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ENGLISH

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AHU Control Kit / EEV Kit

Installation Manual

**Models: PRCKA0
PRLK048A0**

IMPORTANT

- Please read this installation manual completely before installing the product.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- Please retain this installation manual for future reference after reading it thoroughly.

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Safety Precautions



To prevent injury to the user or other people and property damage, the following instructions must be followed.

- Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠ WARNING This symbol indicates the possibility of death or serious injury.

⚠ CAUTION This symbol indicates the possibility of injury or damage.

- Meanings of symbols used in this manual are as shown below.

	Be sure not to do.
	Be sure to follow the instruction.

⚠ WARNING

■ Installation

Don't touch with the hands while the power is on

- There is risk of fire or electric shock.

Use standard parts(connector).

- Do not disassemble or repair the product. There is risk of fire or electric shock.

For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.

- Do not disassemble or repair the product. There is risk of fire or electric shock.

Use the correctly rated breaker or fuse.

- There is risk of fire or electric shock.

Do not install, remove, or re-install the unit by yourself (customer).

- There is risk of fire, electric shock, explosion, or injury.

For installation, always contact the dealer or an Authorized Service Center.

- There is risk of fire, electric shock, explosion, or injury.

■ Operation

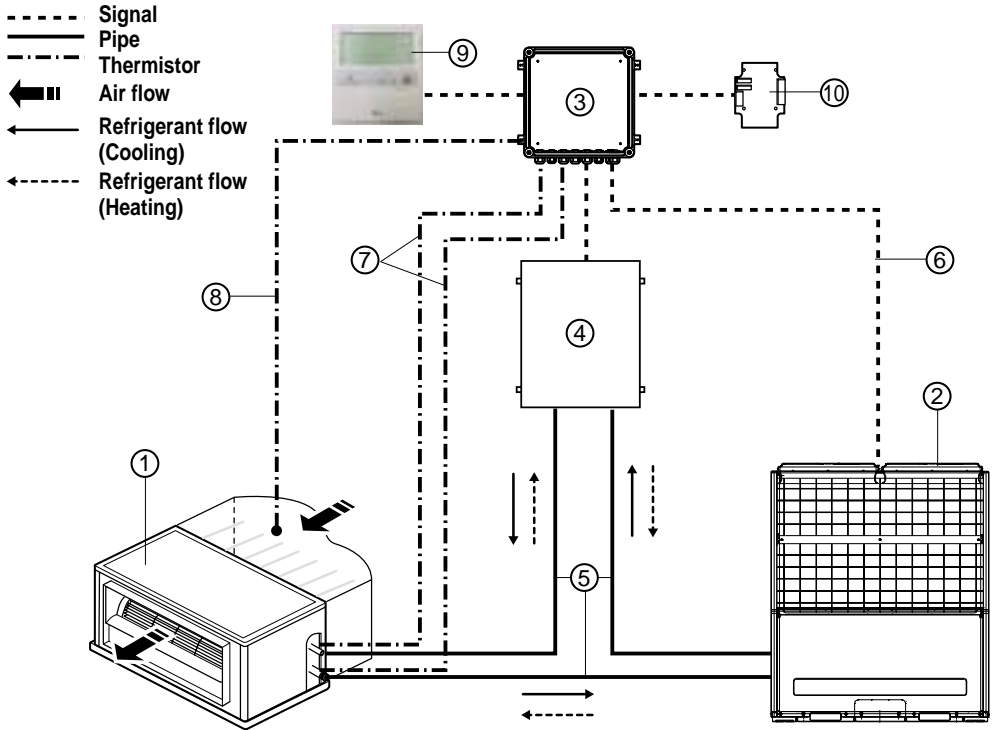
When the product is soaked (flooded or submerged), contact an Authorized Service Center.

- There is risk of fire or electric shock.

Be cautious that water could not enter the product.

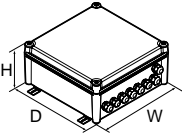
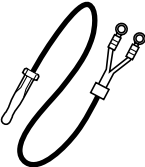
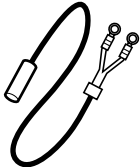
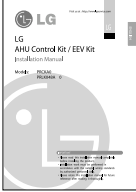

- There is risk of fire, electric shock, or product damage.

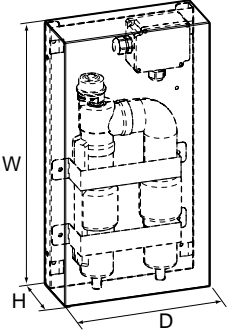
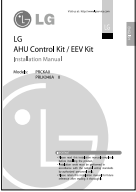
Installation Scene



Parts and components		
No.	Name	Remarks
1	Air Handling Unit	Field supply
2	Outdoor Unit	Multi_V
3	AHU Control Kit(PRCKA0)	-
4	AHU EEV Kit(PRLK048A0)	-
5	Field piping	Field supply
Wiring connections		
6	Control kit wiring	(Power supply and communication between control kit and outdoor unit)
7	Pipe thermistors (EBG36949304/EBG36949305)	Evaporator (In/Out) control of Air Handling Unit
8	Room thermistor (EBG36949303)	Return air control
9	Remote controller(PQRCUSA0)	Optional accessory
10	Dry contact PCB(PQDSBNGCM0)	Optional accessory


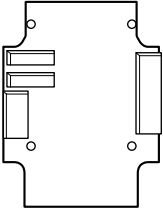
Supplies

PRCKA0					
Components	AHU Control Kit	Room thermistor	Pipe thermistors	Installation manual	Capacity setting option PCB
P/NO	AJT57850901	EBG36949303	EBG36949304(black) EBG36949305 (red)	MFL50024801	EBR52358907/09 /10/11/12
Shape					
Quantity(EA)	1	1	2(Each 1)	1	5(Each 1)

PRLK048A0		
Components	AHU EEV Kit	Installation manual
P/NO	AJT57850801	MFL50024801
Shape		
Quantity(EA)	1	1

Model Name	Weight(kg)		Dimension(mm)			POWER
	NET	Gross	W	H	D	
PRCKA0	2.2	3.6	280	135	280	220~240V/50Hz/1Phase
PRLK048A0	3.1	3.6	404	83	217	-

Optional Accessories

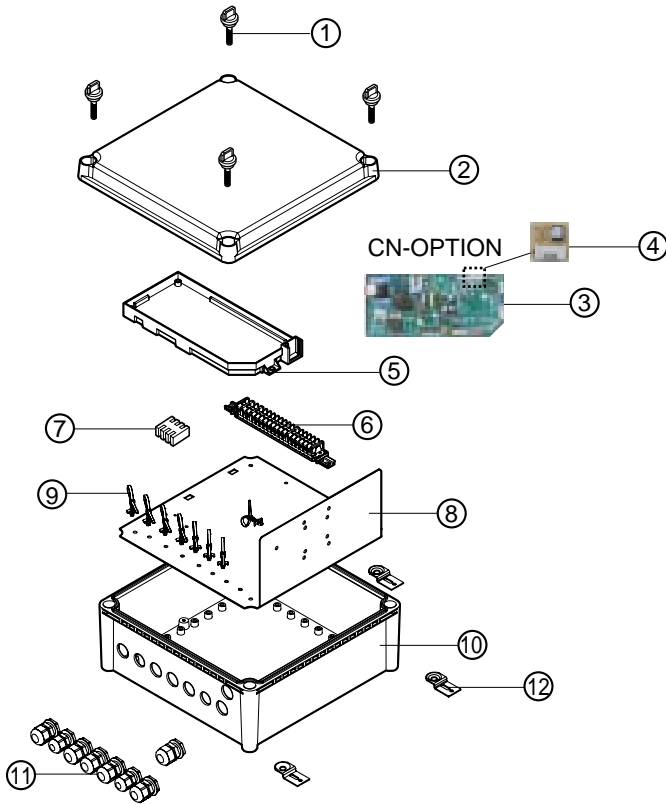
Accessories		
Components	Remote controller	Dry contact PCB
Model name	PQRCUSA0	PQDSBNGCM0
Shape		

* For further details of the accessories, refer to the manual provided at the time of purchasing the accessories.

Part Description

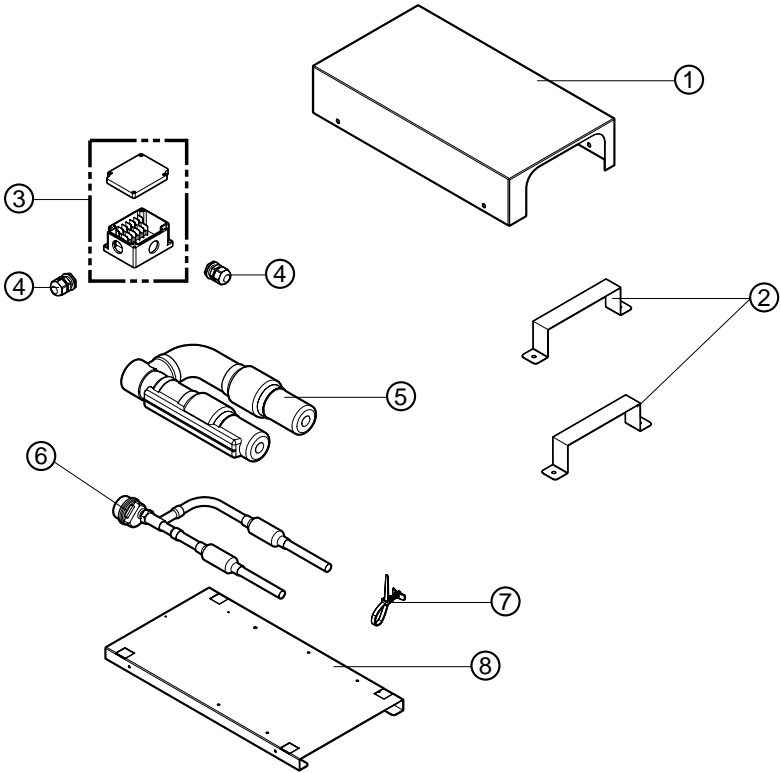
Control Kit (PRCKA0)

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No.	Part Name	Quantity(EA)
1	Plastic (+) bolt	4
2	Control box cover	1
3	Main PCB	1
4	Option PCB(36k)	1
5	Main PCB case	1
6	Terminal block (communication)	1
7	Terminal block (POWER Supply)	1
8	Panel	1
9	Support Tie wrap	8
10	Control box case	1
11	Cable gland(2type)	8
12	Bracket	4

EEV Kit(PRLK048A0)



No.	Part Name	Quantity(EA)
1	Panel upper	1
2	Bracket	2
3	Terminal box	1
4	Cable gland	2
5	Insulator tube	1
6	EEV assembly (EEV, Strainer, Tube)	1
7	Support tie wrap	1
8	Panel base	1

Before Installation

⚠ CAUTION

- Don't install or operate the unit in rooms mentioned below.
 - ① Where mineral oil, like cutting oil is present.
 - ② Where the air contains high levels of salt such as air near the ocean.
 - ③ Where sulphurous gas is present such as that in areas of hot spring.
 - ④ In vehicles or vessels.
 - ⑤ Where voltage fluctuates a lot such as that in factories.
 - ⑥ Where high concentration of vapor spray are present.
 - ⑦ Where machines generating electromagnetic waves are present.
 - ⑧ Where acidic or alkaline vapor is present.
 - ⑨ The option boxes must be installed with entrances downward.

- Check the mentioned below, when you apply the AHU(Field supply).
 - ① If the AHU (Field supply) provided in the field is exclusively for heating, you must not change the operating mode to cooling on the remote controller. If not, it can cause electric shock, injury or death. If you want to operate in cooling mode, AHU (Field supply) must comply with the following details.
(Following)
 - The insulation level of AHU (Field supply) motor must be 'F' or above, and the protection level must satisfy 'IP 54'.
 - AHU (Field supply) must have the drain pan installed.
 - ② Fan speed button on the wired remote controller(PQRCUSA0) is not operated.
 - ③ For refrigerant piping of outdoor unit, refer to the installation manual supplied with the outdoor unit.
 - ④ For installation of the wired remote controller(PQRCUSA0), refer to the manual supplied with the wired remote controller.
 - ⑤ For connection of the Dry contact PCB(PQDSBNGCM0), refer to the manual supplied with the Dry contact PCB(PQDSBNGCM0).

- AHU Control Kit
 - ① Thermistor cable and remote controller wire should be located at least 50mm away from power supply wires and from wires to the controller. Not following this guideline may result in malfunction due to electrical noise.
 - ② Use only specified wires, and tightly connect wires to the terminals. Keep wiring in neat order so that it does not obstruct other equipment. Incomplete connections could result in overheating, and in worse case electric shock or fire.

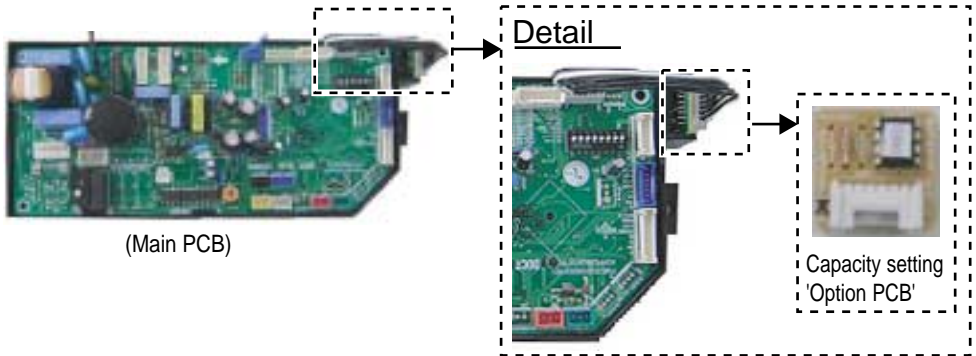
⚠ CAUTION

Selection of Evaporator(Air Handling Unit)

See table below for applicable units

Selecting the capacity setting 'Option PCB'(Accessory) according to the capacity mentioned below.

- The corresponding capacity setting 'Option PCB' needs to be selected depending on the need capacity.
- After checking the need capacity, remove the 36k Option PCB equipped in the main PCB, and set up the Option PCB fitted the need capacity in the main PCB.



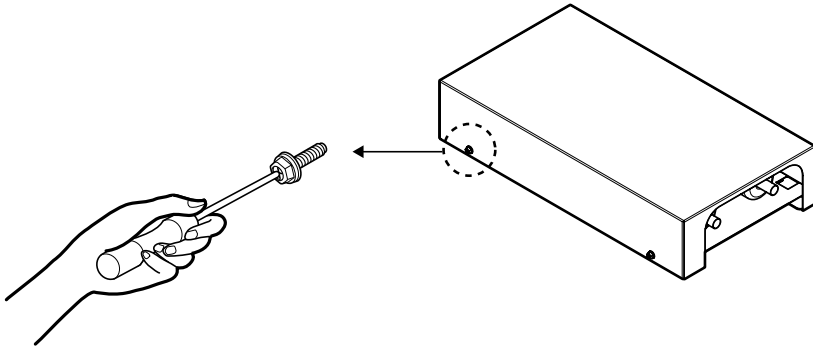
Option PCB P/No	Capacity (Btu/h)	Allowed heat exchanger Volume (dm ³)	Allowed heat exchanger capacity (kW)	Air flow rate (CMM)
EBR52358907	28K	0.88~1.08	7 ~ 9	22 ~ 26
EBR52358908	36k	0.88~1.08	9 ~11	25 ~ 32
EBR52358909	42k	0.88~1.08	11~ 13	31 ~ 35
EBR52358910	48k	1.23~1.51	13 ~ 16	33 ~ 45
EBR52358911	76k	1.93~2.35	20 ~ 24	50 ~ 64
EBR52358912	96k	1.93~2.35	25 ~ 31	64 ~ 72

Saturated Suction Temperature (SST) = 6°C, SH (Superheat) = 5K, Air Temperature = 27°C DB / 19°C WB.

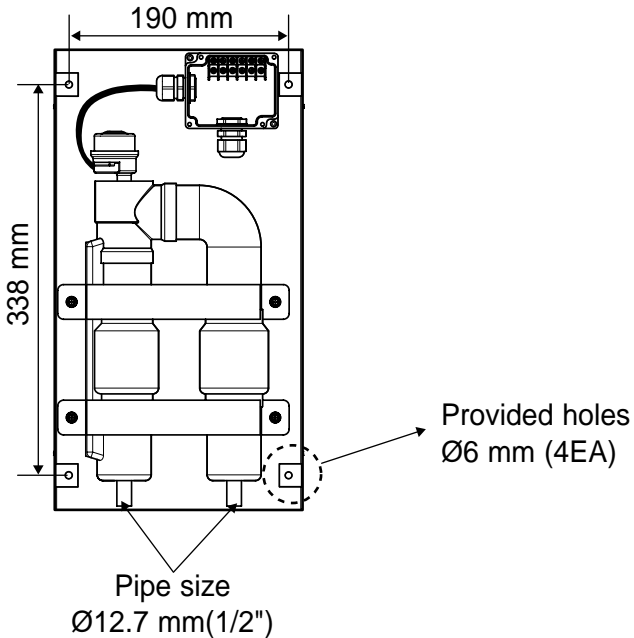
EEV Kit Installation

Mechanical installation

1. Remove the EEV Kit box cover by unscrewing the screw(4EA).

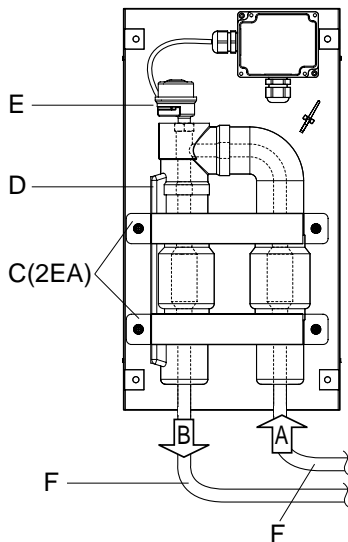


2. Drill 4 holes on correct position and fix the EEV Kit box securely with 4 screws(Field supply) through the provided holes $\text{\O}6$ mm(Reference the length of the holes $\text{\O}6$)



Mechanical installation

3. Prepare the inlet/outlet field piping just in front of the connection(do not braze yet).
4. Remove the pipe fixing bracket(C) by unscrewing 4 x M4.
5. Remove the Pipe insulation.
6. Braze the field piping.



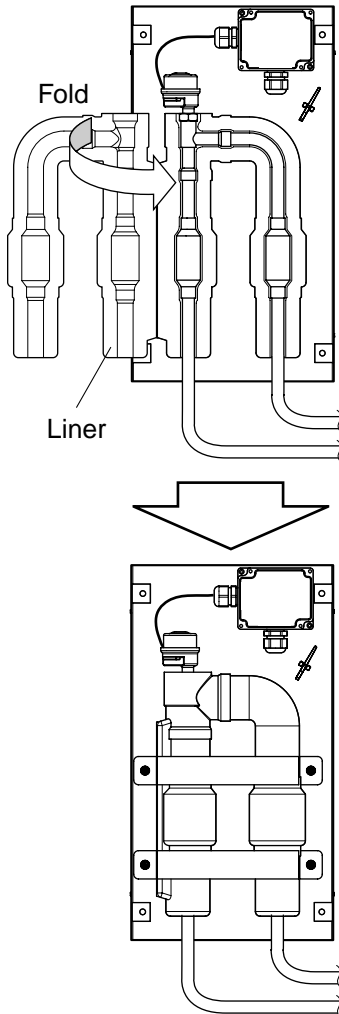
- A. Inlet coming from the outdoor unit
- B. Outlet to evaporator
- C. Pipe fixing bracket(2EA)
- D. Pipe insulation
- E. EEV Assembly
- F. Field pipe(Inlet / Outlet)

⚠ CAUTION

- Make sure to cool the filters and EEV body with a wet cloth and make sure the body temperature does not exceed 120°C during brazing.
- Make sure that the other parts such as electrical box, tie wraps and wires protected from direct brazing flames during brazing.

Brazing work

7. After brazing, put the Pipe insulation(D) on the EEV Assembly(E) and fold the Pipe insulation(D) mentioned below (after peeling off the liner).
8. Secure the pipe fixing bracket(C:2EA) in place again (4 x M4)



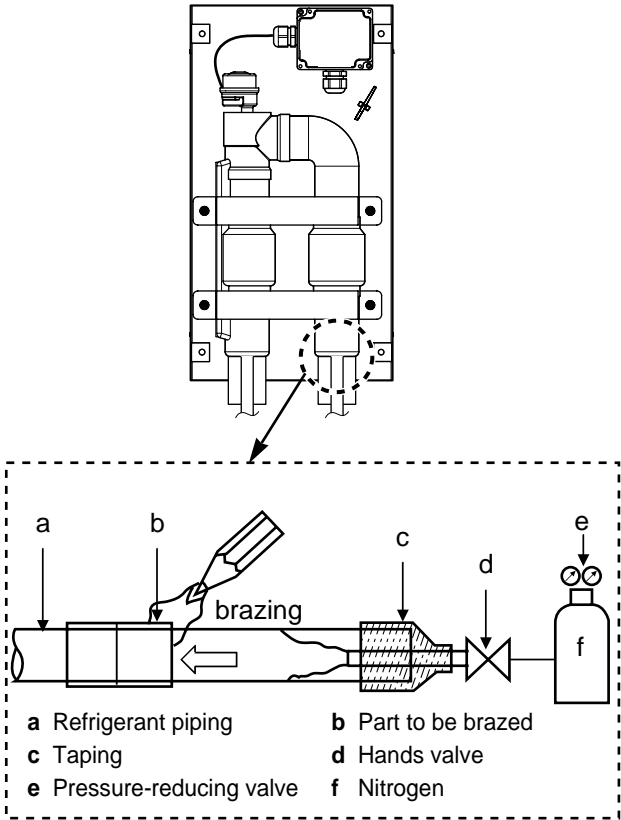
9. Make sure that field pipes are fully insulated.

Field pipe insulation must reach up to the insulation you have put back in place as per procedure step 7. Make sure that there is no gap between both ends in order to avoid condensation dripping (finish the connection with tape eventually).

Brazing work

⚠ CAUTION

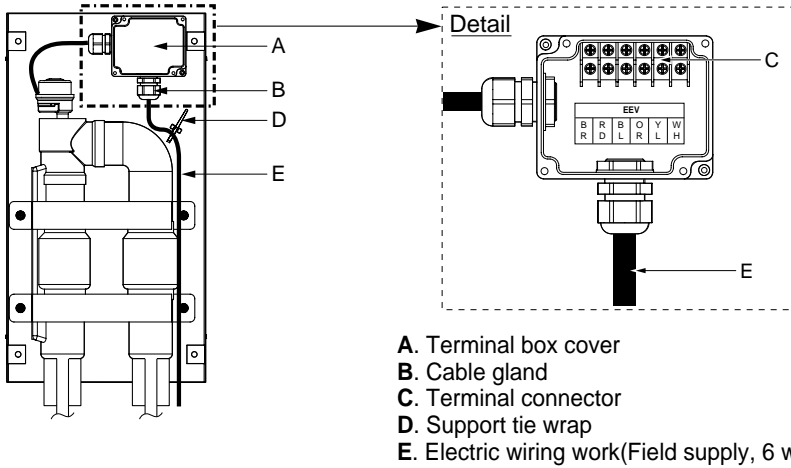
- Be sure to carry out a nitrogen blow when brazing.
Brazing without carrying out nitrogen replacement or releasing nitrogen into the piping will create large quantities of oxidized film on the inside of the pipes, adversely affecting valves and compressors in the refrigerating system and preventing normal operation.
- When brazing while inserting nitrogen into the piping, nitrogen must be set to 0.02 MPa with a pressure-reducing valve(just enough so that it can be felt on the skin).



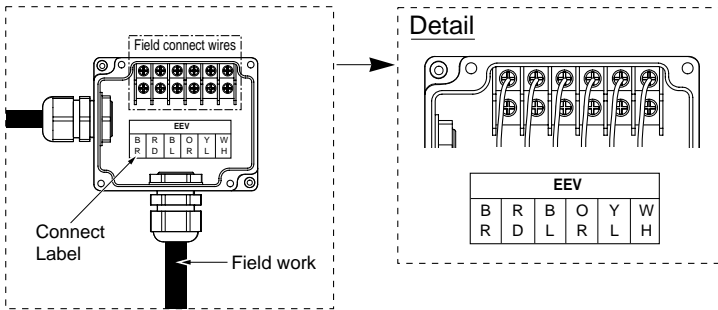
- The leakage test is executed by pressurizing nitrogen gas up to 3.8MPa(38.7kgf/cm²) (The test must be done with the service valve of the outdoor unit closed and the gas must be pressurized at the liquid pipe, gas pipe and high/low pressure common pipe of the outdoor unit), and the pressure of the nitrogen gas must not drop for 24 hours.
- For more details, refer to the manual of the outdoor unit.

Electrical work

10. Open the terminal box cover(A).
11. Pass EEV cable(Field supply, 6 wires) from the AHU Control Kit through cable gland and connect the cable wires into the terminal connector(C) following instructions as describe in step 12. Route the cable out of the EEV Kit box according to figure below and fix with the support tie wrap(D).



12. Use a screwdriver(+) and follow indicated instructions for connecting cable wires into the terminal connector according to the circuit diagram.



⚠ CAUTION

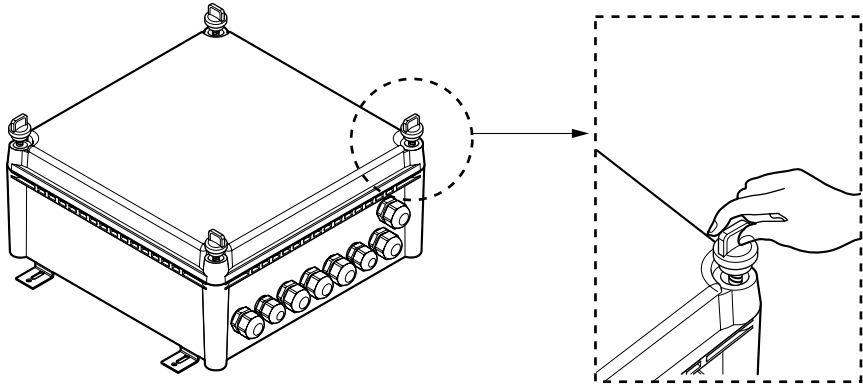
- Before connecting the wires(Field supply), make sure to compare with the Connect label between EEV Kit and Control Kit.
- Make sure to connect the wires according to the circuit diagram in Control Kit.

13. Make sure that field wiring and insulation is not squeezed when closing the EEV Kit box cover.
14. Close the EEV Kit box cover(4 x M4).

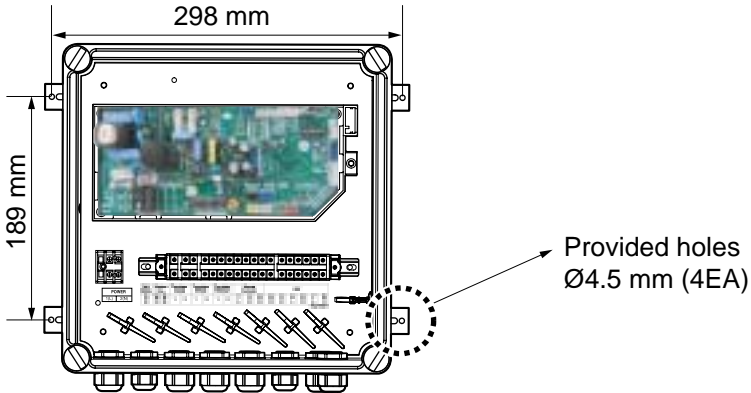
Control Kit Installation

Mechanical installation

1. Remove the Control Kit box cover by unscrewing the plastic bolt(4EA).



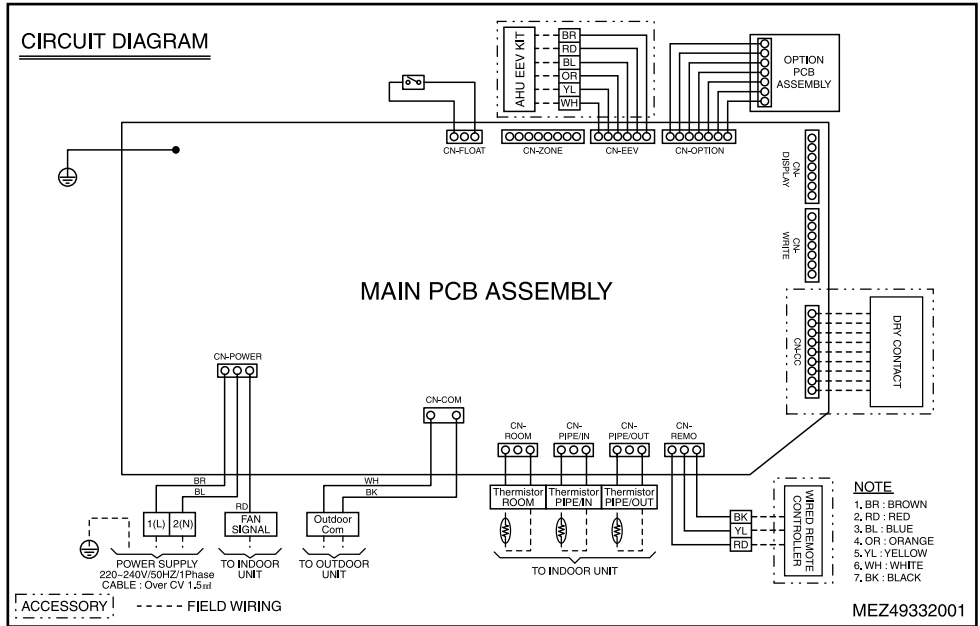
2. Drill 4 holes on correct position and fix the Control Kit box securely with 4 screws(Field supply) through the provided holes Ø4.5 mm(Reference the length of the holes Ø4.5)



Electric Wiring Work

■ Circuit diagram

1. For electric wiring, refer to figure 'Circuit diagram' mentioned below.



CONNECTOR NUMBER	LOCATION POINT	FUNCTION
CN-POWER	AC POWER SUPPLY	AC POWER LINE INPUT FOR INDOOR CONTROLLER
CN-COM	COMMUNICATION	CONNECTION BETWEEN INDOOR AND OUTDOOR
CN-ROOM	ROOM SENSOR	ROOM AIR THERMISTOR
CN-PIPE/IN	SUCTION PIPE SENSOR	PIPE IN THERMISTOR
CN-PIPE/OUT	DISCHARGE PIPE SENSOR	PIPE OUT THERMISTOR
CN-REMO	REMOTE CONTROLLER	REMOTE CONTROL LINE
CN-FLOAT	FLOAT SWITCH INPUT	FLOAT SWITCH SENSING
CN-EEV	EEV OUTPUT	EEV CONTROL OUTPUT
CN-OPTION	OPTION PCB	COMMUNICATION BETWEEN MAIN AND OPTION
CN-CC	DRY CONTACT	DRY CONTACT LINE

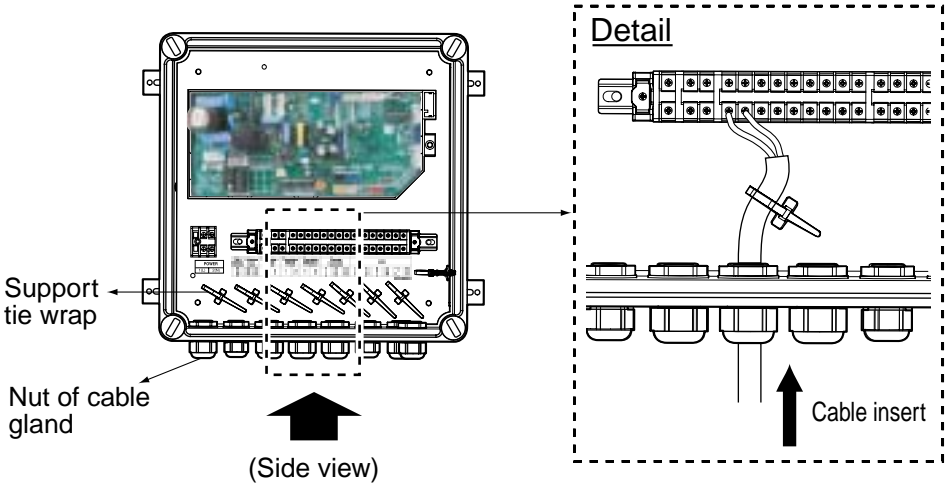
Electric Wiring Work

■ Connection of the wires

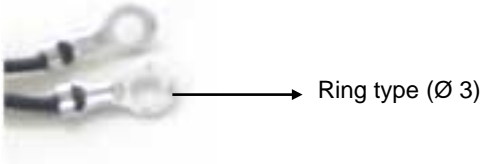
2. For connection to outdoor unit and to controller (Field supply) :

Pull the wires inside through the cable gland and close that's nut firmly in order to ensure a good pull relieve and water protection.

3. The wires require an additional pull-relief. Strap the wire with the support tie wrap.



4. For the wired remote controller wire and outdoor unit communication wire, remove the coating at the end of the wire to connect and use the ring type (Ø3) to connect to the terminal block.



5. Each wire have to pass the number of the cable gland mentioned below.

(Side view)

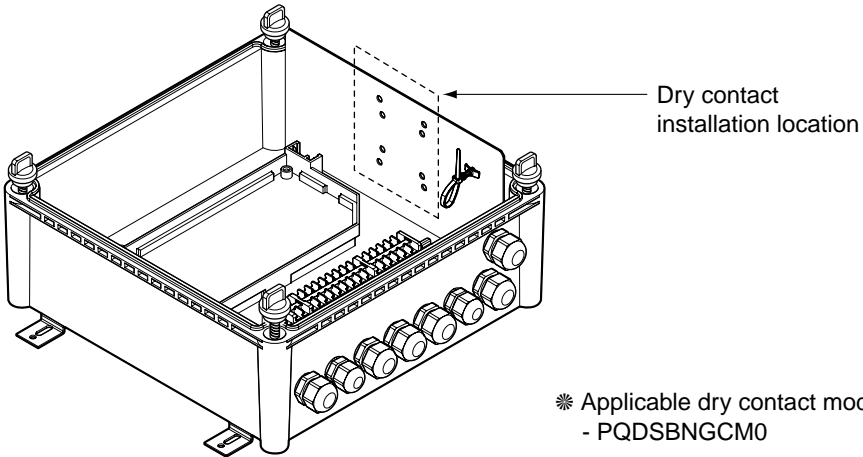
No.	Electric wire
①	POWER SUPPLY
②	FAN SIGNAL
③	Outdoor com.
④	Room thermistor
⑤	Pipe thermistor(In/Out)
⑥	Remote controller
⑦	EEV Kit
⑧	DRY contact

Electric Wiring Work

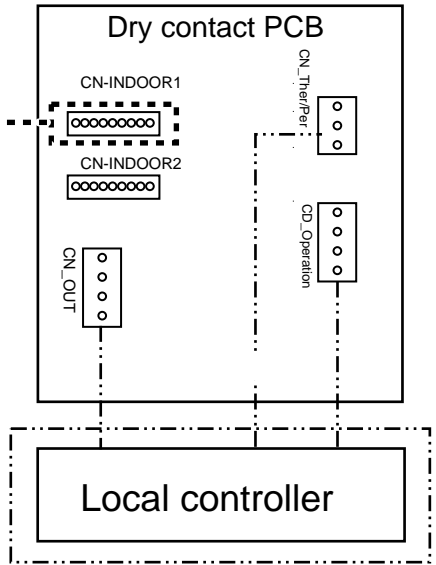
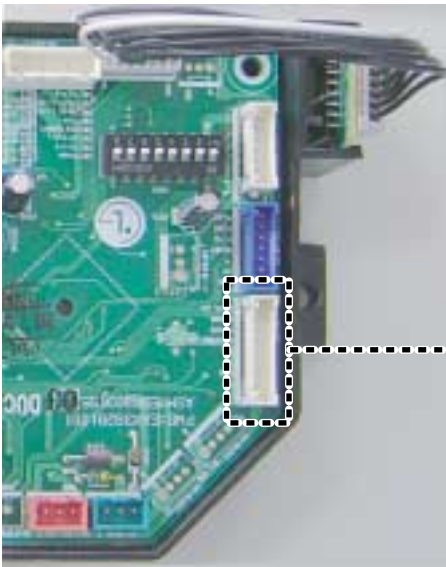
CAUTION

- All field supplied parts and materials and electric works must be conform to local codes.
- Use copper wire only.
- All wiring must be performed by an authorized electrician.
- A main switch or other means for disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with relevant local and national legislation.
- Refer to the installation manual attached to the outdoor unit for the size of power supply electric wire connected to the outdoor unit, the capacity of the circuit breaker and switch, wiring and wiring instructions.

Dry contact connection_optional accessory



1. Using screw(4EA), fix the dry contact on the side panel.



..... Signal [---] Field work

2. Using cable, connect the dry contact to main PCB.
For more information, please refer to dry contact installation manual.

Thermistors Installation

Pipe thermistors Installation

Location of the pipe thermistors

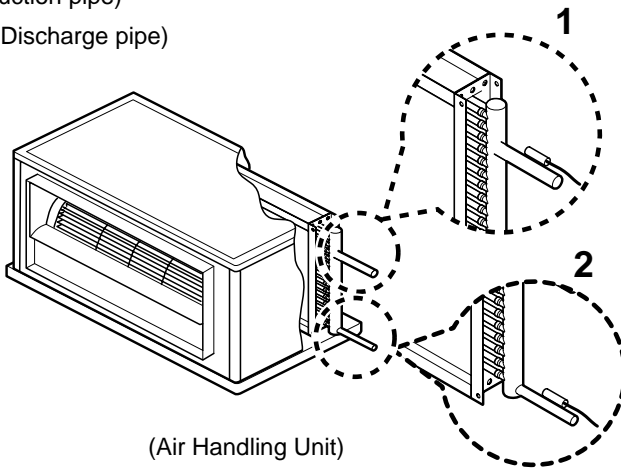
A correct installation of the thermistors is required to ensure a good operation :

1. Pipe_In(EBG36949304)
: Install the thermistor behind the distributor on the coldest pass the heat exchanger (contact your heat exchanger dealer).
2. Pipe_Out(EBG36949305)
: Install the thermistor at the outlet of the heat exchanger as close as possible to the heat exchanger.

Evaluation must be done to check if the evaporator is protected against freeze-up.

Execute test operation and check for freeze-up.

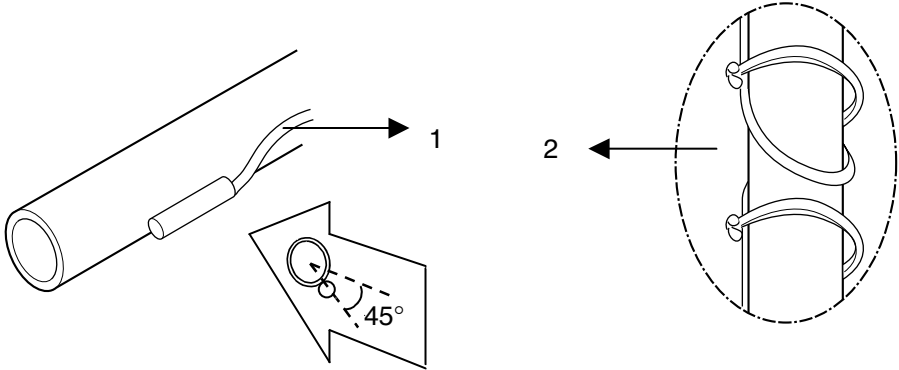
- 1 Pipe_In(Suction pipe)
- 2 Pipe_Out(Discharge pipe)



Pipe thermistors Installation

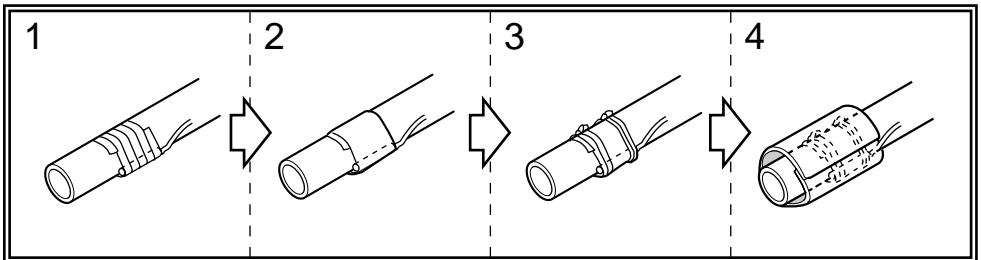
Installation of the pipe thermistor cable

1. Put the thermistor cable in a separate protective tube.
2. Always add a pull-relief to the thermistor cable to avoid strain on the thermistor cable and loosening of the thermistor. Strain on the thermistor cable or loosening of the thermistor may result in bad contact and incorrect temperature measurement.



Fixation of the pipe thermistors (Field work)

1. Fix the thermistor with insulating aluminum tape (Field supply) in order to ensure a good heat transference.
2. Put the supplied piece of rubber around the thermistor(EBG36949304/05) in order to avoid loosening of the thermistor after some years.
3. Fasten the thermistor with 2 tie wraps.
4. Insulate the thermistor with the supplied insulation sheet.



Pipe thermistors Installation

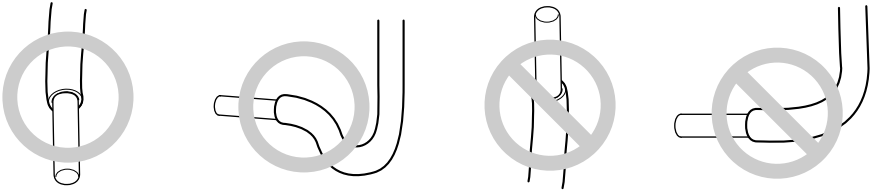
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2. Put the supplied piece of rubber around the thermistor(EBG36949304/05) in order to avoid loosening of the thermistor after some years.
3. Fasten the thermistor with 2 tie wraps.
4. Insulate the thermistor with the supplied insulation sheet.

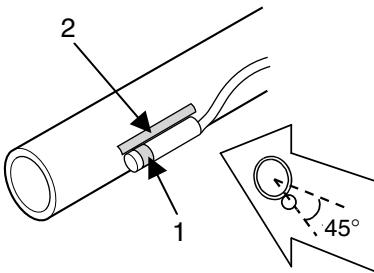


INSTRUCTION

- Put the thermistor wire slightly top to avoid water accumulation on down of the thermistor.



- Make good between thermistor and evaporator. Put the top of the thermistors on the evaporator, this is the most sensitive point of the thermistor.

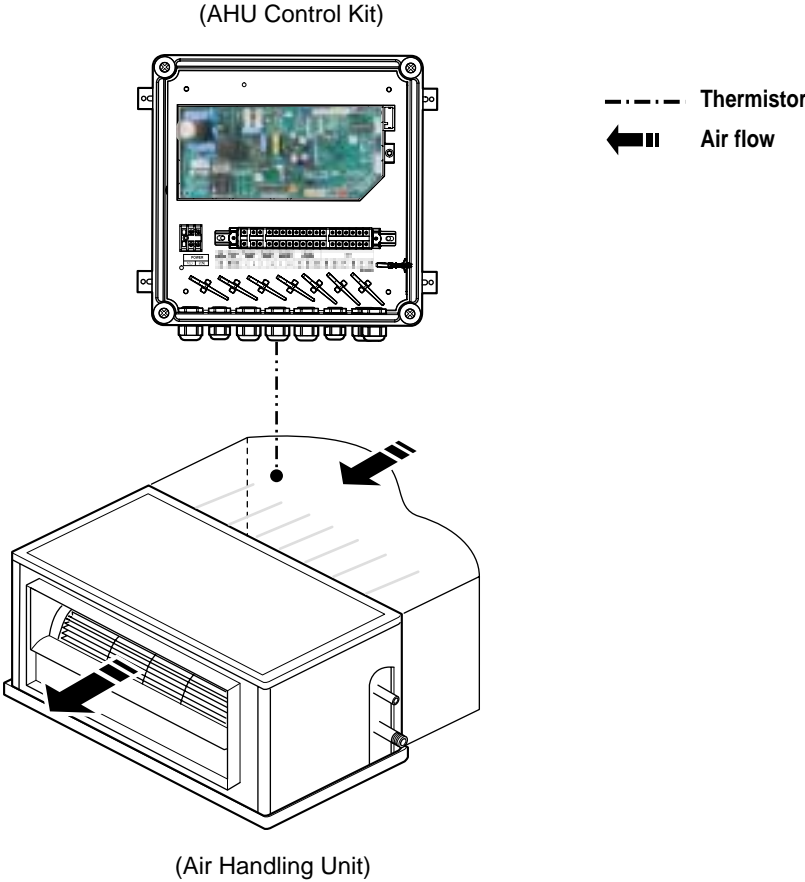


- 1 Most sensitive point of the thermistor
- 2 Maximize the contact

Room thermistor

Installation of the Room thermistor

1. The room thermistor have to be installed in the return air part of the AHU(Field supply) mentioned below.



Troubleshooting

Problem	Cause	Remedy
AHU Control Kit does not work	No power supply	Check the electrical connection and voltage of the power supply.
	Wiring is wrong	Check the electrical connection of the Control kit (Refer to the circuit diagram of the Control Kit)
	AHU Control Kit is broken	Check the electrical and mechanical part.
AHU EEV Kit does not work	Wiring is wrong	Check the electrical connection of the EEV Kit
	Piping is wrong	Check the piping connection between the EEV Kit and outdoor unit

