

문서번호	KUKJE-130
Order No.	CWROM-1606-00193
P/No.	MFL50024802

최종 컨펌일자 :

작업자	연구실 담당자
희령	김동겸

개정일자 : 2016-6-1

- QA 요청사항 : 1. 원고에 지시된 대로 작업한 후 이상없이 작업 되었는지 재차 검토 후 PDF 파일을 생성한다.
 2. 작업완료 후 담당 연구원에게 수정부분에 대한 검증요청한다.
 (***) 반드시 필요 - 의뢰자가 요청한 의도대로 작업이 정확히 되었는지 반드시 확인이
 필요함)
 3. 아래 체크리스트에 따라 놓치기 쉬운 사항을 우선으로 한번 더 확인한다.

* 필수확인 - QA요구사항

작업원고와 수정내용이 일치하는가?	<input checked="" type="checkbox"/> 예
언어표시띠의 위치(누락여부)는 바른가?	<input checked="" type="checkbox"/> 예
약물(기호)이 깨지거나 위치가 어긋 난 곳은 없는가?	<input checked="" type="checkbox"/> 예
그림이 가려지거나 잘려나간 곳은 없는가?	<input checked="" type="checkbox"/> 예
바코드와 P/No.가 일치하는가? (바코드 확인)	<input checked="" type="checkbox"/> 예

*최종 확인후 본 체크리스트는 삭제됩니다.

INSTALLATION MANUAL

AIR CONDITIONER

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.

Applied(AHU)
Comm.kit



P/NO : MFL50024802

www.lg.com

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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

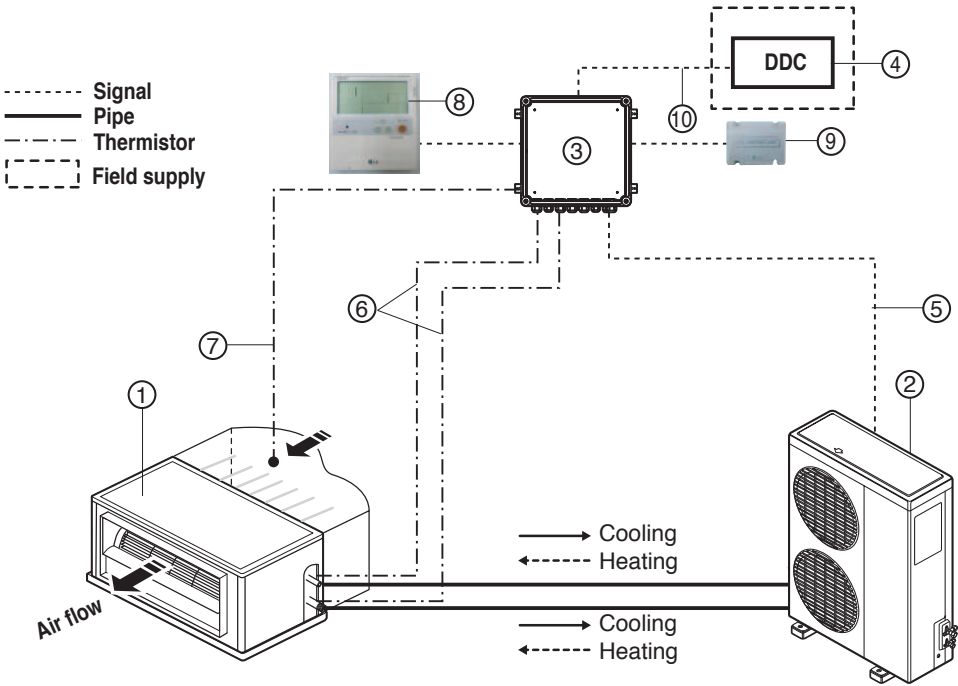
When the product is soaked (flooded or submerged), contact an Authorized Service Center.

- There is risk of fire or electric shock.

Be cautious that water could not enter the product.

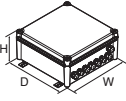
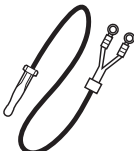
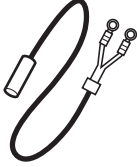

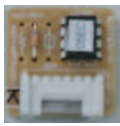
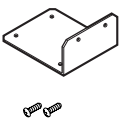
- There is risk of fire, electric shock, or product damage.

Installation Scene



Parts and components		
No.	Name	Remarks
1	Air Handling Unit	Field supply
2	Outdoor Unit	Universal
3	AHU Control Kit(PUCKA0)	-
4	DDC	Field supply(Central control Device)
Wiring connections		
5	Control kit wiring	(Power supply and communication between control kit and outdoor unit)
6	Pipe thermistors	Evaporator (In/Out) control of Air Handling Unit
7	Room thermistor	Return air control
8	Remote controller(PQRCUSA0/1)	Optional accessory
9	Dry contact (PQDSBC)	Optional accessory
10	Signal	<ul style="list-style-type: none"> Fan signal(Low / Middle / High) Defrost / Heating / Cooling signal Thermal On/Off

Supplies

PUCKA0						
Components	AHU Control Kit	Room thermistor	Pipe thermistors	Installation manual	Capacity setting option PCB	Panel(Dry contact support)
Shape						
Quantity(EA)	1	1	2(Pipe In/Out)	1	10(Each 1)	1(Panel) 2(Screw)

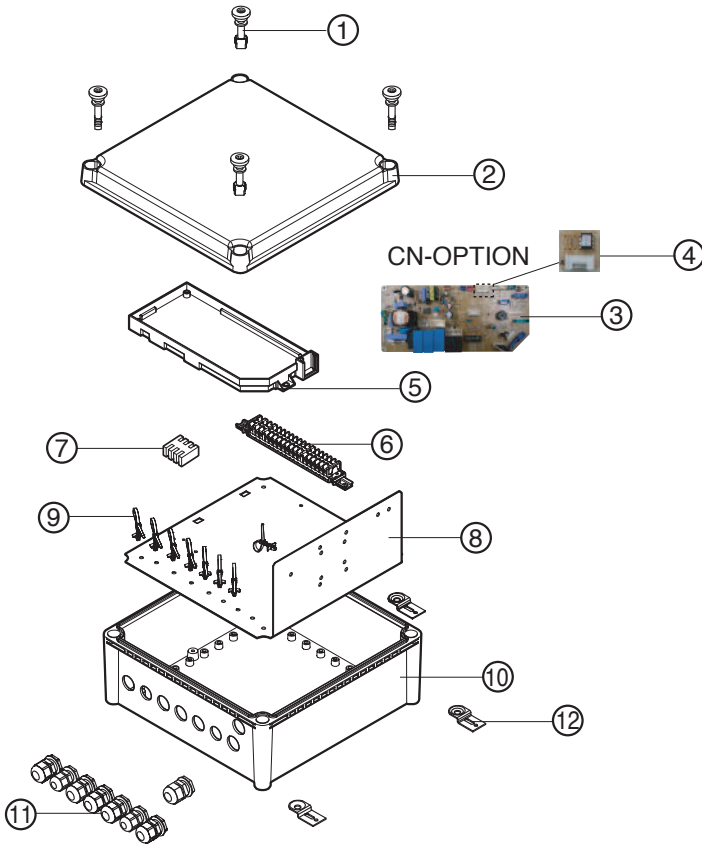
Model Name	Weight(kg)		Dimension(mm)			POWER
	NET	Gross	W	H	D	
PUCKA0	2.5	4	280	135	280	1Phase, 220~240V, 50/60Hz

Optional Accessories

Accessories		
Components	Remote controller	Dry contact
Model name	PQRCUSA0/1	PQDSBC
Shape		

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

Part Description



No.	Part Name	Quantity(EA)
1	Plastic (+) bolt	4
2	Control box cover	1
3	Main PCB	1
4	Option PCB(24k)	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

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.
 - ⑩ If you want to install the product outdoors, it should be installed with outdoor casing.

- 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 For refrigerant piping of outdoor unit, refer to the installation manual supplied with the outdoor unit.
 - ③ For installation of the wired remote controller(PQRCUSA0/1), refer to the manual supplied with the wired remote controller.
 - ④ For connection of the Dry contact (PQDSBC), refer to the manual supplied with the Dry contact (PQDSBC).

- 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.

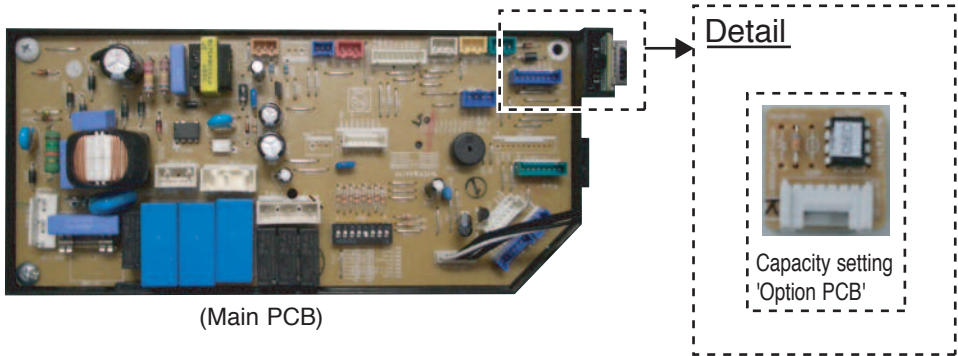
⚠ CAUTION

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 24k Option PCB equipped in the main PCB, and set up the Option PCB fitted the need capacity in the main PCB.



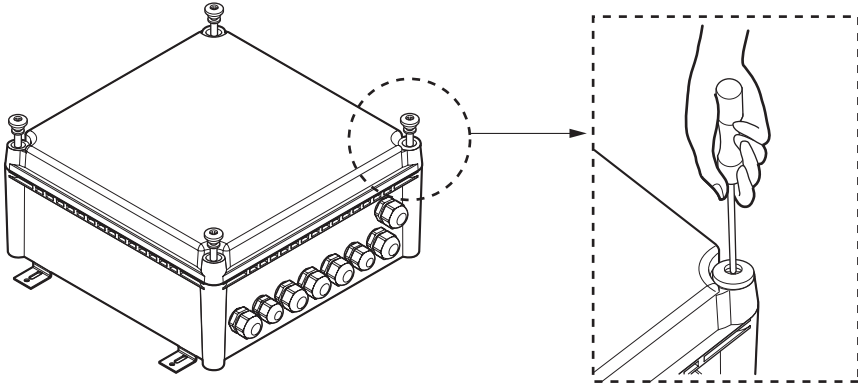
Option PCB P/NO	Capacity (Btu/h)	Standard heat exchanger volume (10 ³ x m ³)	Maximum heat exchanger capacity (kW)	Air Flow rate (CMM)
EBR65102901	12 k	2.2	3.5	9~10
EBR65102902	18 k	2.4	5.0	13~16.5
EBR65102903	24 k	2.6	7.1	14~18
EBR65102904	30 k	2.9	8.0	20~26.5
EBR65102905	36 k	3.1	10.0	26.5~32
EBR65102906	42 k	3.4	12.5	28~36
EBR65102907	48 k	4.0	14.0	30~40
EBR65102908	60 k	4.7	15.0	40~50
EBR52358920	70 k	5.2	20.0	60~70
EBR52358921	85 k	5.9	23.0	64~80

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

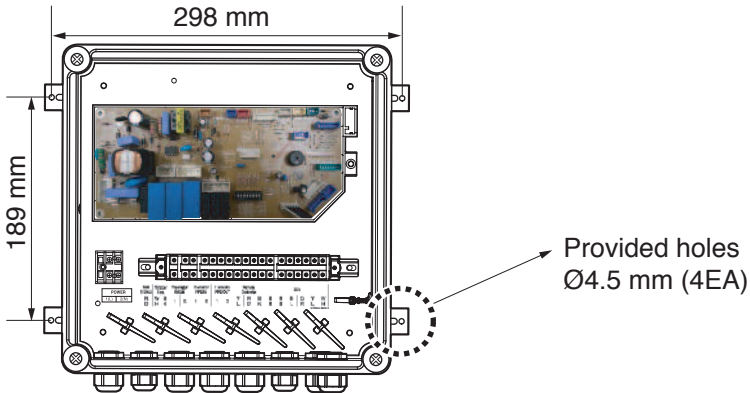
Control Kit Installation

Mechanical installation

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



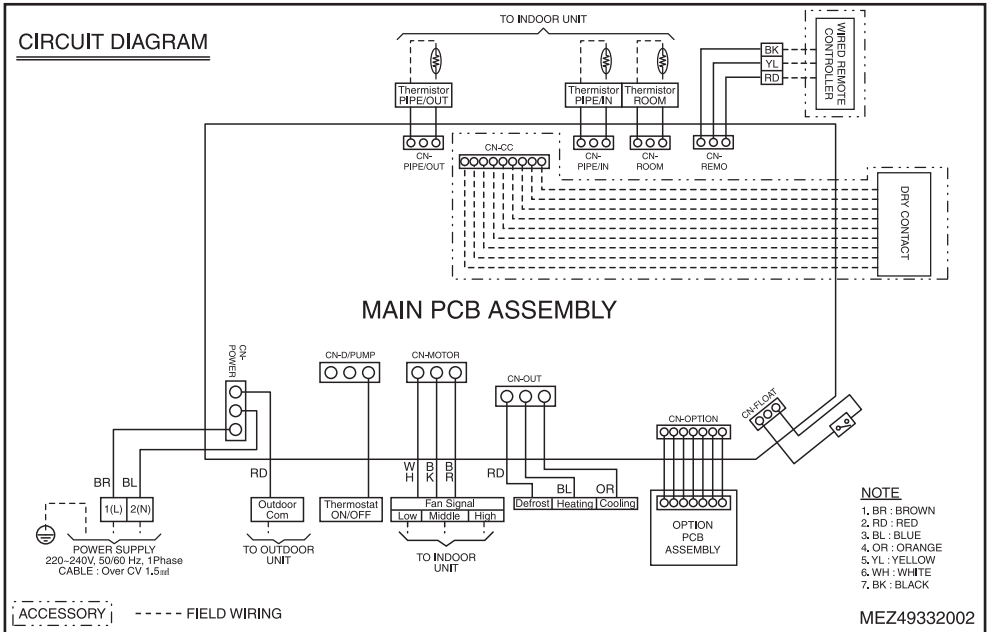
2. Drill 4 holes on correct position and fix the Control Kit box securely with 4 screws(Field supply) through the provided holes $\text{\O}4.5\text{ mm}$ (Reference the length of the holes $\text{\O}4.5$)



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-D/PUMP	FIELD WIRING	THERMOSTAT ON/OFF SIGNAL
CN-MOTOR	FAN MOTOR CONTROLLER	FAN SPEED CONTROLL OUTPUT
CN-OUT	FIELD WIRING	DEFROST, HEATING, COOLING SIGNAL OUTPUT
CN-OPTION	OPTION PCB	COMMUNICATION BETWEEN MAIN AND OPTION
CN-FLOAT	FLOAT SWITCH INPUT	FLOAT SWITCH SENSING
CN-REMO	REMOTE CONTROLLER	REMOTE CONTROL LINE
CN-ROOM	ROOM SENSOR	ROOM AIR THERMISTOR
CN-PIPE/IN	SUCTION PIPE SENSOR	PIPE IN THERMISTOR
CN-CC	DRY CONTACT	DRY CONTACT LINE
CN-PIPE/OUT	DISCHARGE PIPE SENSOR	PIPE OUT THERMISTOR

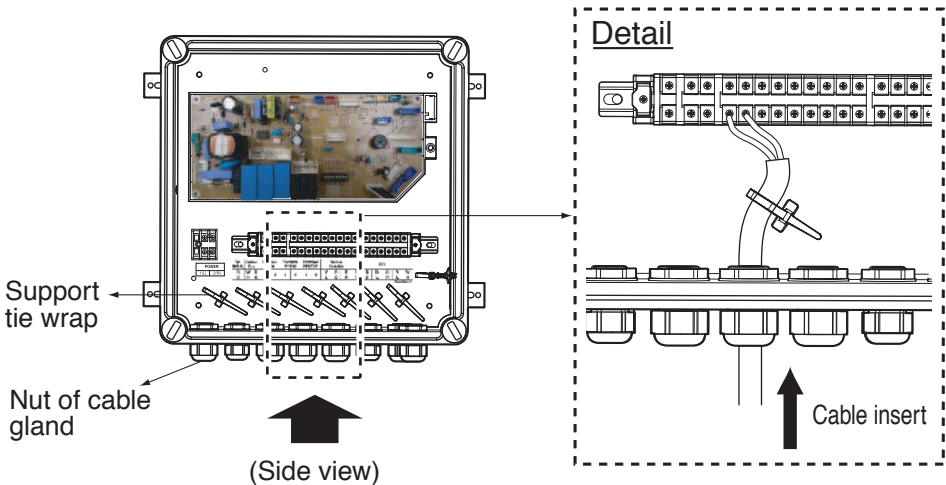
Electric Wiring Work

■ Connection of the wires

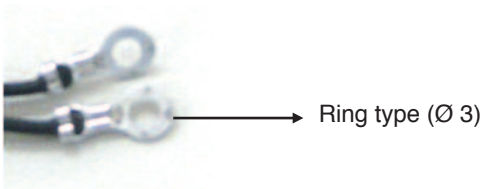
2. For connection to outdoor unit and to controller (Field supply) :

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.

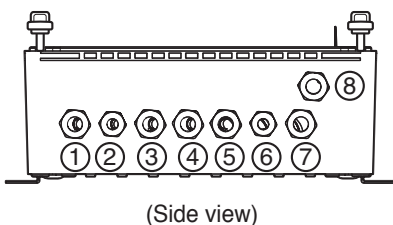
3. The wires require an additional pull-relief. Strap the wire with the support tie wrap.



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.



No.	Electric wire
①	Power supply
②	Outdoor com.
③	Thermal Signal(On/Off)
④	Fan signal(Low / Middle / High)
⑤	Defrost / Heating / Cooling signal
⑥	Room / Pipe thermistor(In/Out)
⑦	Remote controller
⑧	DRY contact

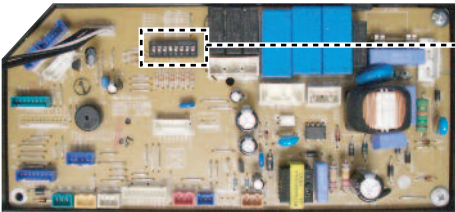
Electric Wiring Work

⚠ CAUTION

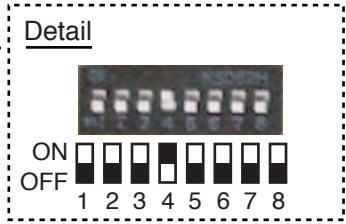
- All field supplied parts and materials and electric works must be conform to local codes.
- Use copper wire only.
- All wiring must be performed by an authorized electrician.
- A main switch or other means for disconnection, having a contact separation in all poles, must be incorporated in the fixed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

Dip switch setting

If you want to run the Fan(L/M/H) in Heating Mode - defrosting condition, you should set the dip switch 4 to "On"(As shown below)



(Main PCB)

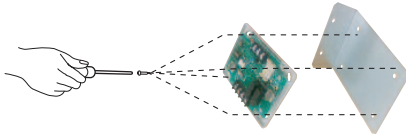


■ PCB output signal(According to the dip switch 4 setting)

Condition		Output Signal			
		Thermal On/Off	Fan L/M/H	Defrost	Heating Mode
Dip switch Off	Off	Off	Off	Off	Off
	Cooling Mode	Off or On	On	Off	Off
	Fan Mode	Off	On	Off	Off
	Heating Mode	Off or On	Off or On	Off	On
	Heating Mode - Preheating	On	Off	Off	On
	Heating Mode - Defrosting	On	Off	On	On
	Auto Mode	The Same as Cooling or Heating Mode			
Dip switch On	Off	Off	Off	Off	Off
	Cooling Mode	Off or On	On	Off	Off
	Fan Mode	Off	On	Off	Off
	Heating Mode	Off or On	On	Off	On
	Heating Mode - Preheating	On	On	Off	On
	Heating Mode - Defrosting	On	On	On	On
Auto Mode	The Same as Cooling or Heating Mode				

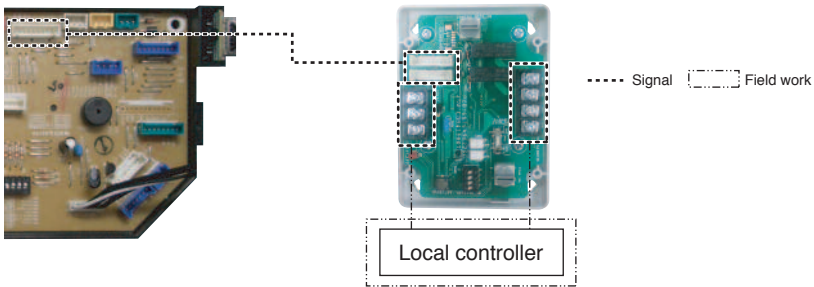
Dry contact connection_optional accessory

- Using screw(4EA), fix the dry contact on the bracket.

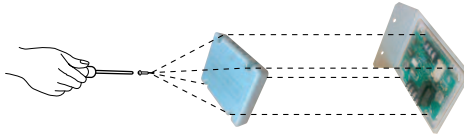


- * Applicable dry contact model
- PQDSBC

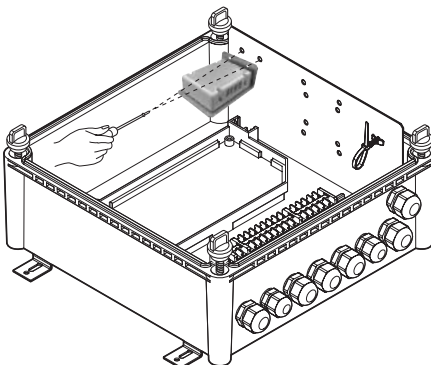
- Using cable, connect the dry contact to main PCB.
For more information, please refer to dry contact installation manual.



- Using screw(4EA), fix the dry contact upper cover to bottom cover.



- Combine the dry contact upper cover to bottom cover with screw(2EA).



Thermistors Installation

Pipe thermistors Installation

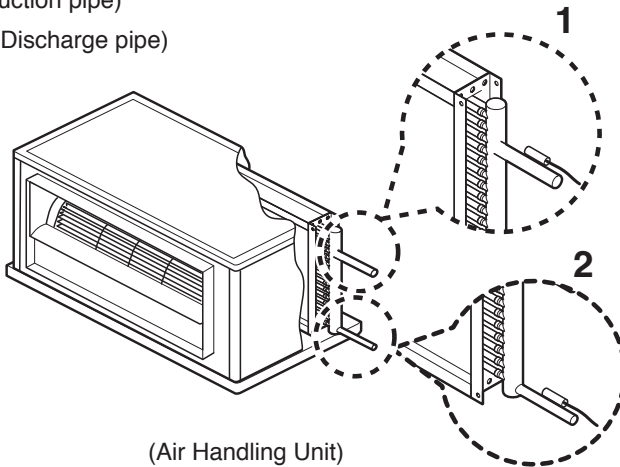
Location of the pipe thermistors

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

1. Pipe_In
: Install the thermistor behind the distributor on the coldest pass the heat exchanger (contact your heat exchanger dealer).
2. Pipe_Out
: 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.

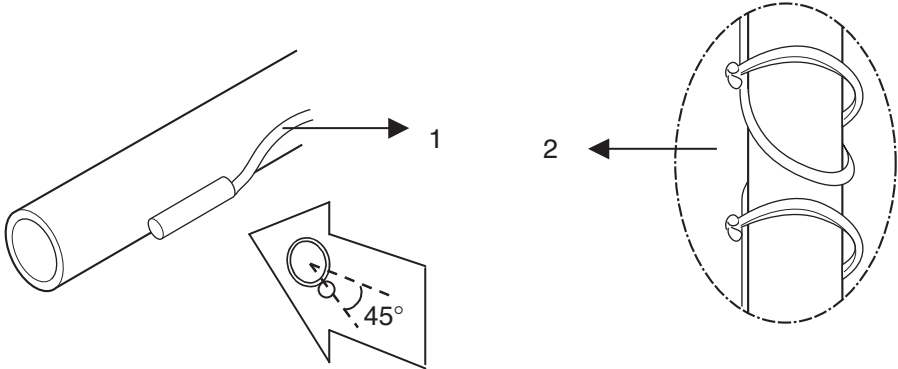
- 1 Pipe_In(Suction pipe)
- 2 Pipe_Out(Discharge pipe)



Pipe thermistors Installation

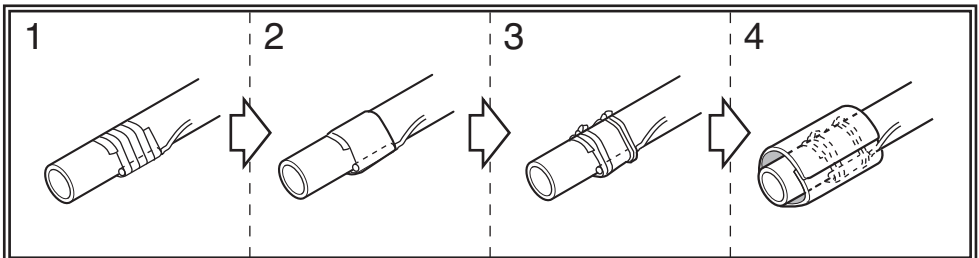
Installation of the pipe thermistor cable

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)

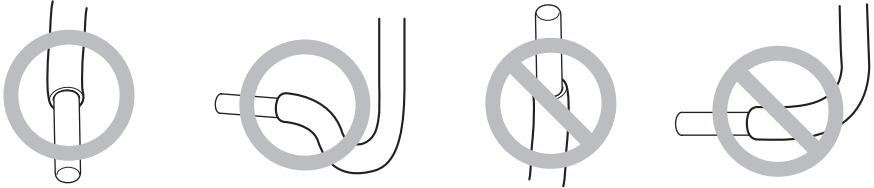
1. Fix the thermistor with insulating aluminum tape (Field supply) in order to ensure a good heat transference.
2. Put the supplied piece of rubber around the thermistor in order to avoid loosening of the thermistor after some years.
3. Fasten the thermistor with 2 tie wraps.
4. Insulate the thermistor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



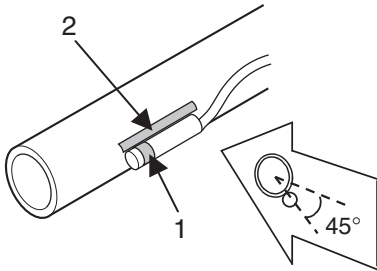
Pipe thermistors Installation

! 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.

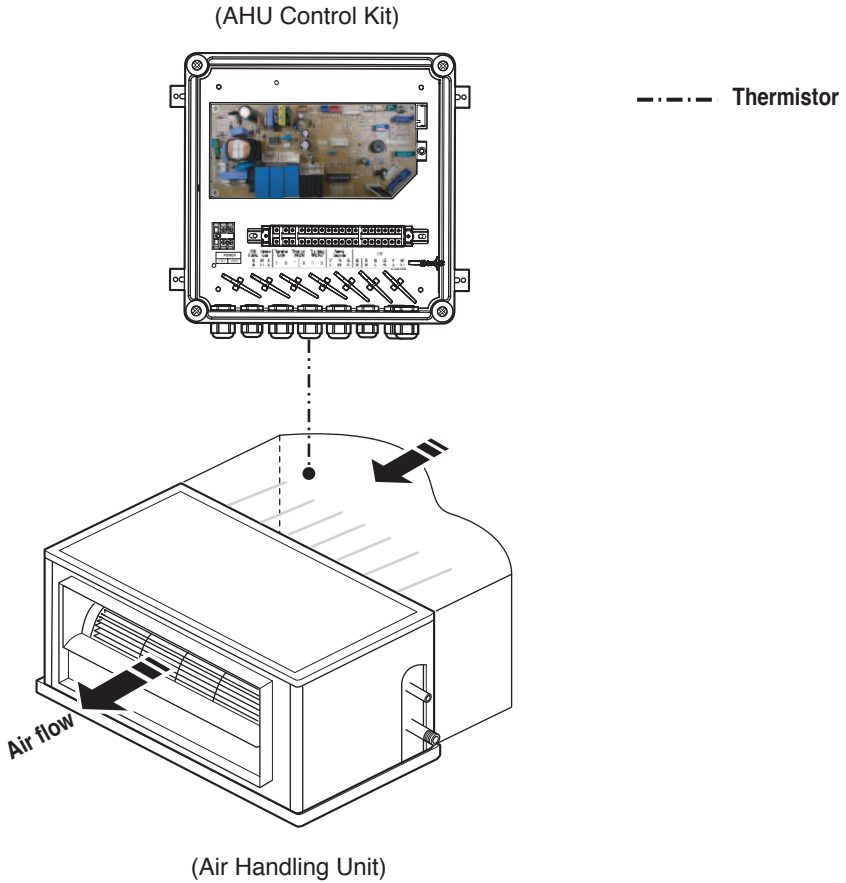


- 1 Most sensitive point of the thermistor
- 2 Maximize the contact

Room thermistor

Installation of the Room thermistor

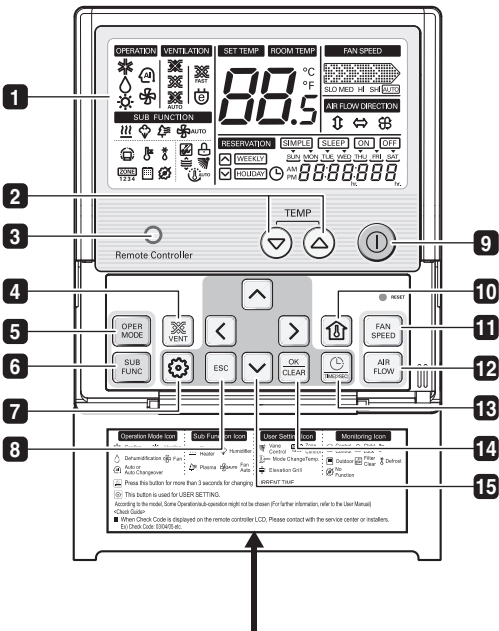
1. The room thermistor have to be installed in the return air part of the AHU(Field supply) mentioned below.



Test Operation

Before test operation, be sure all information is understood completely, and follow the guideline of manual.

- Check the refrigerant piping of outdoor unit.
(Additional charging of the refrigerant ,the maximum allowed piping length and open the stop valve)
 - * For more detailed information of that, refer to the installation manual supplied with the outdoor unit.
- Executing the test operation.
 1. Connect the power and turn on with the wired remote controller(PQRCUSA0/1).
 2. Check the AHU(Field supply) and outdoor unit operation when the wired remote controller (PQRCUSA0/1) is controlled.



Please attach the inform label inside of the door.
Please choose proper language depend on your country.

- 1 OPERATION INDICATION SCREEN**
- 2 SET TEMPERATURE Button**
- 3 WIRELESS REMOTE (Do not operate) CONTROLLER RECEIVER**
 - Some products don't receive the wireless signals.
- 4 VENTILATION Button (Do not operate)**
- 5 OPERATION MODE SELECTION Button**
- 6 SUBFUNCTION Button**
- 7 FUNCTION SETTING Button**
- 8 EXIT Button**
- 9 ON/ OFF Button**
- 10 ROOM TEMPERATURE Button**
- 11 FAN SPEED Button**
- 12 AIR FLOW Button (Do not operate)**
- 13 RESERVATION/ TIME SETTING Button**
- 14 SETTING/ CANCEL Button**
- 15 UP, DOWN, LEFT, RIGHT Button**

* For more detailed function of the wired remote controller, refer to the Owner's & Installation manual supplied with the wired remote controller.

* Button ③, ④, ⑫ on the wired remote controller(PQRCUSA0/1) is not operated.

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.

