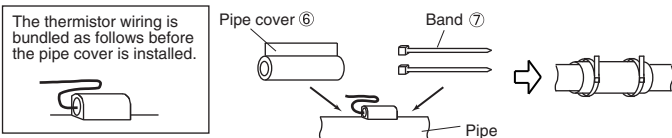
3. Wiring from the fan controller is passed through the hole of procedure 2. The thermistor and other wiring should use separate wiring hole. The fan controller install to the top panel with the screw ② (2x2 pieces) and install to the pillar with the screw ② (2x1 pieces).



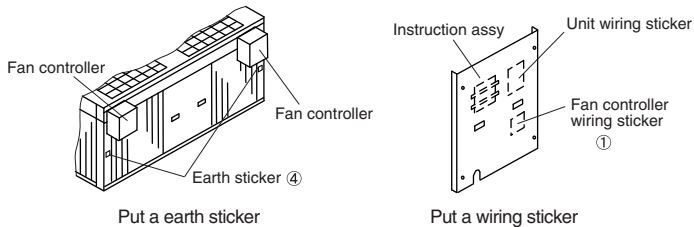
4. Confirm the thermistor holder position. (2 places)
The spring ③ (2x1 pieces) insert in the thermistor holder. The thermistor (black wiring) which is connected to the fan controller is put in the holder.



6. Please use the pipe cover ⑥ (2x1 pieces) and fix with the band ⑦ (2x2 pieces).

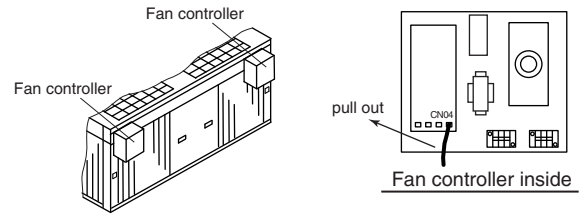


6. The earth sticker and wiring sticker are put on an following place.
 1. The earth sticker ④ (2x1 pieces) is put on the pillar.
 2. The wiring sticker ① (1 piece) is put on the service panel cover (inside).

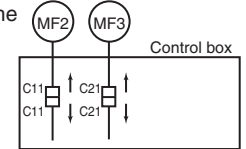


5-1-2. Wiring

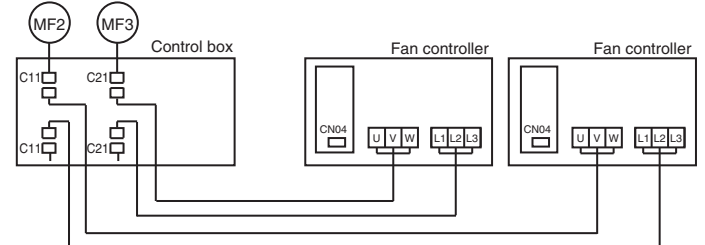
1. The wiring from the printed circuit board CN04 is pulled out.



2. Disconnect connector C11 - C11 and C21 - C21. The connector C11 and C21 remove to the motor side and the control box side.

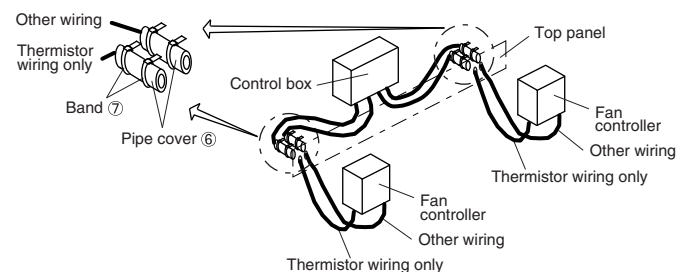


3. When the fan controller is installed, the connector is connected in the control box.



Please be careful, do not damage wires by the sheet metal edges or the fin, etc.

4. After connect wiring, to prevent wiring being damaged with the fin, the pipe cover ⑥ (2x2 pieces) and band ⑦ (2x4 pieces) are used. In that time, never bundle the thermistor wiring with other wiring.



5. After wiring ends, the wiring is bundled with a remaining band. Never bundle the thermistor and other wiring together.
6. Ensure there is not wiring mistake found, then only install the controller box cover and service panel.

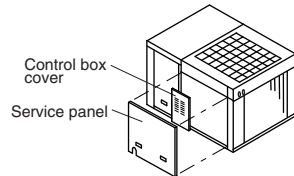
5-9. PRHG-8,10

Please use the following parts during installation of fan controller.
There are two kinds of wiring sticker, please use writing as "W881927".

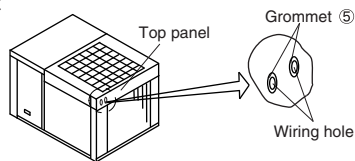
Use	Accessory assy 1					Accessory assy 2	
	① Wiring sticker	② Screw	③ Spring	④ Earth sticker	⑤ Grommet	⑥ Pipe cover	⑦ Band
	1	3	1	1	2	3	15
Not use	Accessory assy 1				Accessory assy 2		
	Wiring sticker	Screw	Connector	Attachment	Attachment	Attachment	Connector assy
	ONLY PU(H)-7,8,10 						
	1	9	1	1	1	3	1

5-1-1. Install

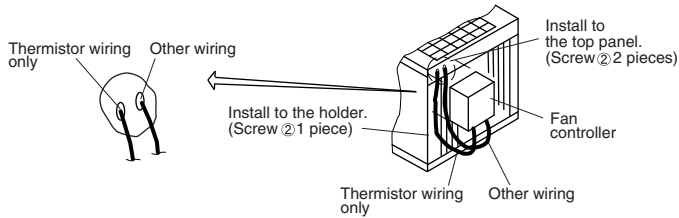
- The service panel and control box cover are removed.



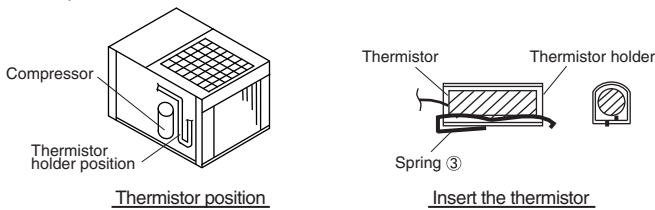
- Penetrate the knockout holes at the top panel.
The grommet ⑤ (2 pieces) install to the hole for wiring in the top panel.



- Wiring from the fan controller is passed through the hole of procedure 2. The thermistor and other wiring should use separate wiring hole. The fan controller install to the top panel with the screw ② (2 pieces) and install to the holder with the screw ② (1 piece).



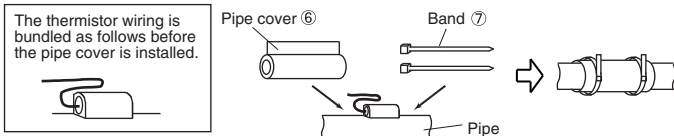
- Confirm the thermistor holder position.
The spring ③ insert in the thermistor holder.
The thermistor (black wiring) which is connected to the fan controller is put in the holder.



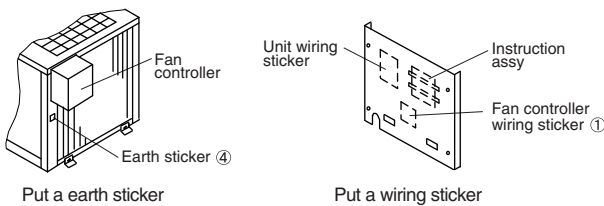
Thermistor position

Insert the thermistor

- Please use the pipe cover ⑥ (1 piece) and fix with the band ⑦ (2 pieces).



- The earth sticker and wiring sticker are put on an following place.
 - The earth sticker ④ is put on the pillar.
 - The wiring sticker ① is put on the service panel cover (inside).

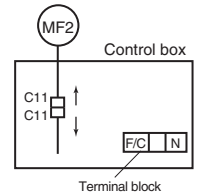


Put a earth sticker

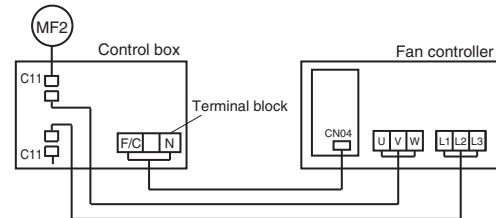
Put a wiring sticker

5-1-2. Wiring

- Disconnect connector C11 - C11.
The connector C11 removes to the motor side and the control box side.

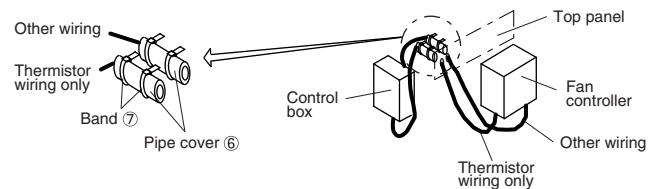


- When the fan controller is installed, the connector is connected in the control box.
The wiring from CN04 connect to the terminal block (F/C, N) in the control box.



Please be careful, do not damage wires by the sheet metal edges or the fin, etc.

- After connect wiring, to prevent wiring being damaged with the fin, the pipe cover ⑥ (2 pieces) and band ⑦ (4 pieces) are used.
In that time, never bundle the thermistor wiring with other wiring.



- After wiring ends, the wiring is bundled with a remaining band.
Never bundle the thermistor and other wiring together.

- Ensure there is not wiring mistake found, then only install the controller box cover and service panel.

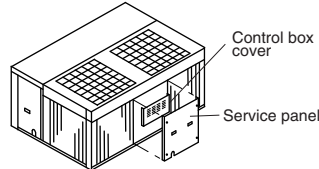
5-10. PRHG-15,20

Please use the following parts during installation of fan controller. There are two kinds of wiring sticker, please use writing as "W881927". The fan controller is necessary for these models by two sets. (The following accessory parts show the fan controller one set.)

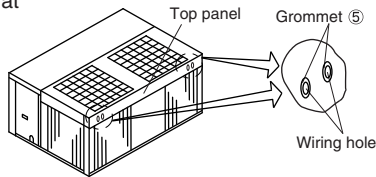
Use	Accessory assy 1					Accessory assy 2	
	① Wiring sticker	② Screw	③ Spring	④ Earth sticker	⑤ Grommet	⑥ Pipe cover	⑦ Band
	1	3	1	1	2	3	15
Not use	Accessory assy 1			Accessory assy 2			
	Wiring sticker	Screw	Connector	Attachment	Attachment	Attachment	Connector assy
	ONLY PU(H)-7,8,10	9	1	1	1	3	1

5-1-1. Install

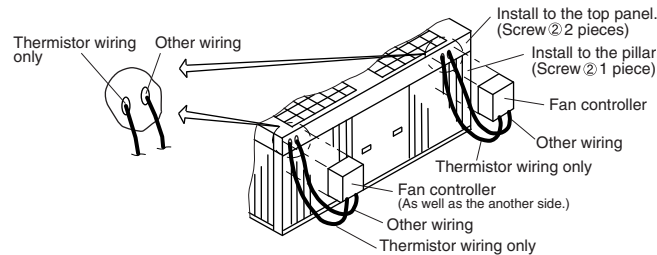
- The service panel and control box cover are removed.



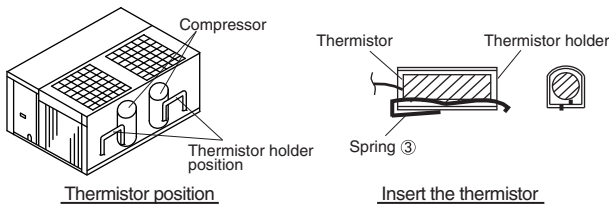
- Penetrate the knockout holes at the top panel. The grommet ⑤ (2x2 pieces) install to the hole for wiring in the top panel.



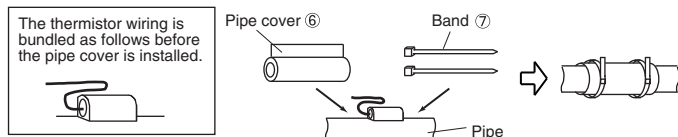
- Wiring from the fan controller is passed through the hole of procedure 2. The thermistor and other wiring should use separate wiring hole. The fan controller install to the top panel with the screw ② (2x2 pieces) and install to the pillar with the screw ② (2x1 pieces).



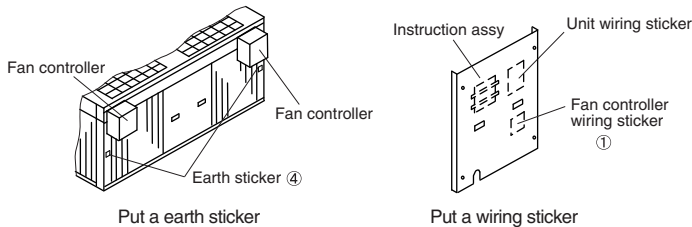
- Confirm the thermistor holder position. (2 places) The spring ③ (2x1 pieces) insert in the thermistor holder. The thermistor (black wiring) which is connected to the fan controller is put in the holder.



- Please use the pipe cover ⑥ (2x1 pieces) and fix with the band ⑦ (2x2 pieces).

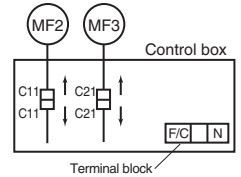


- The earth sticker and wiring sticker are put on an following place.
 - The earth sticker ④ (2x1 pieces) is put on the pillar.
 - The wiring sticker ① (1 piece) is put on the service panel cover (inside).

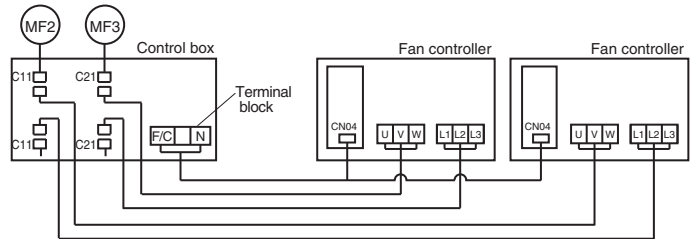


5-1-2. Wiring

- Disconnect connector C11 - C11 and C21 - C21. The connector C11 and C21 remove to the motor side and the control box side.

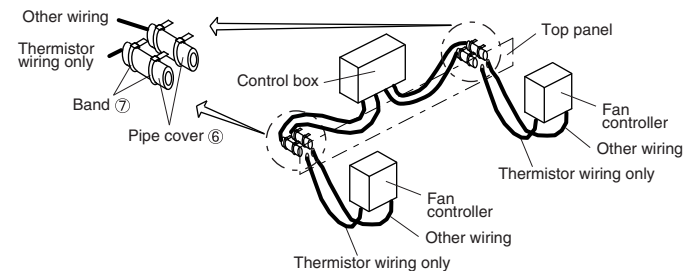


- When the fan controller is installed, the connector is connected in the control box. The wiring from CN04 connect to the terminal block (F/C, N) in the control box.



Please be careful, do not damage wires by the sheet metal edges or the fin, etc.

- After connect wiring, to prevent wiring being damaged with the fin, the pipe cover ⑥ (2x2 pieces) and band ⑦ (2x4 pieces) are used. In that time, never bundle the thermistor wiring with other wiring.



- After wiring ends, the wiring is bundled with a remaining band. Never bundle the thermistor and other wiring together.
- Ensure there is not wiring mistake found, then only install the controller box cover and service panel.

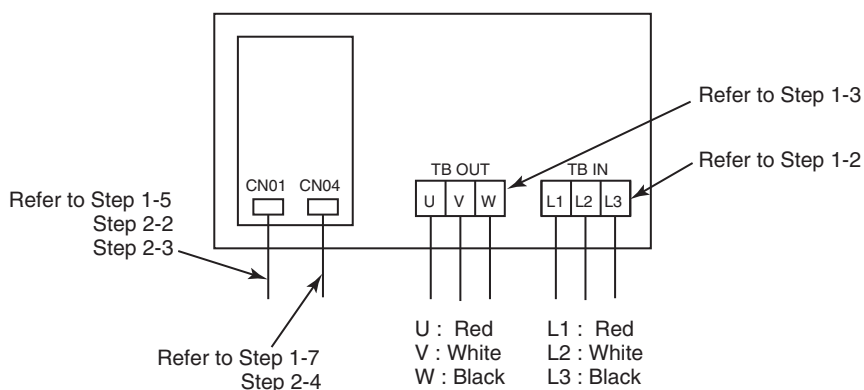
6. Before starting the trial run.

Please execute the following confirmations to prevent wrong connection.
If there is wrong connection, it may damage fan controller, but also damage the unit.

Confirmation

Please intercept the power supply without fail, and secure safety when you execute detaching wiring, the connector, and the measurement machine to the following work.

Step	Confirmation matter	Check	Correspondence
Step 1 Connected confirmation	Step 1-1	Is fan controller's power supply input wiring position connected correctly as shown in installed manual?	
	Step 1-2	Is the phase of the connection of fan controller power supply input (TB IN) accurate?	
	Step 1-3	Is the phase of the connection of fan controller output (TB OUT) accurate?	
	Step 1-4	Is the phase of connection of fan controller output wiring to fan motor accurate?	
	Step 1-5	Is the thermistor for the condensing temperature detection of the attachment connected with CN01?	
	Step 1-6	Is the thermistor for the condensing temperature detection accurately installed in the unit?	
	Step 1-7	In case of the heat pump model, the wiring for full load input is connected with CN04?	
	Step 1-8	In case of the heat pump model, the wiring for full load input is connected accurately in control box?	
Step 2 Drive confirmation	Step 2-1	Does the fan rotate in a correct direction, when the unit is driven ?	Troubleshooting 1,2
	Step 2-2	The thermistor for the condensing temperature detection is removed to CN01. Drive to the cooling operation. (The unit stops abnormally when the cooling operation drive is continued for a long time occasionally. - High pressure switch off) Whether LED01 has blinked is confirmed. When the unit is in operation, the fan controller output voltage measured in TB OUT, and checked whether the output of about 200V. There is a problem when it is an output of about 300V.	Troubleshooting 3
	Step 2-3	The thermistor for the condensing temperature detection is surely connected with CN01 as before.	
	Step 2-4	In case of the heat pump model and the heating drive is possible, the heating drive is executed and the voltage of CN04 is input AC198V - 264V. In that case, the fan must be full load drive. (The output of the power-supply voltage is confirmed in TB OUT.) When heating cannot be driven, step 1-7, step 1-8 is executed again.	Troubleshooting 4



Fan controller layout

7. Troubleshooting

Please intercept the power supply without fail, and secure safety when you execute detaching wiring, the connector, and the measurement machine to the following work.

State of Machine	Cause	Check point	Content of confirmation	Troubleshooting
1. The fan does not run.	1) The power-supply voltage is abnormal.	The value of power-supply voltage is confirmed. (TB IN)	Is the power-supply voltage 342-457V?	The power supply wiring is confirmed, and corrected.
	2) Connected mistake	The fan controller connection is confirmed.	TB IN-NF wiring TB IN-T01-CN02. NF-SCRM-TB OUT GNU, CNV, CNW-SCRM (The connection is noted.) CN02- thermistor	The wiring mistake is corrected.
	3) The transformer (T01) is defective.	The unit side connection is confirmed. The resistance is confirmed. (Between the lines of primary side, and lines of secondary side.)	TB OUT - fan motor Resistance between the lines of primary side (red and white) about 310 ohm. Resistance between the lines of secondary side (CN02 the connector is removed from the printing wiring board.) Between 1-3 pin about 0.9 ohm	Replace the transformer in case of abnormal resistance.
	4) The thyristor module (SCRM) is defective.	The content of P15 is checked. (SCRM)	The content of P15 is judgment. (SCRM)	Replace SCRM when abnormality is found.
	5) The control printing wiring board is defective.	The blinking of LED01 is confirmed.	After checking item 1)-4), when the power supply is turned on, the blinking of LED01 is confirmed.	At the time of turning on light. (always) The CN01 connector is removed, and measures resistance. When the resistance is 1 kilo-ohm or less, repair the control printing board due to the thermistor short-circuit breakdown. In case of thermistor is correct, the control printing board is defective and exchange. At the time of turning off light. The CN01 connector is removed, and measures resistance. When the resistance is 25 kilo-ohm or more, repair the control printing board due to the thermistor open breakdown. In case of thermistor is correct, the control printing board is defective and exchange.
	6) The fan motor and unit side control box are defective.	Fan power supply wiring is connected with fan controller power supply taking out part, and confirm operation.	Whether the voltage is input to fan motor is confirmed. Whether the fan motor operation is confirmed.	When the voltage impression and fan motor does not work, fan motor is defective. When the voltage is not impressed to the fan, the unit side control box is defective. When there is no wrong above-mentioned, it is assumed fan controller connection state, if abnormality relapses, the control printing board is defective and exchange.

State of Machine	Cause	Check point	Content of confirmation	Troubleshooting
2. The fan rotates oppositely.	1) Power supply reverse-phase.	The phase of input voltage is confirmed. (TB IN)	Is the phase of L1, L2, L3 correct?	The phase of L1, L2, L3 is corrected.
	2) Output wiring supply reverse-phase.	The phase of fan motor output wiring is confirmed. (TB OUT)	Is the phase of U, V, W correct?	The phase of U, V, W is corrected.
	3) Connected mistake	The fan controller connection is confirmed.	TB IN-NF wiring (The connection phase is noted.) NF-SCRM-TB OUT (The connection phase is noted.) CNU, CNV, CNW-SCRM (The connection is noted.)	The connected phase is confirmed. The wiring mistake is corrected.
3. The rotation speed of fans cannot control. •Something wrong occurs by step2-2 drive confirmation of installed confirmation matter. •It becomes high-pressure abnormal pressure.	1) During heating drive	The input voltage is confirmed. (CN04)	Is not AC198-264V input in CN04?	During heating drive, there is an input in CN04 and the fan becomes full load drive. → Normality
	2) Power supply reverse-phase. Output wiring reverse-phase.	The phase of input voltage is confirmed. (TB IN) The phase of fan motor output wiring is confirmed. (TB OUT)	Is the phase of L1, L2, L3 correct? Is the phase of U, V, W correct?	The phase of L1, L2, L3 is corrected. The phase of U, V, W is corrected.
	3) Connected mistake	The fan controller connection is confirmed.	TB IN-NF wiring (The connection phase is noted.) TB IN-T01-CN02 (The connection phase is noted.) NF-SCRM-TB OUT (The connection phase is noted.) CNU, CNV, CNW-SCRM (The connection is noted.) CN02- thermistor	The connected phase is confirmed. The wiring mistake is corrected.
			CN04- the wiring for full load input in heating (CN04 input is AC198-264V in heating.)	In cooling, when there is an input in CN04, wiring of CN04 is mistake connection. The wiring is corrected.
			There must not be connector connection in CNX. (CNX is compulsion full load input. Full load when short-circuited.)	When there is a connector connection in CNX, it is removed.
		The unit side connection is confirmed.	TB OUT - fan motor (The phase (U, V, W) is noted.)	The connected phase is confirmed. The wiring mistake is corrected.
			Position of the wiring for full load input (In heating) Installation position of thermistor	When there is an input in CN04, the fan is full load. If the position where the thermistor is installed is wrong, the rotation speed control of the fan as condensing temperature is impossible.
		The set of dip switch is confirmed. (SW0-3) (P2)	It is confirmed that the switch setting is corresponding to the electric wiring diagram.	The control substrate is matched to setting the electric wiring diagram.
	4) The control printing wiring board setting is defective.		The content of P14 is judgment. (SCRM)	SCRM exchange when abnormality is found.
	5) The thyristor module (SCRM) is defective.			

State of Machine	Cause	Check point	Content of confirmation	Troubleshooting
	6) The control printing wiring board is defective.	The blinking of LED01 is confirmed.	After checking item 1)-5), when the power supply is turned on, the blinking of LED01 is confirmed.	<p>At the time of turning on light (always) (There is a possibility of the thermistor short-circuit.) The CN01 connector is removed, and measures resistance. When the resistance is 1 kilo-ohm or less, repair the control printing board due to the thermistor short-circuit breakdown.</p> <p>In case of thermistor is correct, the control printing board is defective and exchange.</p> <p>At the time of turning off light (There is a possibility of the thermistor open breakdown.)</p> <p>The CN01 connector is removed, and measures resistance. When the resistance is 25 kilo-ohm or more, repair the control printing board due to the thermistor open breakdown.</p> <p>In case of thermistor is correct, the control printing board is defective and exchange.</p> <p>At the time of blinking</p> <p>The item 2), 3) are confirmed again, and there is no connection mistake, the control printing board is defective and exchange.</p>
4. The fan never becomes full load drive. (In heating)	1) Connected mistake	The fan controller connection is confirmed.	<p>TB IN-NF wiring</p> <p>TB IN-T01-CN02</p> <p>NF-SCRM-TB OUT</p> <p>CNU, CNV, CNW-SCRM (The connection is noted.)</p> <p>CN04- the wiring for full load input (CN04 input is AC198-264V in heating.)</p> <p>Position of the wiring for full load input (In heating)</p>	<p>It is confirmed that wiring is correctly connected. The wiring mistake is corrected.</p>
		The unit side connection is confirmed.	The content of P14 is judgment. (SCRM)	The wiring mistake is corrected.
		The content of P14 is checked. (SCRM)	Item 1) is checked, again.	<p>Replace SCRM when abnormality is found.</p> <p>After checking item 1), if there is no problem, the control printing board is defective and exchange.</p>
	2) The thyristor module (SCRM) is defective. 3) The control printing wiring board is defective.	After checking item 1), there is a possibility of a defective printed circuit board if a normal drive is not done.		

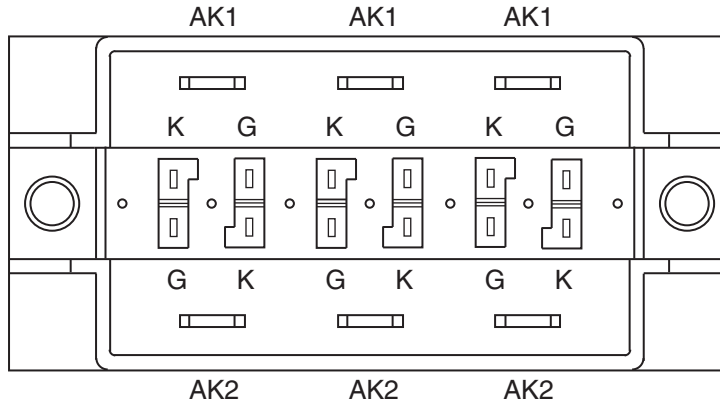
Thyristor module (SCRM)

<Judgment Method> Measure the resistance between each of the SCRM pins and judge if there is a failure or not by the resulting values.

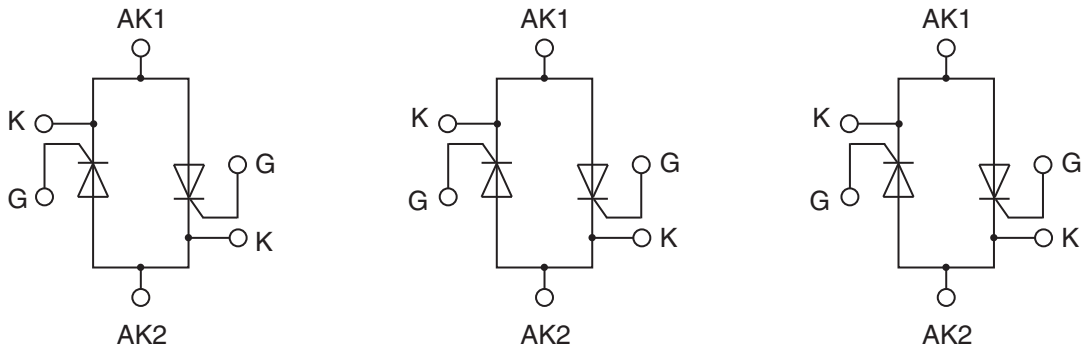
<Judgment Values 1> Check between G and K.
Use the smallest resistance range on the tester.
Judgment Value: 1.5 ohm ~ 80 ohm

<Judgment Values 2> Check between AK1 and AK2.
Use the greatest resistance range on the tester.
Judgment Value: 60 kilo-ohm ~ ∞ ohm

<External View>



<Internal Circuit Diagrams>



This product is designed and intended for use in the residential,
commercial and light-industrial environment.

The product at hand is
based on the following
EU regulations:

- Low Voltage Directive 73/23/EEC
- Electromagnetic Compatibility Directive 89/
336/EEC

Please be sure to put the contact address/telephone number on the
operation manual before handing it to the customer.

 **mitsubishi electric corporation**

HEAD OFFICE MITSUBISHI DENKI BLDG MARUNOUCHI TOKYO 100-0005 TELEX J24532 CABLE MELCO TOKYO