



– External Electronic Expansion Valve Kit –

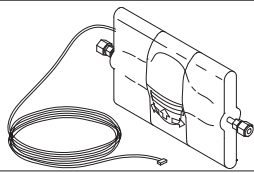





Precautions in this manual are given in the form of “Warnings” or “Cautions.” Both types of precautions contain important information related to your safety, the safety of users, and the correct operation, installation, or maintenance of the air conditioning system. Be sure to carefully observe all relevant precautions.

- **WARNING** This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.
- **CAUTION** This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

- This external electronic expansion valve is compatible with the refrigerants listed below.
R410A, R407C, R22

● Checking Parts

Please check these parts below that came in the box.

	Description	Shape	Q'ty
1	External electronic expansion valve (Extension cord 8 m)		1
2	Flare insulator		2
3	Clamp (Large: 350 mm, Small: 200 mm)		Large: 2 Small: 4
4	Connector-converter cable		1
5	Installation manual		1
6	Insulating tape	 White (heat resisting)	2

1

Installation Procedure

1. Positioning for Installation

- The valve should be connected to the liquid tube. Determine the position for installation referring to the diagram of outer dimensions. (Fig. 1) Refrigerant-flow noise may occur from the external electronic expansion valve. As a guide, the distance from the indoor unit should be a minimum of 5 m, but less than 8 m. (Install away from locations where strictly quiet operation is required.) If this distance is unavailable, install inside the ceiling or in another location where noise insulation is possible. This is a functional component, and therefore may require inspection and replacement. Consider this when deciding the installation location. (For example, place near an inspection port, or provide one.)
- This valve is for indoor use. Do not install the valve outdoors.

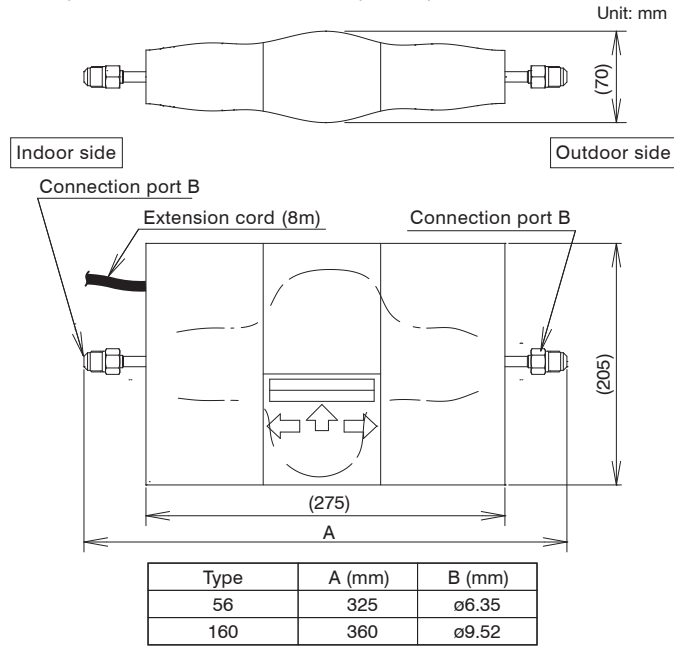
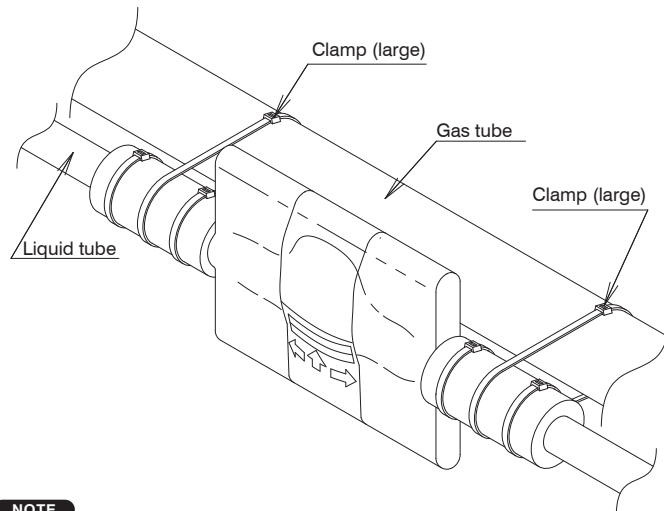


Fig. 1 Diagram of outer dimensions

2

5. Securing the External Electronic Expansion Valve After Connection with Tubing

After connection with tubing, secure the external electronic expansion valve using the supplied clamps (large) to hold it against the gas tube. (Fig. 5)



NOTE
Be careful not to tighten the clamps with excessive force, in order to avoid deforming the tubing or other parts.

Fig. 5

5

Wiring Procedure

WARNING Be sure to turn the power off at the mains before removing or connecting connectors to avoid electric shock hazard.

● Connection of External Electronic Expansion Valve with Extension Cord

- Turn the power off.
- Turn the power on. (This step is unnecessary if the model does not have an electronic expansion valve.)
- Wait 1 minute after the power is on and then turn the power off again at the mains. (This step is unnecessary if the model does not have an electronic expansion valve.)
* The electronic expansion valve becomes full-open in the 1 minute. Do not give instructions for operation through the remote control during this time.
- Open the electrical component box. From the control PCB, disconnect the connector to the indoor unit internal electronic expansion valve. (This step is unnecessary if the model does not have an electronic expansion valve.)
- Connect the external electronic expansion valve. (Fig. 6)
Connect the external electronic expansion valve connector to the indoor unit control PCB (PMV or T6). After completing the wiring process, close the cover of the electrical component box.
* With some models that do not include an electronic expansion valve, a relay connector is included. Connect this relay connector.
- Turn the mains power breaker back on. This procedure is now completed.

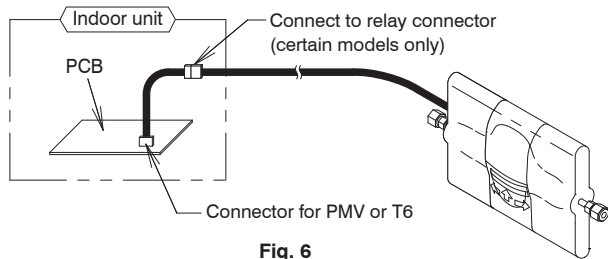


Fig. 6

6

2. Cutting and Flaring of Liquid Tube

After determining the position for installation, cut the liquid tube and flare the connecting portion.

(Pay attention to the notes below when flaring the tubes.)

NOTE

- After cutting the tube, deburr and finish the end face smoothly and correctly.
- Do not damage tubes while flaring.
- Take care not to allow dirt and deburred chips into the tube.
- Use the flare nut which came with External Electronic Expansion Valve Kit.
- The flaring dimensions for R410A are different from the conventional dimensions for R407C and R22. For R410A, the specially created flaring tool is recommended. However a conventional tool can be used by adjusting the amount of copper tube projection as shown in the table below.

Rigid (clutch type)		
R410A	R407C, R22	
If special R410A tool is used	If conventional tool is used	If conventional tool is used
B=0~0.5	1.0~1.5	0~0.5

Unit: mm

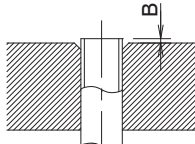



Fig. 2

3. Connection of External Electronic Expansion Valve with Tubing

In connection with tubing, take care to fit the external electronic expansion valve in the right direction. Be sure to install with the  mark on the label pointing upwards. Also when connecting the flare, use the arrow marks on the label to check the directions of the indoor unit side and outdoor unit side.

(The wiring outlet side faces the indoor unit.) (Refer to Fig. 3.)

Attached label on the unit

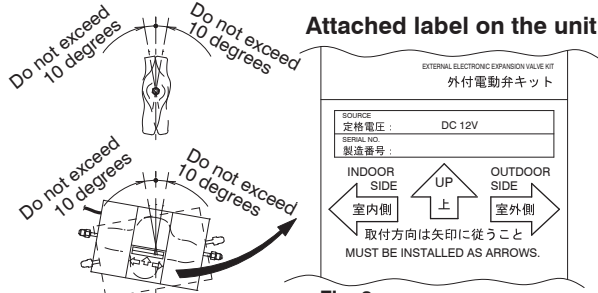


Fig. 3

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- Tightening flare nuts

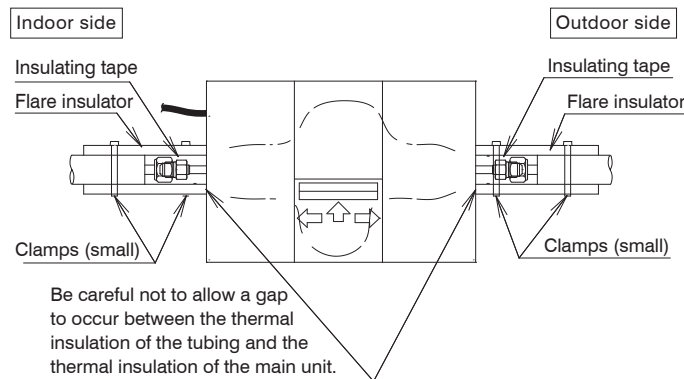


Be sure to use 2 spanners together when removing or tightening the flare nuts. After connection with the tubing, tighten the flare nuts by the correct torque. Failure to tighten the nuts correctly can cause loosening and damage on the flared portion, resulting in accidents by oxygen deficiency due to refrigerant leaks.

Tubing size	Tightening torque
ø6.35 (1/4")	14~ 18 N · m (140~180 kgf · cm)
ø9.52 (3/8")	34~ 42 N · m (340~420 kgf · cm)

4. Flare Insulation of Tubing

After completing a leakage test, apply heat insulation. (Fig. 4)



* Use the flare insulator provided with the product.

Fig. 4

4

Wiring Procedure (Using the Attached Cable)

Depending on the model of indoor unit that is connected, this product may require the use of a supplied connector-converter cable. Refer to the below for the corresponding units and the method of use.

- If the indoor unit control PCB has a 5P plug, use the supplied connector-converter cable.

● Using the connector-converter cable

The connector-converter cable is used by connecting it to the extension cable (8 m) that runs from the electronic expansion valve unit. (Refer to Fig. 7.)

After connecting the connector-converter cable, follow the above wiring procedure and connect the cable to the indoor unit control PCB.

* Depending on the model, a relay connector may be connected on the indoor unit control PCB. If this supplied cable is used, disconnect the relay connector and connect the supplied cable directly to the indoor unit control PCB.

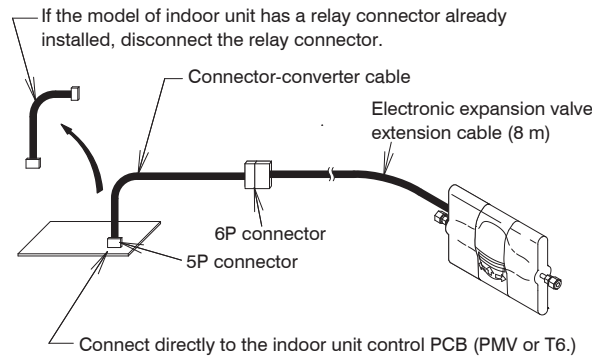


Fig. 7

7

8