

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.

AHU EEV KIT
Original instruction



MFL70524403
Rev.01_121720

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IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.

Always comply with the following precautions to avoid dangerous situations and ensure peak performance of your product.

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

WARNING

It can result in serious injury or death when the directions are ignored.

CAUTION

It can result in minor injury or product damage when the directions are ignored.

WARNING

- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Installation **MUST** conform with local building codes or, in the absence of local codes.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.

- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

Installation

- Don't use a power cord, a plug or a loose socket which is damaged.
 - Otherwise, it may cause a fire or electrical 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.
- Always ground the product.
 - There is risk of fire or electric shock.
- Install the panel and the cover of control box securely.
 - 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 modify or extend the power cable.
 - There is risk of fire or electric shock.
- Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.
 - Moisture may condense and wet or damage furniture.
- Be cautious when unpacking and installing the product.
 - Sharp edges could cause injury. Be especially careful of the case edges and the fins on the condenser and evaporator.
- You need to use a safely insulated power supply which follows IEC61558-2-6 and NEC Class2.
 - If you do not follow, It may cause fire, electric shock, explosion or injury.
- Securely attach the electrical part cover to EEV Controller Module.
 - If the electric part cover of EEV Controller Module is not attached securely, it could result in a fire or electric shock due to dust, water, etc.

- Do not keep or use flammable gases or combustibles near the equipment.
 - Otherwise, it may cause a fire or the failure of product.
- Do not install, remove or reinstall the unit by yourself.
 - Otherwise, it may cause a fire, electrical shock, explosion or injury.
- Do not disassemble or repair the product randomly.
 - It will cause a fire or electrical shock.
- Do not install the product in a place where there is the concern of falling down.
 - Otherwise, it may result in personal injury.
- Do not install the product on a defective installation stand.
 - It may cause injury, accident, or damage to the product.
- Be sure the installation area does not deteriorate with age.
 - If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.
- There is a risk of fire and explosion.
 - Inert gas (nitrogen) should be used when you check plumbing leaks, cleaning or repairs of pipes etc. If you are using combustible gases including oxygen, product may have the risk of fires and explosions.

Operation

- Do not store or use flammable gas or combustibles near the product.
 - There is risk of fire or failure of product.
- Do not share the outlet with other appliances.
 - It will cause an electric shock or a fire due to heat generation.
- Do not use the damaged power cord.
 - Otherwise, it may cause a fire or electrical shock.
- Do not modify or extend the power cord randomly.
 - Otherwise, it may cause a fire or electrical shock.

- Take care so that the power cord may not be pulled during operation.
 - Otherwise, it may cause a fire or electrical shock.
- Unplug the unit if strange sounds, smell, or smoke comes from it.
 - Otherwise, it may cause electrical shock or a fire.
- Keep flames away.
 - Otherwise, may occur a fire.
- Take the power plug out if necessary, holding the head of the plug and do not touch it with wet hands.
 - Otherwise, it may cause a fire or electrical shock.
- Do not use the power cord near the heating tools.
 - Otherwise, it may cause a fire and electrical shock.
- Do not allow water to run into electrical parts.
 - Otherwise, it may cause the failure of machine or electrical shock.
- Hold the plug by the head when taking it out.
 - It may cause electric shock and damage.
- Be cautious that water could not enter the product.
 - Otherwise, it may cause a fire electrical shock or product damage.
- Do not step on the indoor/outdoor unit and do not put anything on it.
 - It may cause an injury through dropping of the unit or falling down.
- Do not place a heavy object on the power cord.
 - Otherwise, it may cause a fire or electrical shock.
- When the product is submerged into water, always contact the service center.
 - Otherwise, it may cause a fire or electrical shock.

CAUTION

Installation

- Always check for gas (refrigerant) leakage after installation or repair of product.
 - Low refrigerant levels may cause failure of product.
- Install the drain hose to ensure that water is drained away properly.
 - A bad connection may cause water leakage.
- Keep level even when installing the product.
 - To avoid vibration or water leakage.
- Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.
 - It may cause a problem for your neighbors.
- Do not install the product where it will be exposed to sea wind (salt spray) directly.
 - It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.
- Thickness of copper pipes used are as shown "Flaring work" Table.
 - Never use copper pipes thinner than that in the table even when it is available on the market
- Do not use copper pipes having a collapsed.
 - Otherwise, the expansion valve or capillary tube may become blocked with contaminants.
- For R410A model, use piping, flare nut and tools which is specified for R410A refrigerant.
 - Using of (R22) piping, flare nut and tools may cause abnormally high pressure in the refrigerant cycle (piping), and possibly result in explosion and injury.
- It is desirable that the amount of residual oil less than 40 mg/10m.

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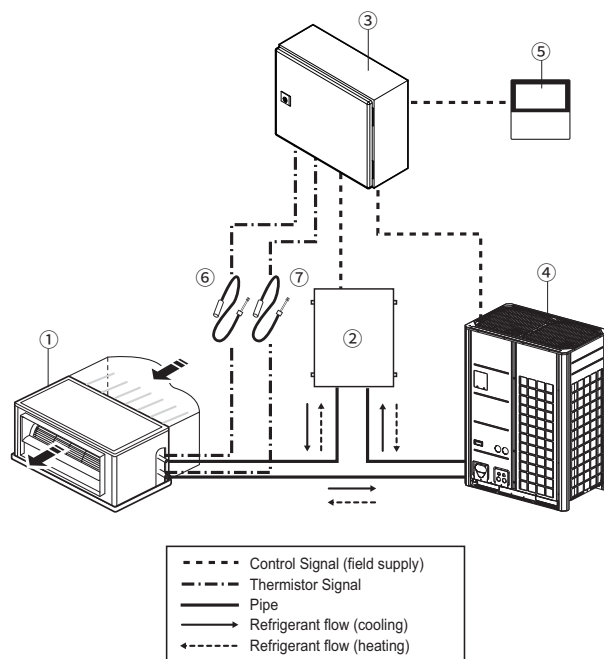
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INSTALLATION COMPOSITION

This EEV Kit is a product that connects an AHU with an outdoor unit with the following composition.



Installation components			
No.	Name		Notes
1	AHU		Local supply
2	EEV Kit	Model	Connectable outdoor unit capacity
		PRLK048A0	2 ~ 10 HP
		PRLK096A0	12 ~ 20 HP
		PRLK396A0	22 ~ 40 HP
		PRLK594A0	42 ~ 60 HP
3	AHU Communication Kit		-
4	Outdoor unit		MULTI V
5	Remote controller		LG wired remote controller(Optional)
6	Pipe in(Liquid) thermistor		Sensor: Ø 5, Length: 5m, Cable color: Black
7	Pipe out(Gas) thermistor		Sensor: Ø 7, Length: 5m, Cable color: Red

TECHNICAL SPECIFICATION

Specification Sheet

Model			PRLK048A0	PRLK096A0	PRLK396A0	PRLK594A0
Dimensions	Width	mm	217	217	349.5	409.5
	Depth	mm	83	83	180	180
	Height	mm	404	404	345.5	345.5
Net. Weight		kg	3.1	3.1	4.3	5.5
Casing	Color		Warm Gray			
	Material		Galvanized steel plate			
Composition	Pipe Sensor	Liquid Pipe	Sensor Ø5, 5 kΩ, 5m, Black			
		Gas Pipe	Sensor Ø7, 5 kΩ, 5m, Red			
	Installation Manual		EA	1	1	1
	EEV Controller (PAEEVA020)		EA	-	-	1
Rated Voltage		V	DC12 ±1.2			
Connectable Outdoor Unit Capacity		HP	2 ~ 10	12 ~ 20	22 ~ 40	42 ~ 60
Liquid Pipe Size		mm	12.7	12.7	19.05	19.05
Operation Pressure		MPa	0 ~ 4.5			

Combination of AHU Communication Kit and ODU system with EEV Kit.

EEV Kit	AHU Communication Kit		Connection by ODU system	
	PAHCMR000	PAHCMS000	Heat pump	Heat recovery
PRLK048A0	O	O	O	O
PRLK096A0	O	O	O	O
PRLK396A0	O	O	O	X (Max 33.7 kW ¹⁾)
PRLK594A0	X	O	O (with PAHCMS000)	X

1) Maximum allowable capacity with HR Unit.

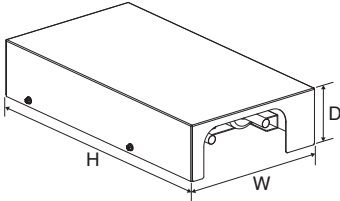
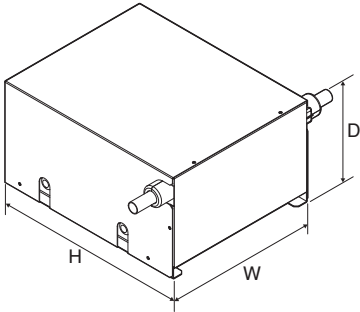
Compatibility of EEV Kits and IDUs.

Case	Combination	Compatibility	
		Return Air ¹⁾	Supply Air ²⁾
1	Multiple PRLK048A0 / PRLK096A0	O	O
2	Multiple PRLK048A0 / PRLK096A0 + IDUs ³⁾	O	X
3	PRLK396A0 + IDUs	X	X
	PRLK594A0 + IDUs	X	X
4	PRLK396A0 + PRLK048A0 / PRLK096A0	X	X
	PRLK594A0 + PRLK048A0 / PRLK096A0	X	X
5	PRLK396A0 + PRLK396A0 or PRLK594A0 (Exception : 2 x PRLK396A0)	X (O)	X (O)
	PRLK594A0 + PRLK396A0 or PRLK594A0	X	X

1) Return Air is for PAHCMR000 / PAHCMM000

2) Supply Air is for PAHCMS000 / PAHCMM000 + PAHCMM000

3) IDUs includes Hydro Kit/DX ERV/FAU(OAU)

EEV Kit		
Model	PRLK048A0 PRLK096A0	PRLK396A0 PRLK594A0
Shape		
Quantity(EA)	1	1

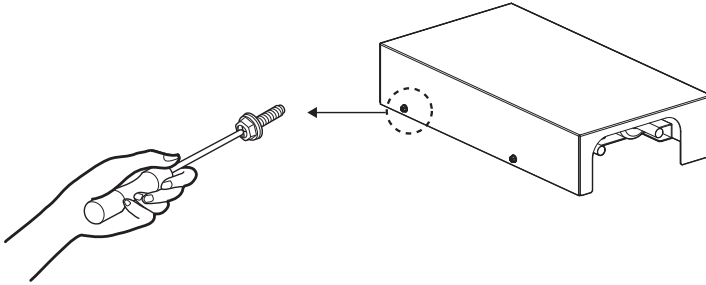
Model Name	Dimension (mm)			Note
	W	D	H	
PRLK048A0/PRLK096A0	217	83	404	-
PRLK396A0	349.5	180	345.5	-
PRLK594A0	409.5	180	345.5	EEV Controller included

EEV Kit INSTALLATION

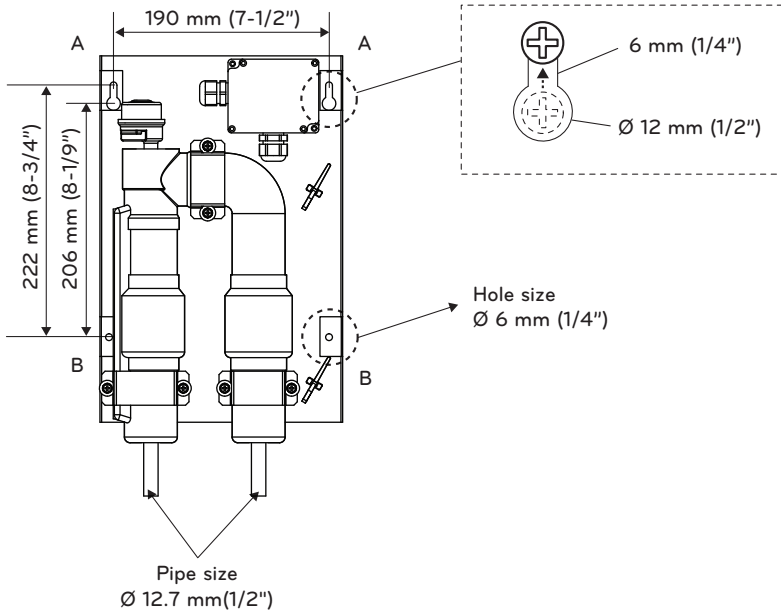
Product Installation

Model: PRLK048A0/PRLK096A0

- 1 Remove the 4 screws to separate the cover plate of the EEV Kit.

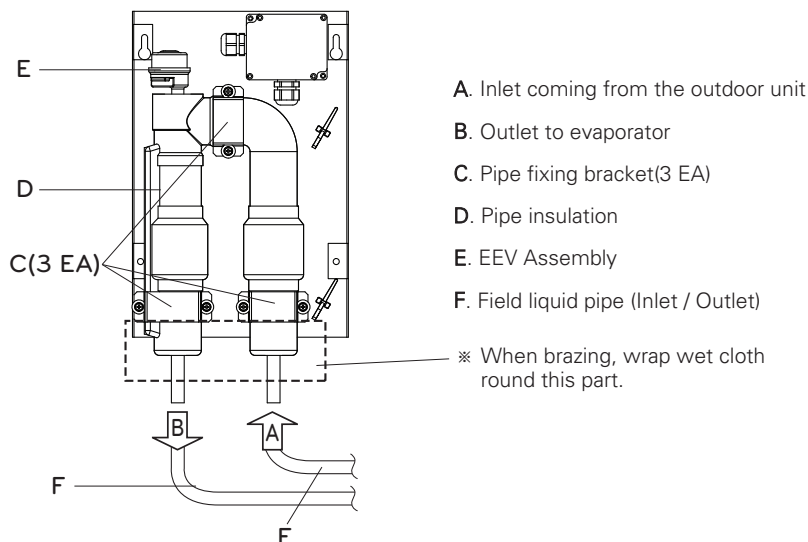


- 2 Drill 4 holes on correct position and fix the EEV Kit box securely with 2 screws (M5, field supply) at the 'A' position and then fix the EEV Kit box with other screws (M5x2 EA) at the 'B' position.



12 EEV Kit INSTALLATION

- 3 Prepare the inlet/outlet field piping just in front of the connection.
- 4 Braze the field piping.
- 5 Make sure that field pipes are fully insulated. Field pipe insulation must reach up to the pipe insulation(D). Make sure that there is no gap between both ends in order to avoid condensation dripping(Finish the connection with tape eventually)

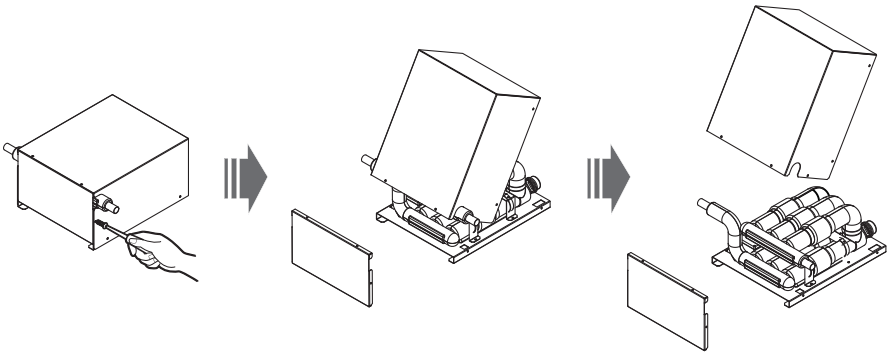


CAUTION

- 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.

Model: PRLK396A0 / PRLK594A0

1 Remove the screws to separate the cover plate and base plate of the EEV Kit.

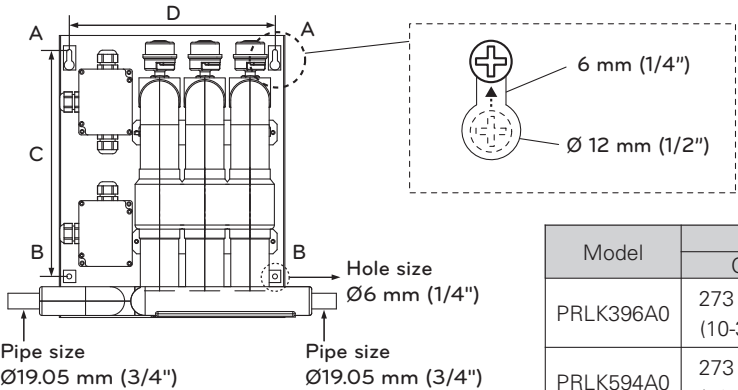


1) Remove the 4 screws from the EEV Kit's base plate. Remove the 4 screws to separate the cover plate of the EEV Kit.

2) Remove the base plate and rotate the cover of EEV Kit.

3) Remove the cover of EEV Kit.

2 Drill holes in the correct locations and use 4 screws (M5, field supply) to fix the EEV Kit.

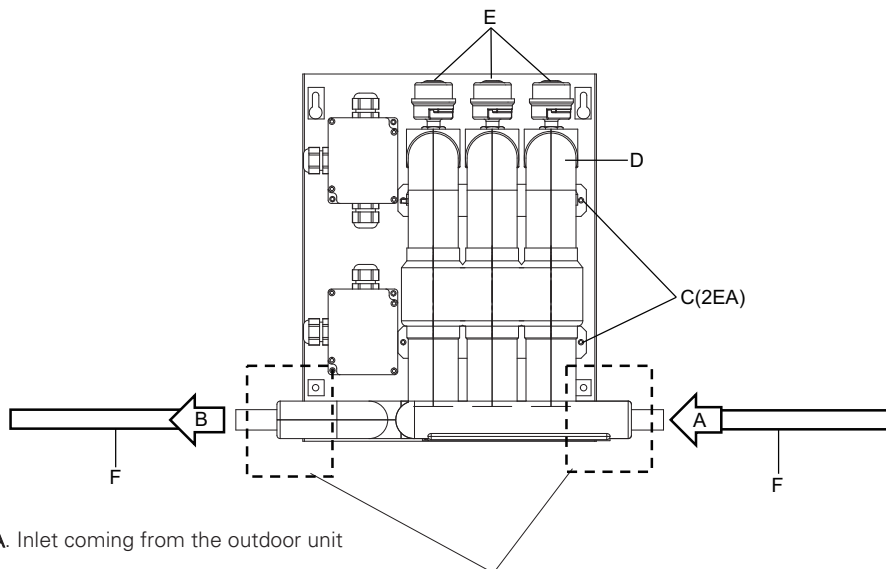


Model	length	
	C	D
PRLK396A0	273 mm (10-3/4")	250.3 mm (9-6/7")
PRLK594A0	273 mm (10-3/4")	190.3 mm (7-1/2")

Note: PRLK396A0 has two EEV assemblies.

14 EEV Kit INSTALLATION

- 3 Prepare the inlet/outlet field piping just in front of the connection.
- 4 Braze the field piping.
- 5 Make sure that field pipes are fully insulated. Field pipe insulation must reach up to the pipe insulation(D). Make sure that there is no gap between both ends in order to avoid condensation dripping(Finish the connection with tape eventually)



- A. Inlet coming from the outdoor unit
- B. Outlet to evaporator
- C. Pipe fixing bracket(3 EA)
- D. Pipe insulation
- E. EEV Assembly
- F. Field pipe(Inlet / Outlet)

※ When brazing, wrap wet cloth round this part.

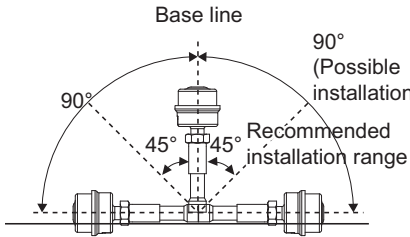
Note: The number of EEV assemblies: PRLK396A0 has two EEV assemblies.
PRLK594A0 has three EEV assemblies.

⚠ CAUTION

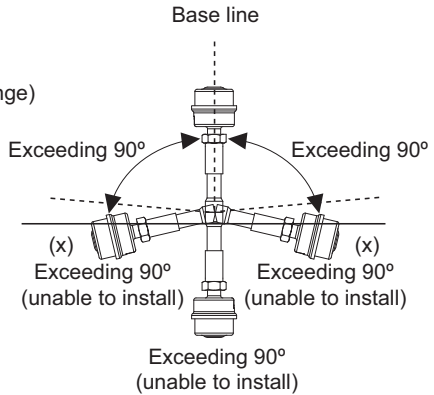
- Make sure to cool the filters and EEV body with a wet cloth and make sure the body temperature does not exceed 120 °C during brazing.
- Make sure that the other parts such as electrical box, tie wraps and wires protected from direct brazing flames during brazing.

⚠ CAUTION

- The product can be installed no more than 90° from the baseline. (Failure to do so could result in damage to or malfunction of the product.)



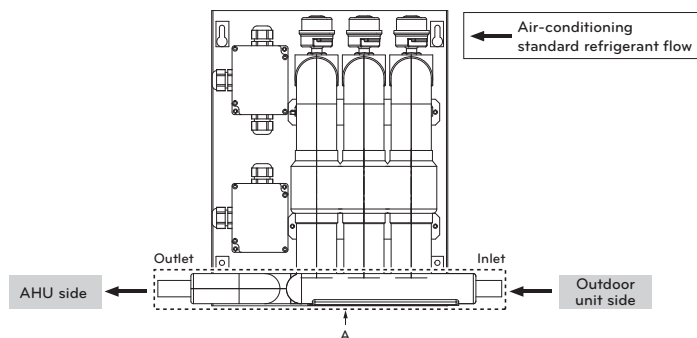
Correct installation of product



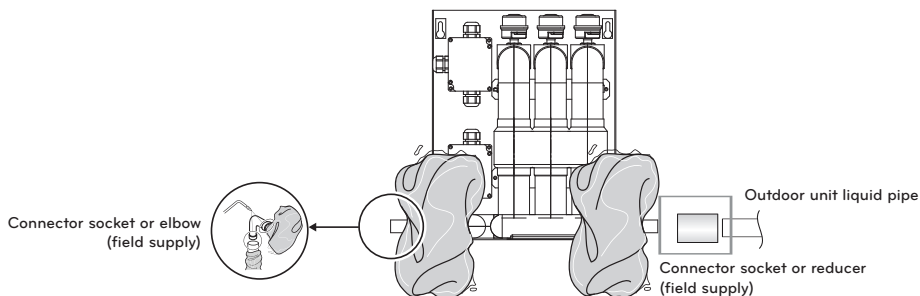
Incorrect installation of product

Welding

- 1 Check the inlet/outlet pipe before welding the EEV Kit.



- 2 Weld the connector pipe (field supply) at the outdoor unit.
- 3 When connecting the outdoor unit's liquid pipe and the EEV Kit's inlet pipe, be sure to use a socket (field supply) that meets the necessary specifications.
- 4 As the size of the EEV Kit pipe and the outdoor unit's liquid pipe could vary, check the sizes beforehand and use a socket that meets the necessary specifications.
- 5 When welding, make sure to follow the safety precautions at all times.
- 6 Be sure to insulate 'A' part after welding with insulation (15T or more).



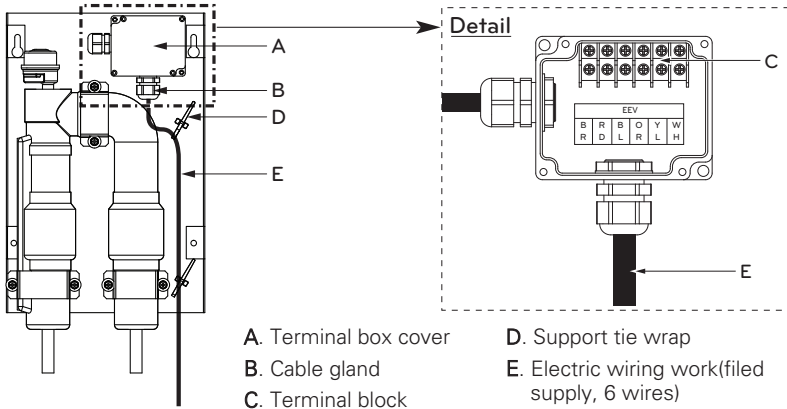
CAUTION

- Be sure to pass nitrogen through when welding parts together. Failure to do so could lead to the compressor not working properly or becoming damaged.
- It is essential that the part be wrapped with a wet towel before and after welding. Failure to do so could result in the part becoming damaged.
- Use a protective panel or be especially cautious not to let welding sparks come in contact with the AHU panel.
- After welding, be sure to test for any leakage.

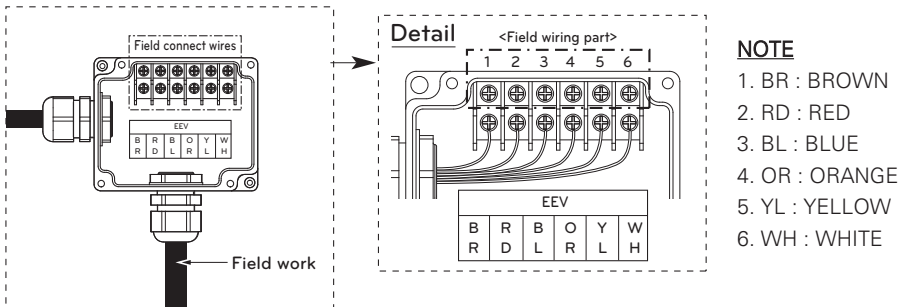
ELECTRICAL CONNECTION

Model: PRLK048A0 / PRLK096A0

- 1 Open the terminal box cover(A).
- 2 Pass EEV cable(field supply, 6 wires) from the AHU Communication Kit through cable gland and connect the cable wires into the terminal block (C) following instructions as describe in step
- 3 Route the cable out of the EEV Kit box according to figure below and fix with the support tie wrap(D).



- 4 Use a screwdriver(+) and follow indicated instructions for connecting cable wires into the terminal block according to the circuit diagram of AHU Communication Kit.



CAUTION

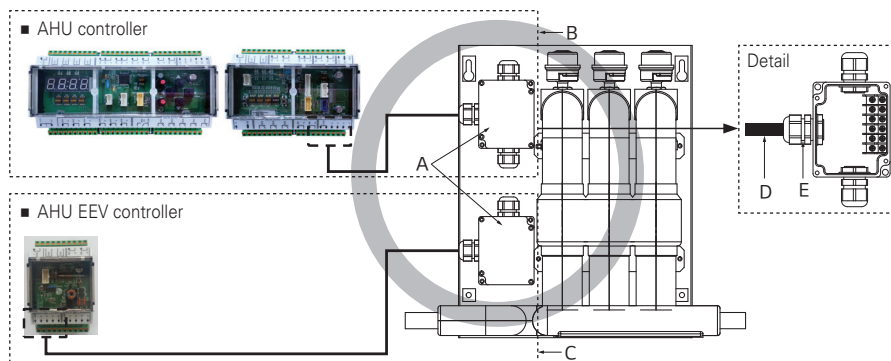
- Before connecting the wires(filed supply), make sure to compare with the wire colors between EEV Kit and AHU Communication Kit.
- Make sure to connect the wires according to the circuit diagram in AHU Communication Kit.
- Use the ring type pin to connect to the terminal block.

- 5 Make sure that field wiring and insulation are not squeezed when closing the cover plate of EEV Kit.
- 6 Close the cover plate of EEV Kit.

Model: PRLK396A0 / PRLK594A0

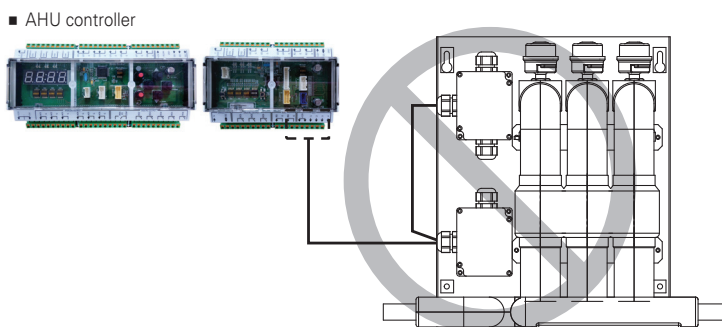
- 1 Open the EEV Kit terminal box cover (A).
- 2 Check the marked color label and connect the cable using the driver (+).
 - Example) Model PRLK594A0
 - PRLK396A0 model has one terminal box. Electrical connection method of PRLK396A0 is the same as PRLK048A0 / PRLK096A0.

(Correct wiring)

**! WARNING**

- Please connect one controller with one terminal block of EEV Kit. Failure to do so may result in component damage or fire. (Refer to correct wiring.)

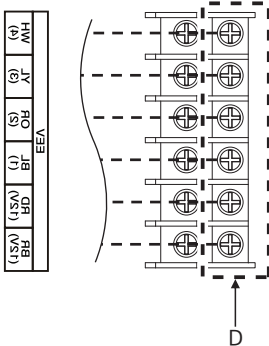
(Incorrect wiring)

**! WARNING**

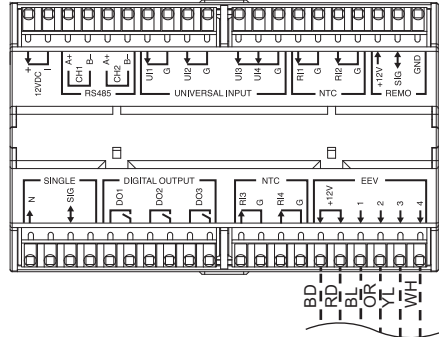
- Do not connect to the AHU Controller directly after wiring two terminal blocks together inside of the EEV Kit.

- 3 Use the screwdriver (+) to connect the EEV wires to the terminal block (D) according to the displayed instructions.

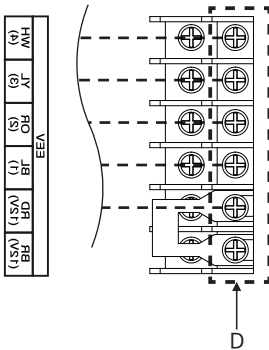
■ B: Electrical connection #1



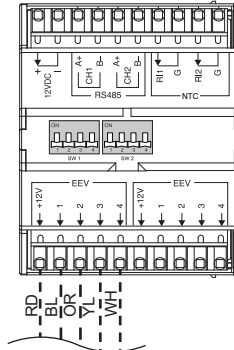
AHU Controller



■ C: Electrical connection #2



AHU EEV Controller



Note

- BR : Brown
RD : Red
BL : Blue
OR : Orange
YL : Yellow
WH : White
- - - : Field Wiring

WARNING

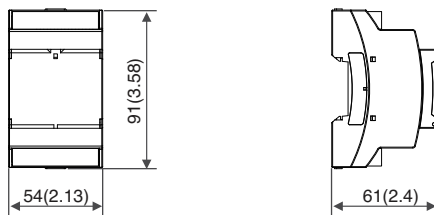
- Before installation, check the color on the label and connect it to the terminal block.
- It may result in malfunction.
- Use a ring type terminal (P4) to connect to the terminal block.

EEV CONTROLLER MODULE SPECIFICATION

This part is included in PRLK594A0 only.

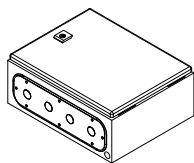
Dimension

Unit: mm

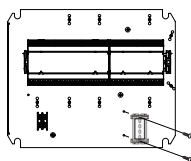


<EEV controller module>

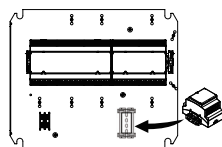
Installation



1. Open the door using the key. (PAHCMS000)



2. Install the DIN rail using screws in the two holes.



3. Install the EEV module on the DIN rail.



CAUTION

- This model requires DC12 V ~ external power supply. (Select an insulating transformer that complies with IEC61558-2-6 and NEC Class 2.)

THERMISTORS INSTALLATION

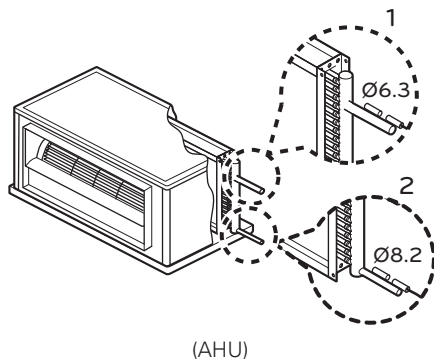
Pipe thermistors Installation

Location of the pipe thermistors

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

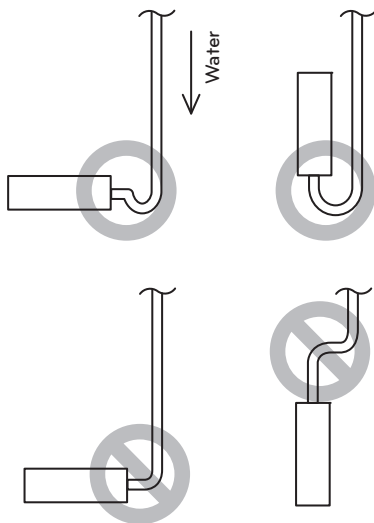
- 1 Pipe_In
: Install the thermistor behind the distributor on the coldest pass the heat exchanger (contact your heat exchanger dealer).
- 2 Pipe_Out
: Install the thermistor at the outlet of the heat exchanger as close as possible to the heat exchanger.

Evaluation must be done to check if the evaporator is protected against freeze-up. Execute test operation and check for freeze-up.



INSTRUCTION

- To prevent condensation from accumulating on the bottom of the pipe sensor, install the sensor by lifting it up as shown below.



- In order to detect the temperature of the pipe well, install the sensing part so that it can be attached to the pipe well as shown below

