

## INSTALLATION INSTRUCTIONS

### – VRF System Air Conditioner –

for Refrigerant R410A

### For Indoor Units EAIRC-MJ, EAIRC-MS Types

#### ■ R410A Models

Model No.

Indoor Units					
	Indoor Unit Type	4	8	10	14
EAIRC-MJ	Jetflow Air Curtain	PAW-10EAIRC-MJ <sup>1</sup>	PAW-15EAIRC-MJ <sup>2</sup>	PAW-20EAIRC-MJ <sup>2</sup>	PAW-25EAIRC-MJ <sup>2</sup>
EAIRC-MS	Standard Air Curtain	PAW-10EAIRC-MS <sup>1</sup>		PAW-20EAIRC-MS <sup>2</sup>	

1 Requires 1 Solenoid Valve Kit CZ-P160HR3 when combined with 3-pipe systems.

2 Requires 2 RAP Valve Kits CZ-160RVK2 when combined with 2-pipe multi-systems.

Requires 2 Solenoid Valve Kits CZ-P160HR3 when combined with 3-pipe systems.

Outdoor Units		
MF2	3-PIPE	U-8MF2E8, U-10MF2E8, U-12MF2E8, U-14MF2E8, U-16MF2E8
ME1	2-PIPE	U-8ME1E81, U-10ME1E81, U-12ME1E81, U-14ME1E81, U-16ME1E81, U-18ME1E81, U-20ME1E81
LE1	2-PIPE	U-4LE1E5, U-4LE1E8, U-5LE1E5, U-5LE1E8, U-6LE1E5, U-6LE1E8
GF2	3-PIPE	U-16GF2E5, U-20GF2E5, U-25GF2E5
GE2	2-PIPE	U-16GE2E5, U-20GE2E5, U-25GE2E5, U-30GE2E5
GEP2	2-PIPE, High Power	U-16GEP2E5, U-20GEP2E5, U-25GEP2E5

\* Refrigerant R410A is used in the outdoor units.

## IMPORTANT NOTICE!

### Please read before starting

### Preparation for operation

Before operating the Air Curtain unit, it is absolutely mandatory to carefully read and to strictly execute the instructions and settings in Chapter 8.

### Failure to follow instructions

The manufacturer shall in no way be responsible for improper installation, problems in operation, malfunction of the unit or safety hazards resulting from failure to follow the instructions in this manual.

## IMPORTANT!

### Please Read Before Starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

**For safe installation and trouble-free operation, you must:**

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.



#### 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.

### If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

### In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

## SPECIAL PRECAUTIONS

### WARNING When Wiring



**ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.**

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause **accidental injury or death**.
- **Ground the unit** following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.
- Provide a power outlet to be used exclusively for each unit, and a power supply disconnect, circuit breaker and earth leakage breaker for overcurrent protection should be provided in the exclusive line.
- Provide a power outlet exclusively for each unit, and full disconnection means contact separation in all poles must be incorporated in the fixed wiring in accordance with the wiring rules.

- To prevent possible hazards from insulation failure, the unit must be grounded.

### When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

### When Installing...

#### ...In a Room

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.



#### CAUTION

Keep the fire alarm and the air outlet at least 1.5 m away from the unit.

#### ...In Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

#### ...In an Area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

#### ...In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.


### When Connecting Refrigerant Tubing



#### WARNING

- When performing piping work do not mix air except for specified refrigerant (R410A) in refrigeration cycle. It causes capacity down, and risk of explosion and injury due to high tension inside the refrigerant cycle.
- Refrigerant gas leakage may cause fire.
- Ventilate the room well, in the event that is refrigerant gas leaks during the installation. Be careful not to allow contact of the refrigerant gas with a flame as this will cause the generation of poisonous gas.
- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.
- Do not leak refrigerant while piping work for an installation or re-installation, and while repairing refrigeration parts.  
Handle liquid refrigerant carefully as it may cause frostbite.


## When Servicing

- Turn the power OFF at the main power box (mains) before opening the unit to check or repair electrical parts and wiring. 
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.







- Do not clean inside the indoor and outdoor units by users. Engage authorized dealer or specialist for cleaning.
- In case of malfunction of this appliance, do not repair by yourself. Contact the sales dealer or service dealer for repair.



- Do not touch the air inlet or the sharp aluminum fins of the outdoor unit. You may get injured. 
- Ventilate any enclosed areas when installing or testing the refrigeration system. Escaped refrigerant gas, on contact with fire or heat, can produce dangerously toxic gas.
- Confirm after installation that no refrigerant gas is leaking. If the gas comes in contact with a burning stove, gas water heater, electric room heater or other heat source, it can cause the generation of poisonous gas.

## Others



- Do not touch the air inlet or the sharp aluminum fins of the outdoor unit. You may get injured. 
- Do not sit or step on the unit, you may fall down accidentally. 
- Do not stick any object into the FAN CASE. You may be injured and the unit may be damaged.   


### NOTICE

The English text is the original instructions. Other languages are translations of the original instructions.

## Check of Density Limit

The room in which the air conditioner is to be installed requires a design that in the event of refrigerant gas leaking out, its density will not exceed a set limit.

The refrigerant (R410A), which is used in the air conditioner, is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws imposed to protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its density should rise excessively. Suffocation from leakage of refrigerant is almost non-existent. With the recent increase in the number of high density buildings, however, the installation of multi air conditioner systems is on the increase because of the need for effective use of floor space, individual control, energy conservation by curtailing heat and carrying power, etc.

Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared to conventional individual air conditioners. If a single unit of the multi air conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its density does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).

In a room where the density may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device. The density is as given below.

### Total amount of refrigerant (kg)

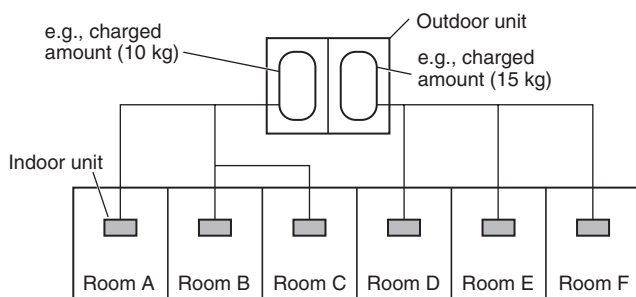
$$\text{Min. volume of the indoor unit installed room (m}^3\text{)} \leq \text{Density limit (kg/m}^3\text{)}$$

The density limit of refrigerant which is used in multi air conditioners is 0.3 kg/m<sup>3</sup> (ISO 5149).

### NOTE

1. If there are 2 or more refrigerating systems in a single refrigerating device, the amount of refrigerant should be as charged in each independent device.

For the amount of charge in this example:

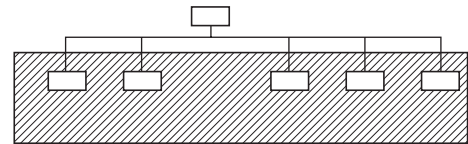


The possible amount of leaked refrigerant gas in rooms A, B and C is 10 kg.

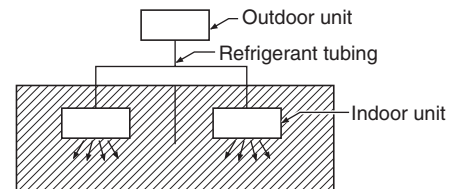
The possible amount of leaked refrigerant gas in rooms D, E and F is 15 kg.

2. The standards for minimum room volume are as follows.

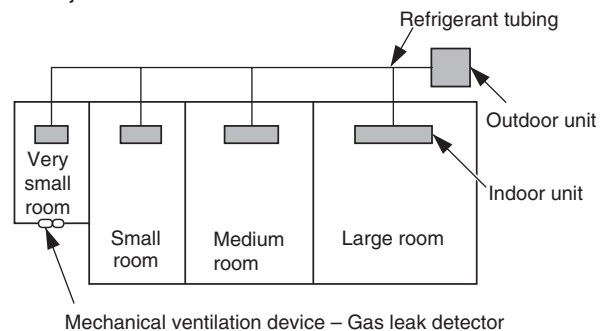
- (1) No partition (shaded portion)



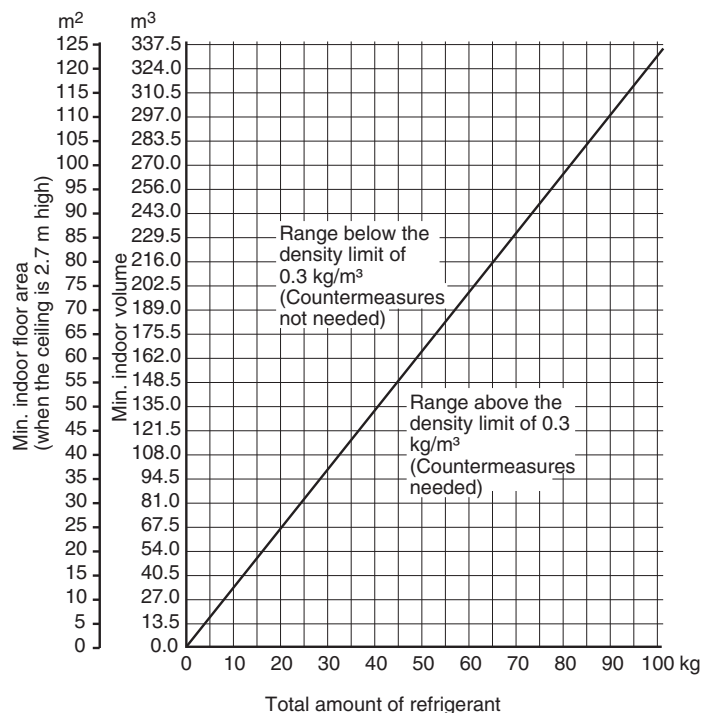
- (2) When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening without a door, or an opening 0.15% or larger than the respective floor spaces at the top or bottom of the door).



- (3) If an indoor unit is installed in each partitioned room and the refrigerant tubing is interconnected, the smallest room of course becomes the object. But when mechanical ventilation is installed interlocked with a gas leakage detector in the smallest room where the density limit is exceeded, the volume of the next smallest room becomes the object.



3. The minimum indoor floor space compared with the amount of refrigerant is roughly as follows: (When the ceiling is 2.7 m high)



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Refer to the Operating Instructions attached to the optional Wireless Remote Controller Receiver.

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## 1. GENERAL

This booklet briefly outlines where and how to install the air conditioning system. Please read over the entire set of instructions for the indoor and outdoor units and make sure all accessory parts listed are with the system before beginning.

### 1-1. Tools Required for Installation (not supplied)

1. Flathead screwdriver
2. Phillips head screwdriver
3. Knife or wire stripper
4. Tape measure
5. Carpenter's level
6. Sabre saw or key hole saw
7. Hack saw
8. Core bits
9. Hammer
10. Drill
11. Tube cutter
12. Tube flaring tool
13. Torque wrench
14. Adjustable wrench
15. Reamer (for deburring)

### 1-2. Type of Copper Tube and Insulation Material

If you wish to purchase these materials separately from a local source, you will need:

1. Deoxidized annealed copper tube for refrigerant tubing.
2. Foamed polyethylene insulation for copper tubes as required to precise length of tubing. Wall thickness of the insulation should be not less than 8 mm.
3. Use insulated copper wire for field wiring. Wire size varies with the total length of wiring. Refer to 4. ELECTRICAL WIRING for details.



**Check local electrical codes and regulations before obtaining wire. Also, check any specified instructions or limitations.**

### 1-3. Additional Materials Required for Installation

1. Refrigeration (armored) tape
2. Insulated staples or clamps for connecting wire (See your local codes.)
3. Putty
4. Refrigeration tubing lubricant
5. Clamps or saddles to secure refrigerant tubing
6. Scale for weighing

## 2. SELECTING THE INSTALLATION SITE

### 2-1. Indoor Unit

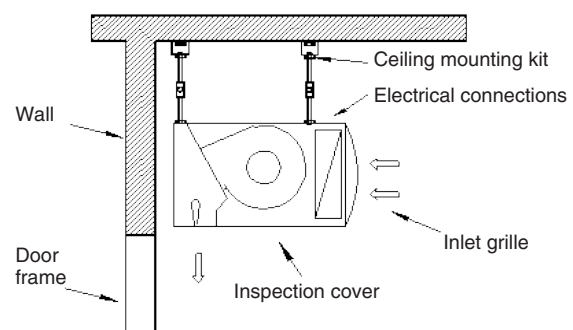
#### AVOID:

- areas where leakage of flammable gas may be expected.
- places where large amounts of oil mist exist.
- direct sunlight.
- locations near heat sources which may affect the performance of the unit.
- locations where external air may enter the room directly. This may cause "condensation" on the air discharge ports, causing them to spray or drip water.
- locations where the remote controller will be splashed with water or affected by dampness or humidity.
- installing the remote controller behind curtains or furniture.
- locations where high-frequency emissions are generated.
- locations on the outside or in humid areas like swimming pools.
- locations in areas with danger of explosion, with aggressive air or with extreme high dust exposure.

#### DO:

- select a location in frost-free indoor areas only.
- select a location where the ceiling is strong enough to support the weight of the unit.
- select a location where the unit can be installed as close as possible to the wall and as flush as possible to the top of the door.
- select a location where tubing and drain pipe have the shortest run to the outdoor unit.
- allow room for operation and maintenance as well as unrestricted air flow around the unit.
- install the unit within the maximum elevation difference above or below the outdoor unit and within a total tubing length (L) from the outdoor unit as detailed in the installation manual packed with the outdoor unit.
- allow room for mounting the remote controller about 1 m off the floor, in an area that is not in direct sunlight or in the flow of cool air from the indoor unit.

Fig. 2-1 shows the unit in freely suspended installation.



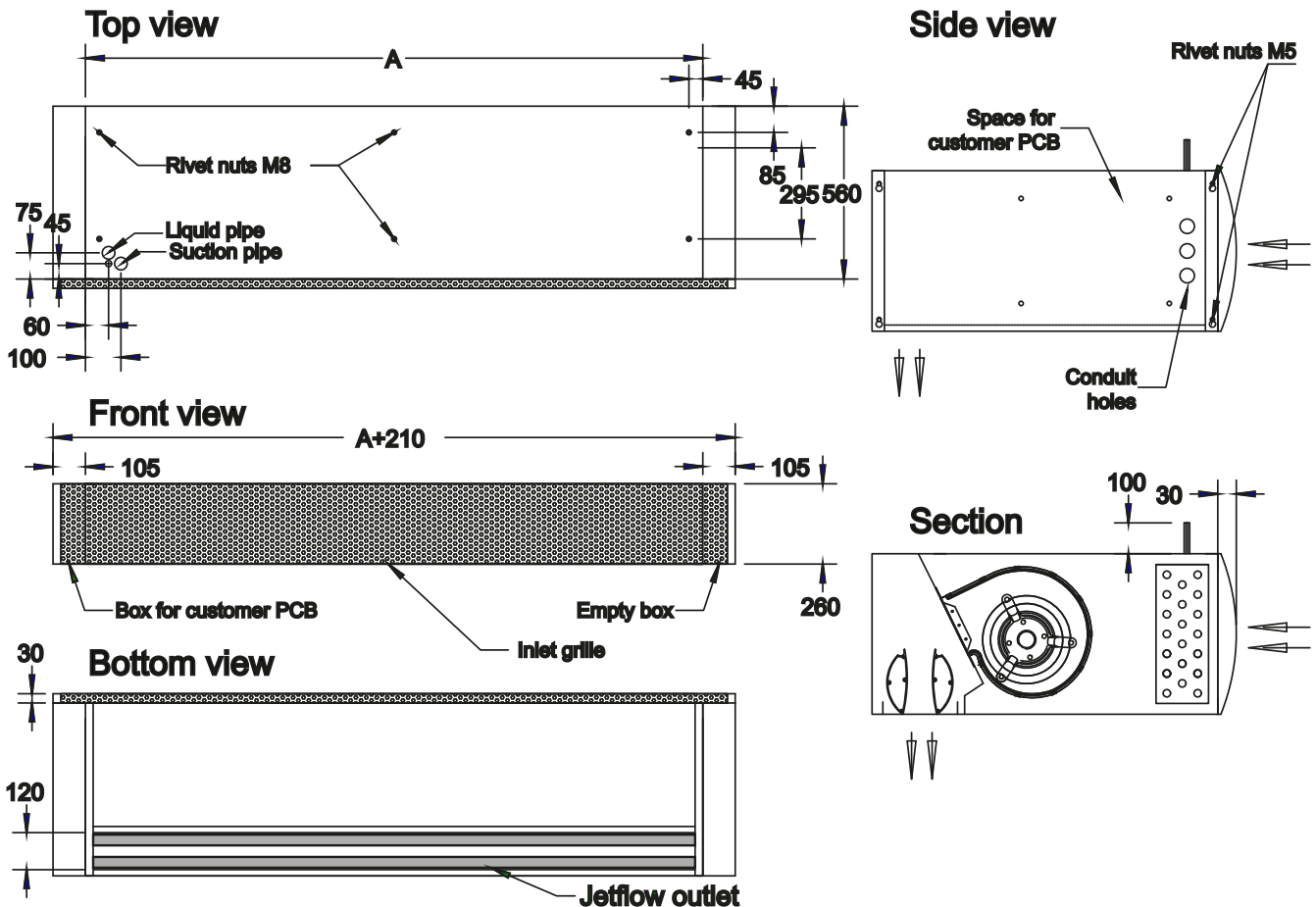
**Fig. 2-1**

### 3. HOW TO INSTALL THE INDOOR UNIT

#### ■ Air Curtain (EAIRC-MJ, EAIRC-MS Types)

##### 3-1. Dimensions and Required Minimum Space for Installation and Service (EAIRC-MJ Type)

- This air conditioner (air curtain) is usually installed freely suspended from the ceiling.
- The ceiling must be strong enough to support the weight of the unit.
- The recommended installation height for this Air Curtain type is 2.7 m for worst conditions or 3.1 m for medium conditions or 3.5 m for optimum conditions and depending on the site conditions should not be exceeded.
- The unit should be installed as close as possible to the wall and as flush as possible to the top of the door.
- The air flow outlet should be free and not obstructed in any way.
- The unit should be accessible over the whole length of the unit at any time.
- The inspection cover should be accessible over the whole length of the unit at any time.
- It is recommended that space be provided (600 × 600 mm) for checking and servicing the electrical system.
- Fig. 3-1 shows the detailed dimensions of the indoor unit.



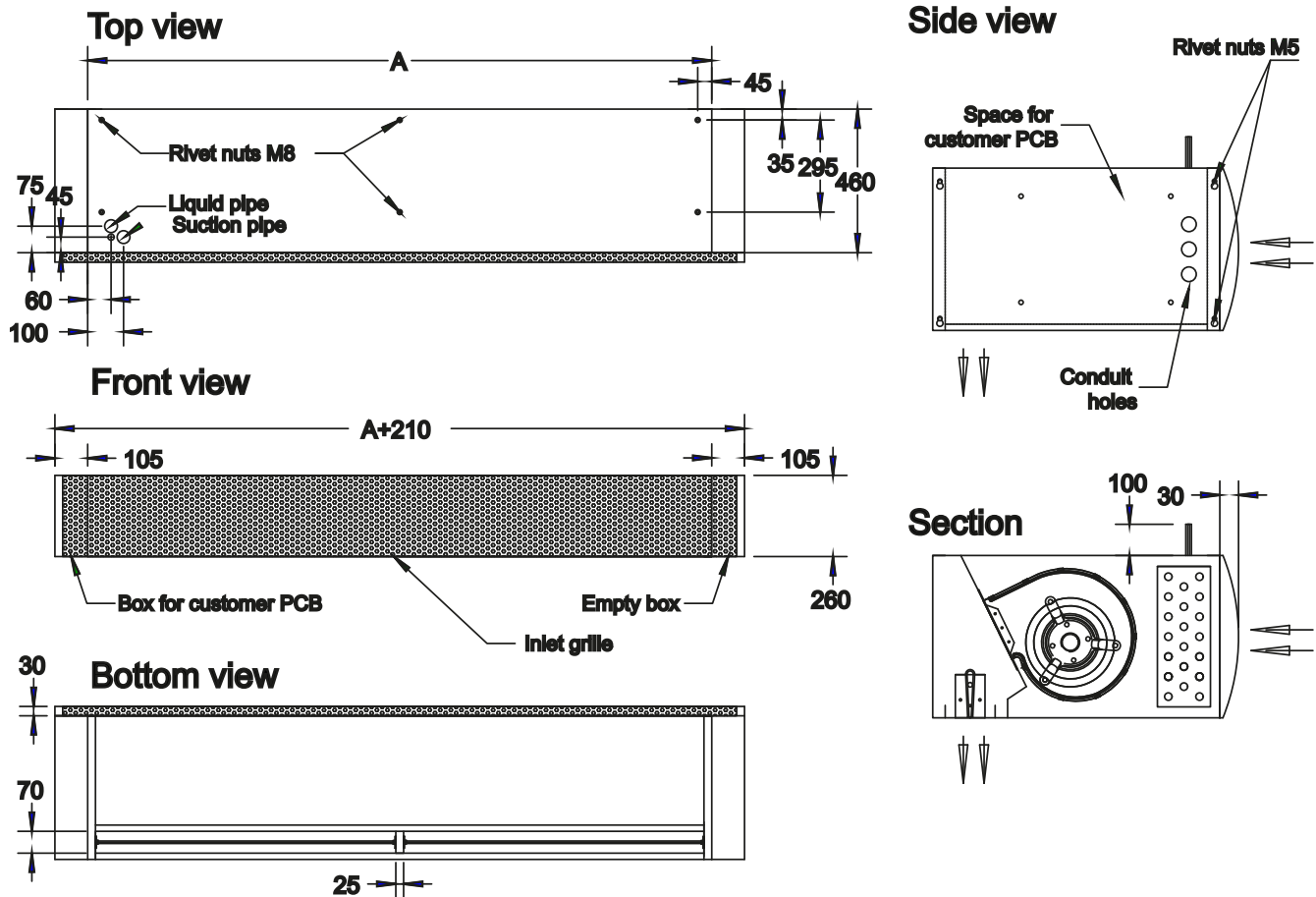
Unit: mm

Fig. 3-1



### 3-2. Dimensions and Required Minimum Space for Installation and Service (EAIRC-MS Type)

- This air conditioner (air curtain) is usually installed freely suspended from the ceiling.
- The ceiling must be strong enough to support the weight of the unit.
- The recommended installation height for this Air Curtain type is 2.4 m for worst conditions or 2.7 m for medium conditions or 3.0 m for optimum conditions and depending on the site conditions should not be exceeded.
- The unit should be installed as close as possible to the wall and as flush as possible to the top of the door.
- The air flow outlet should be free and not obstructed in any way.
- The unit should be accessible over the whole length of the unit at any time.
- The inspection cover should be accessible over the whole length of the unit at any time.
- It is recommended that space be provided (600 × 600 mm) for checking and servicing the electrical system.
- Fig. 3-2 shows the detailed dimensions of the indoor unit.



Unit: mm

Fig. 3-2



### 3-3. Suspending the Indoor Unit

Depending on the ceiling type:

- Insert suspension bolts as shown in Fig. 3-3

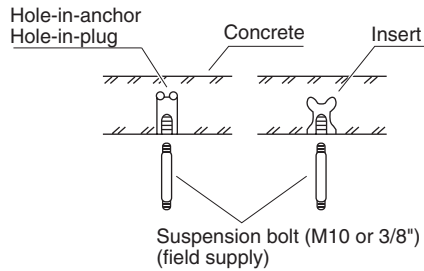


Fig. 3-3

or

- Use existing ceiling supports or construct a suitable support as shown in Fig. 3-4.

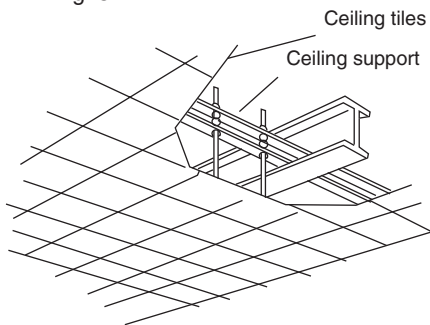


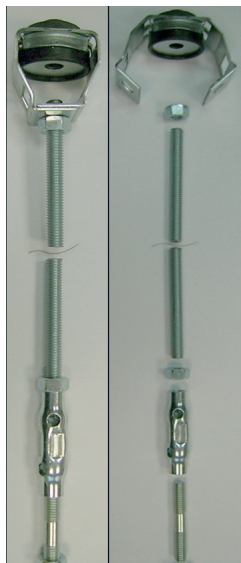
Fig. 3-4



#### WARNING

**It is important that you use extreme care in supporting the indoor unit from the ceiling. Ensure that the ceiling is strong enough to support the weight of the unit. Before hanging the unit, test the strength of each attached suspension bolt.**

- (1) Before suspending the unit from the ceiling, determine the pitch of the suspension bolts referring to the dimensional data given previously. (Figs. 3-1 and 3-2)
- (2) Screw in the suspension bolts allowing them to protrude from the ceiling as shown in Fig. 3-3. (Cut the ceiling material, if necessary.)
- (3) Suspend and fix the indoor unit as shown in Fig. 3-6 using vibration absorbers, sound insulation brackets and the material shown in Fig. 3-5. Note that all fixing material must be field-supplied.



Lock nut M8

Hanging rod M8  
length: approx. 1 m

Lock nut M8

Spanner nut M8  
Setting range: 30 mm

Set screw M8  
with left-hand and right-hand thread  
Lock nut M8

Fig. 3-5

- (4) Use the existing fixing points on the top side of the unit.  
The number of fixing points depends on the length of the air curtain.

	10EAIRC	15EAIRC	20EAIRC	25EAIRC
No. of fixing points	1.0 m	1.5 m	2.0 m	2.5 m
4	●	●	●	
6				●

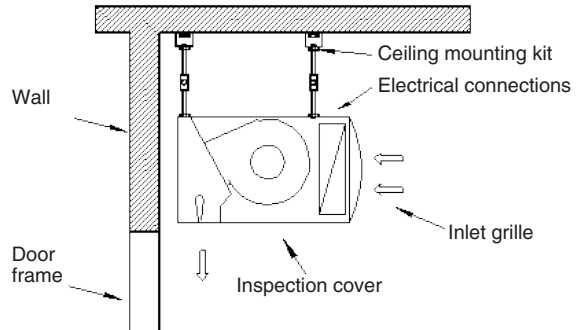


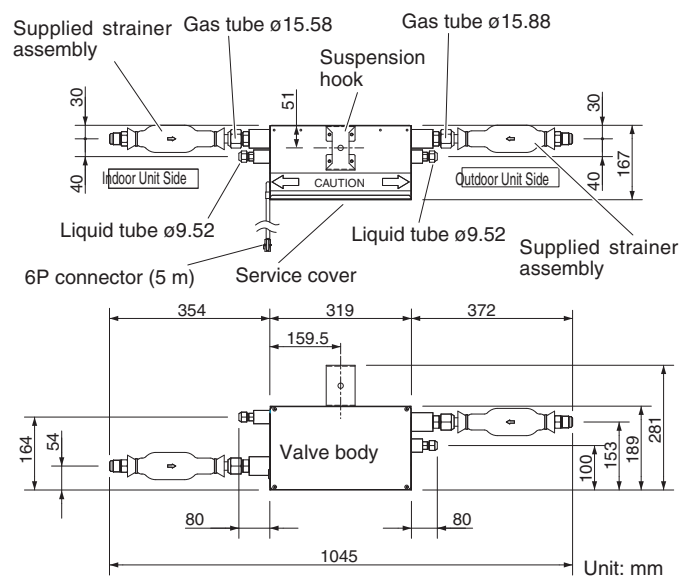
Fig. 3-6

### ■ RAP Valve Kit (Refrigerant Accumulation Protector Valve Kit) (CZ-P160RVK2)

#### 3-4. Installing the RAP Valve Kit

When installing an air curtain type indoor unit (EAIRC-MJ or EAIRC-MS type of size 15 or bigger) in a 2-pipe multi-system, you must also install 2 RAP Valve Kits (2 x CZ-P160RVK2).

- Connect 2 RAP valve kits in parallel for EAIRC-MJ/MS types of size 15 or bigger.
- Secure the RAP valve kit using suspension bolts, etc. within 30 meters from the indoor unit.
- Do not place the RAP valve kit directly on the ceiling.



**Note:** This figure shows the valve body with the suspension hook and strainer assemblies installed.

Fig. 3-7

For more details about the installation, please refer to the installation instruction which comes with the RAP valve kit.

## ■ Solenoid Valve Kit for 3-pipe ECOi systems (CZ-P160HR3) for R410A

### 3-5. Installing the Solenoid Valve Kit (SVK)

#### 1. For safe installation and trouble-free operation you must:

- Carefully read these instructions before beginning.
- Follow each installation step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all warning and caution notices given in these instructions.

#### 2. Positioning for installation

- The solenoid valve kit must be installed at a location within 30 m of the indoor unit. However, the length of wiring provided with the solenoid valve kit is 5 m. If the valve will be used with wiring that exceeds 5 m in length, use a terminal box (field supply) or similar device to extend the wiring. Refer to "Wiring, Tubing, and Heat Insulation" within this section.
- The solenoid valve kit produces some refrigerant noise. If it is to be installed in a quiet place such as a hospital, library or hotel, it is recommended that the solenoid valve kit be installed in the ceiling of a corridor etc. apart from the room.
- The solenoid valve kit must be located not less than 2.5 m above the floor so that it cannot be touched.

#### Recommended installation

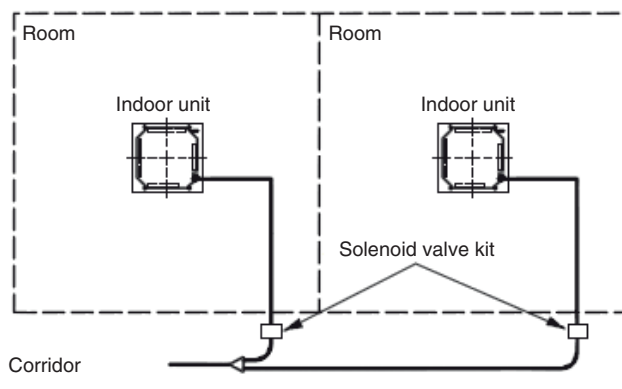


Fig. 3-8

#### Installation to be avoided

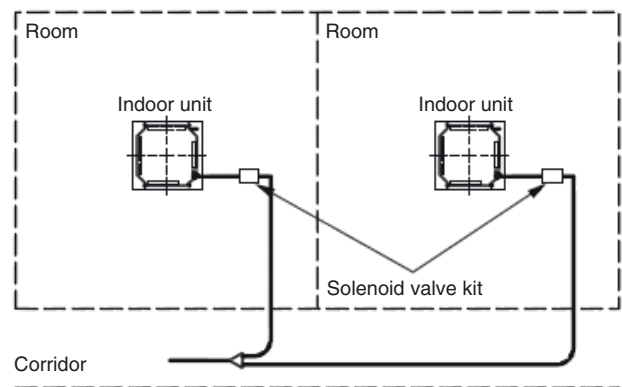


Fig. 3-9

- Be sure to secure the solenoid valve kit with the hanging bolts not to cause any falling damage, using the hanging hooks. Do not place the solenoid valve kit directly on the ceiling surface. Select a location where the ceiling is strong enough to support the weight of the solenoid valve kit. When installing the solenoid valve kit, **remember to install it with the top surface facing upward.** (See the figure shown in

the subsection "How to use the fittings" in the section "Valve Dimensions and Hanging Method.")

- When installing the valve body, install it with the top surface facing up. Secure 200 mm or more of space to the front and 150 mm of space upward so that the service panel can be removed upward.
- **Never conduct drilling or welding on the sheet metal.** Place the solenoid valve kit so that it does not hinder draining.
- Do not cover air holes.

#### Service space

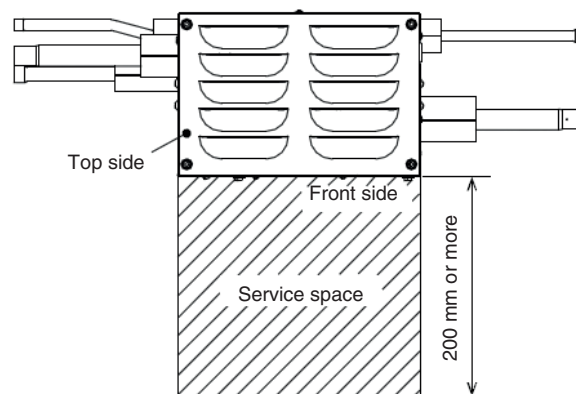


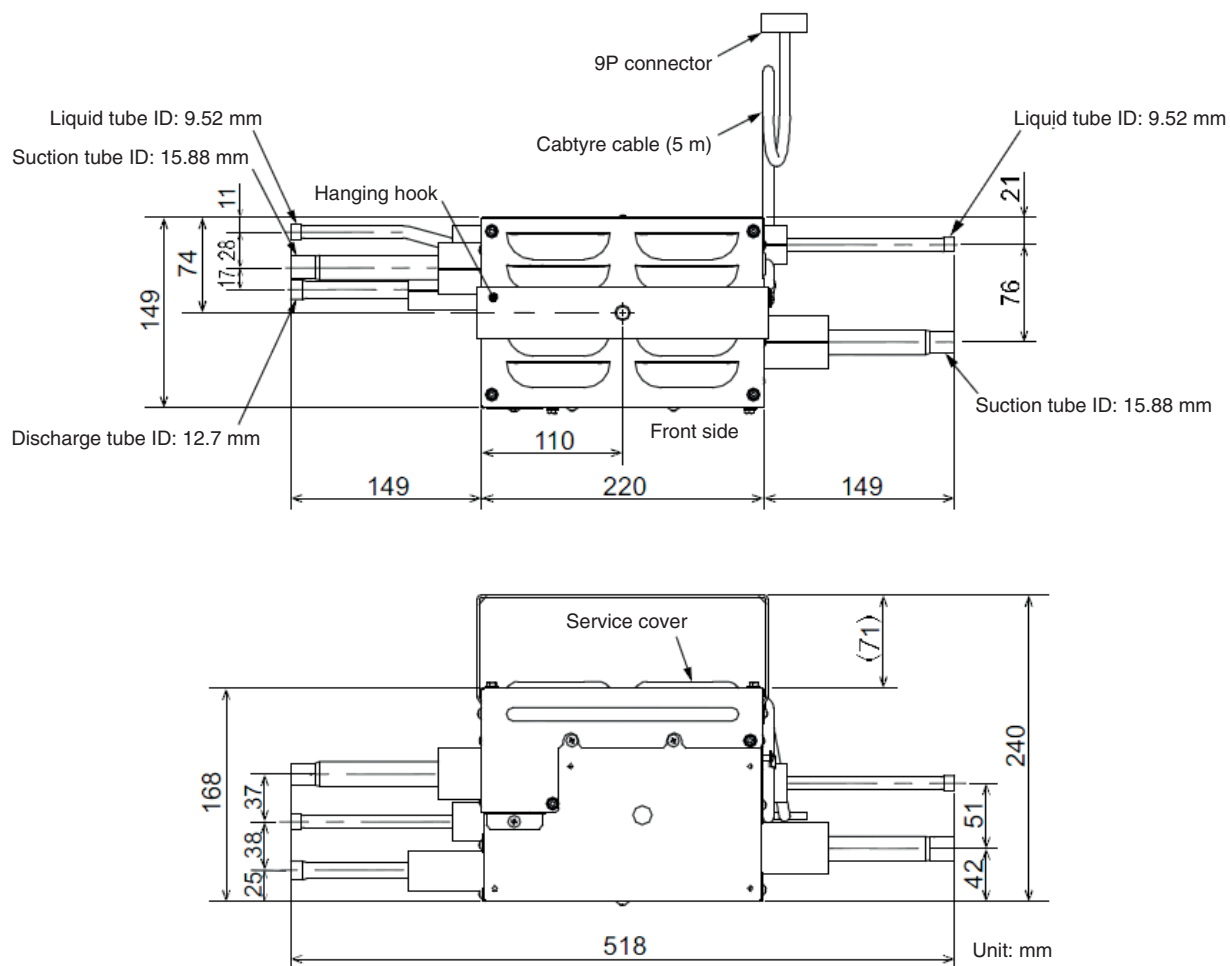
Fig. 3-10

### 3. Valve Dimensions and Hanging Method

In order for you to choose the correct solenoid valve kit, the corresponding indoor unit model capacities are shown in the following table.

#### Corresponding indoor unit model capacities for SVK

Indoor Unit Capacity (combined with 3-pipe ECOi systems)	Solenoid Valve Kit
EAIRC-MJ/MS size 10	1 x CZ-P160HR3
EAIRC-MJ/MS size 15 or bigger	2 x CZ-P160HR3

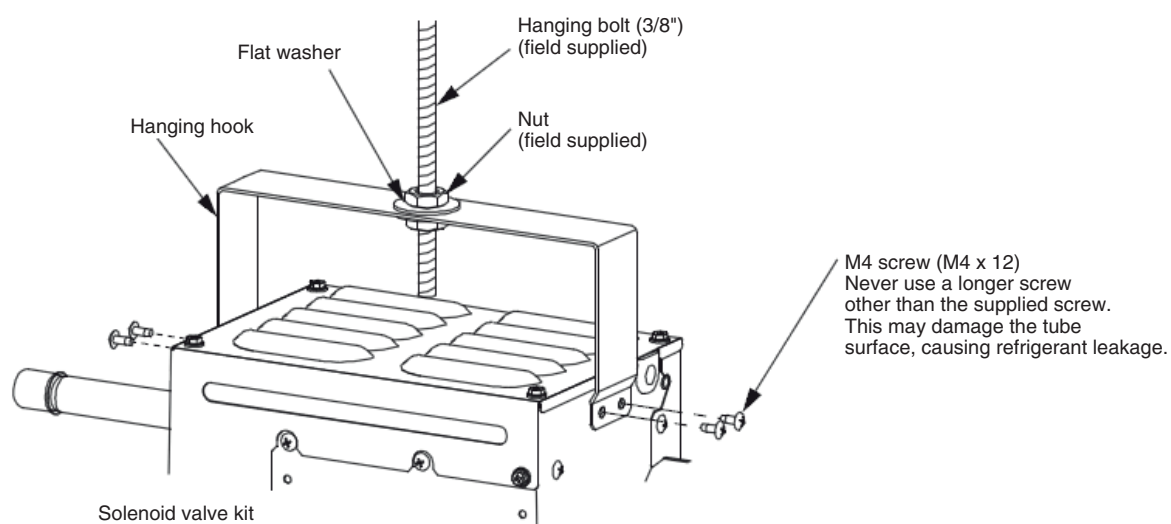


**Fig. 3-11**

**Note:** This figure shows the unit with suspension fittings attached.

#### How to use the fittings

- Be sure to attach the supplied hanging hook.



**Fig. 3-12**

## 4. Wiring, Tubing and Heat Insulation

### Refrigerant Tubing

- When brazing, be sure to perform nitrogen replacement inside the tube so that oxidation coating does not form inside the tube.

Cool with damp cloth or other means when brazing the joint with a torch.  
Otherwise, the solenoid valve will be damaged.

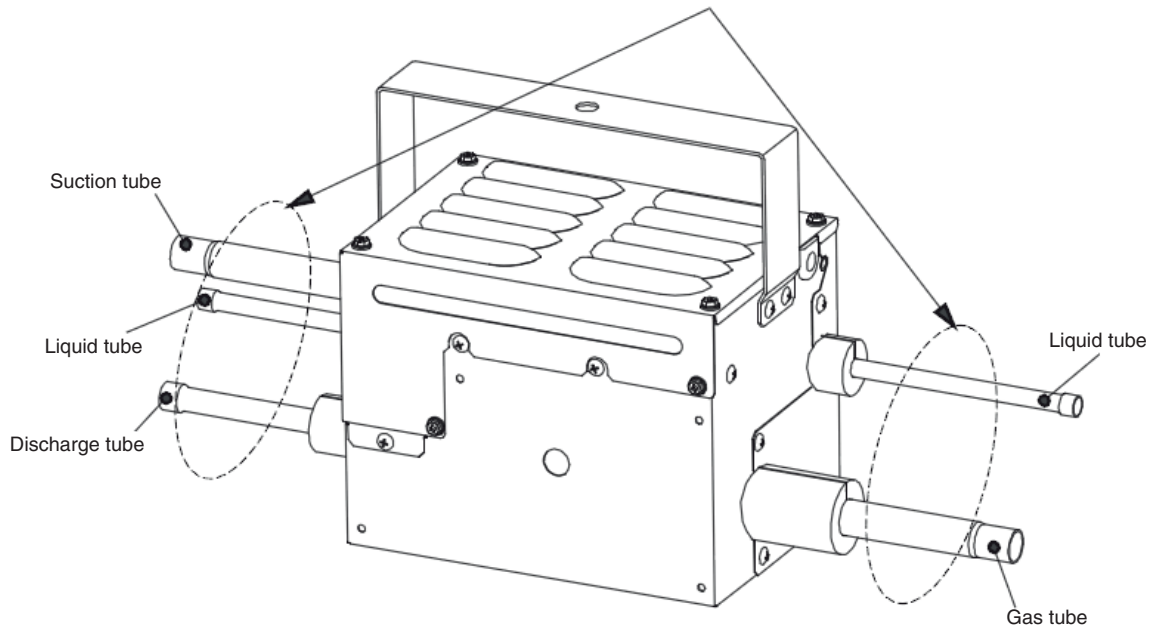


Fig. 3-13

### Wiring

- Connect the 9P connector coming from the solenoid valve kit through the power inlet of the indoor unit to the 9P connector (red) of the Solenoid Valve Control PCB (sold separately) as shown in Fig. 3-13. Accessory wire length is 5 m.
- In case the wire is not long enough, cut the wire halfway and connect additional wire (field supply) as an extension using a terminal box (field supply). Additional wire must be "H05VVF 0.5 mm<sup>2</sup>" or "60227 IEC53".
- Anchor the cabtyre cable using the binding bands inside the unit. Do not route the cabtyre cable through the same wiring conduit as the remote controller wiring or inter-unit control wiring.
- 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.

### NOTE

The wire should be fixed with the clamp inside the indoor unit. Do not route the wire through a tube together with the remote-control line and inter-unit operation line.

- Recommended wire size: 6-core cable, 0.5 mm<sup>2</sup> or more (300 V or more)
- Grounding should be done between the indoor unit and solenoid valve kit.

**The following figure applies if required wire length is less than 5 m.**

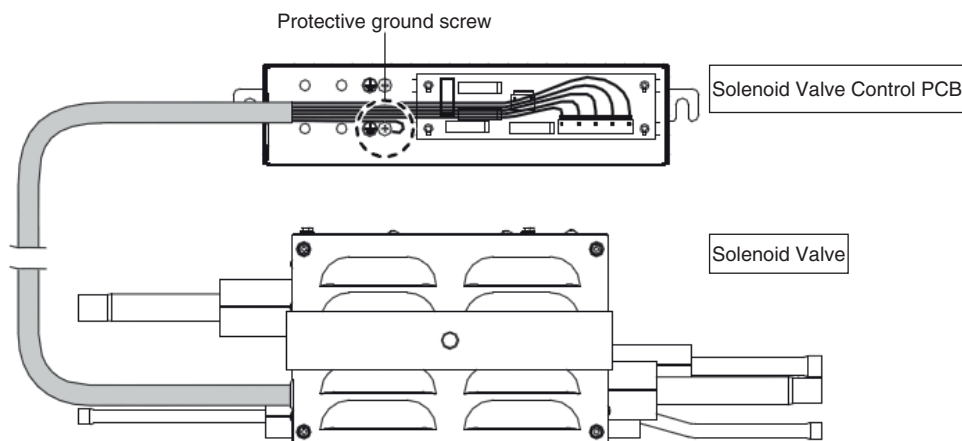


Fig. 3-14

## Heat insulation

(Be sure to insulate the tubing after finishing leak inspection.)

- Be sure to insulate the tubing.
- Wrap insulators (field supply) having a thickness of 10 mm or more with heat resistance of 120 °C or more around the discharge tubes and gas tubes, and insulators (field supply) with Heat resistance of 80 °C or more around the suction tubes and liquid tubes.
- Use the supplied thermal insulation tape to bind the areas where there are seams and gaps between the thermal insulation that is wrapped around each tube.
- Failure to conduct thermal insulation may cause water leakage due to condensation.

### 3-6. Installing the Refrigerant Tubing

The size of the refrigerant tubing is as shown in the table below.

Table 3-1

	10EAIRC	15EAIRC	20/25EAIRC
Gas tube inch (mm)	Ø 5/8" (15.88) (Brazing)	Ø 3/4" (19.05) (Brazing)	Ø 7/8" (22.22) (Brazing)
Liquid tube inch (mm)	Ø 3/8" (9.52) (Flare)	Ø 3/8" (9.52) (Flare)	Ø 3/8" (9.52) (Flare)

- When brazing the gas tubing, cool the tubing with dampened shopcloths as you work, as shown in the figure below, to protect the unit's thermistor from the heat generated by brazing.

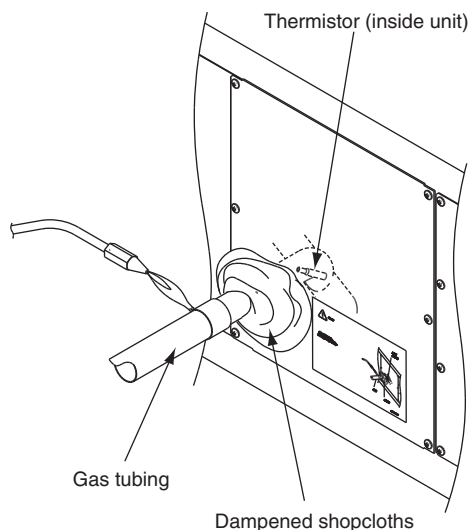


Fig. 3-15

- Be sure to insulate both the gas tubing and liquid tubing. In addition, wrap the supplied insulation material around the tubing joints, and fasten in place with vinyl tape or other means. Failure to insulate the tubing may result in water leakage from condensation.
- Plug all gaps at tube through-holes in the unit with insulation or a similar substance to prevent air leakage.
- When connecting air curtain type unit to a refrigerant system where individual operation is possible, install 1 or 2 RAP valve kits (CZ-P160RVK2) in parallel. (For details on connecting the RAP valve kit, refer to the manual that came with the kit.)

## 4. ELECTRICAL WIRING

### 4-1. General Precautions on Wiring

- (1) Before wiring, confirm the rated voltage of the unit as shown on its nameplate, then carry out the wiring closely following the wiring diagram.
- (2) Provide a power outlet to be used exclusively for each unit and a circuit breaker for overcurrent protection should be provided in the exclusive line.
- (3) To prevent possible hazards from insulation failure, the unit must be grounded.
- (4) Each wiring connection must be done in accordance with the wiring system diagram. Wrong wiring may cause the unit to misoperate or become damaged.
- (5) Do not allow wiring to touch the refrigerant tubing, compressor, or any moving parts of the fan.
- (6) Unauthorized changes in the internal wiring can be very dangerous. The manufacturer will accept no responsibility for any damage or misoperation that occurs as a result of such unauthorized changes.
- (7) Regulations on wire diameters differ from locality to locality. For field wiring rules, please refer to your LOCAL ELECTRICAL CODES before beginning.  
You must ensure that installation complies with all relevant rules and regulations.
- (8) To prevent malfunction of the air conditioner caused by electrical noise, care must be taken when wiring as follows:
  - The remote control wiring and the inter-unit control wiring should be wired apart from the inter-unit power wiring.
  - Use shielded wires for inter-unit control wiring between units and ground the shield on both sides.
- (9) If the power supply cord of this appliance is damaged, it must be replaced by a repair shop designated by the manufacturer, because special-purpose tools are required.

### 4-2. Recommended Wire Length and Wire Diameter for Power Supply System

#### Indoor unit

Type	(B) Power supply	Time delay fuse or circuit capacity
	2.5 mm <sup>2</sup>	
EAIRC-MJ, EAIRC-MS	Max. 130 m	10-16 A

#### Control wiring

(C) Inter-unit (between outdoor and indoor units) control wiring	(D) Remote control wiring	(E) Control wiring for group control	(F) Inter-Outdoor unit control wiring
0.75 mm <sup>2</sup> (AWG #18) Use shielded wiring*	0.75 mm <sup>2</sup> (AWG #18)	0.75 mm <sup>2</sup> (AWG #18)	0.75 mm <sup>2</sup> (AWG #18) Use shielded wiring
Max. 1,000 m	Max. 500 m	Max. 200 m (Total)	Max. 300 m

#### NOTE

\* With ring-type wire terminal.

### 4-3. Wiring System Diagrams

Example: EAIRC-MJ Type

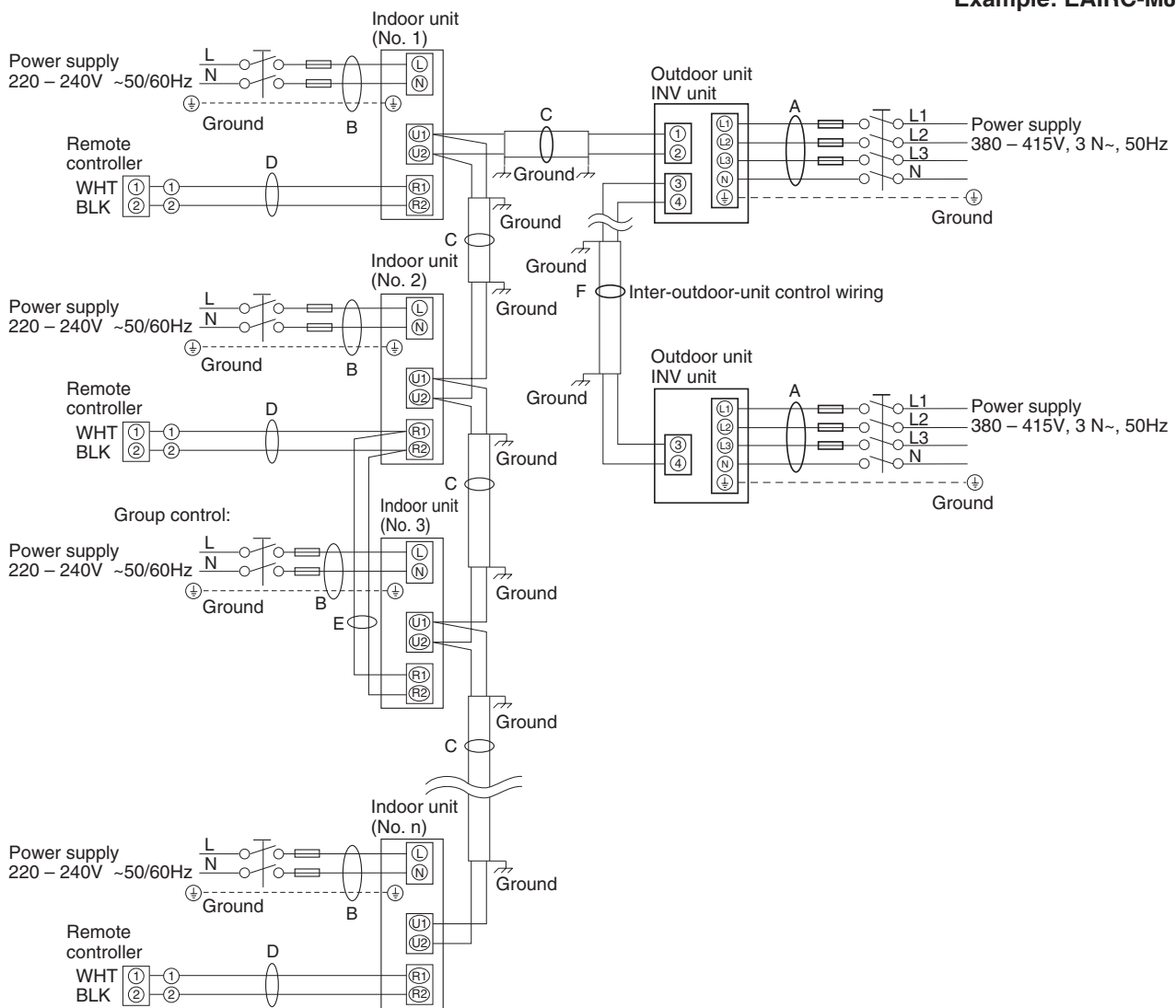
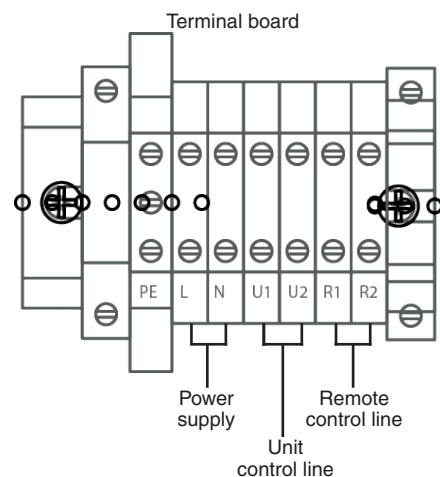


Fig. 4-1

#### NOTE

- (1) Refer to Section 4-2. "Recommended Wire Length and Wire Diameter for Power Supply System" for the explanation of "A", "B", "C", "D", "E" and "F" in the above diagram.
- (2) The basic connection diagram of the indoor unit shows the terminal boards, so the terminal boards in your equipment may differ from the diagram. (Fig. 4-3)
- (3) Refrigerant Circuit (R.C.) address should be set before turning the power on.
- (4) Regarding R.C. address setting, refer to the installation instructions supplied with the remote controller unit (Optional). Auto address setting can be executed by remote controller automatically. Refer to the installation instructions supplied with the remote controller unit (optional).
- (5) Fig. 4-3 shows the electrical connections in detail.



EAIRC-MJ, EAIRC-MS Types

Fig. 4-3

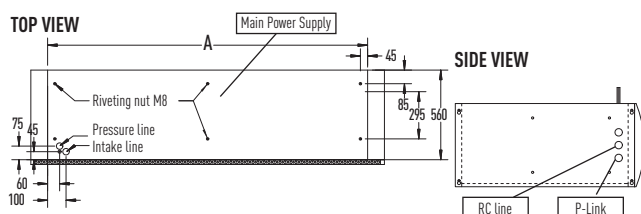


Fig. 4-2

**CAUTION**

- (1) When linking the outdoor units in a network, disconnect the terminal extended from the short plug from all outdoor units except any one of the outdoor units.  
(When shipping: In shorted condition.)  
For a system without link (no wiring connection between outdoor units), do not remove the short plug.
- (2) Do not install the inter-unit control wiring in a way that forms a loop. (Fig. 4-4)

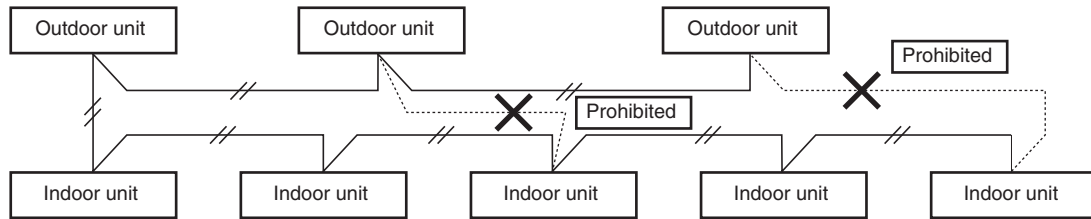


Fig. 4-4

- (3) Do not install inter-unit control wiring such as star branch wiring. Star branch wiring causes mis-address setting. (Fig. 4-5)

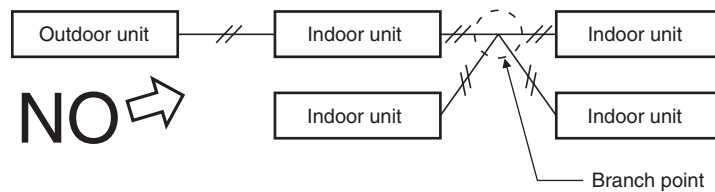


Fig. 4-5

- (4) If branching the inter-unit control wiring, the number of branch points should be 16 or fewer.  
(Branches that are less than 1 m are not included in the total branch number.) (Fig. 4-6)

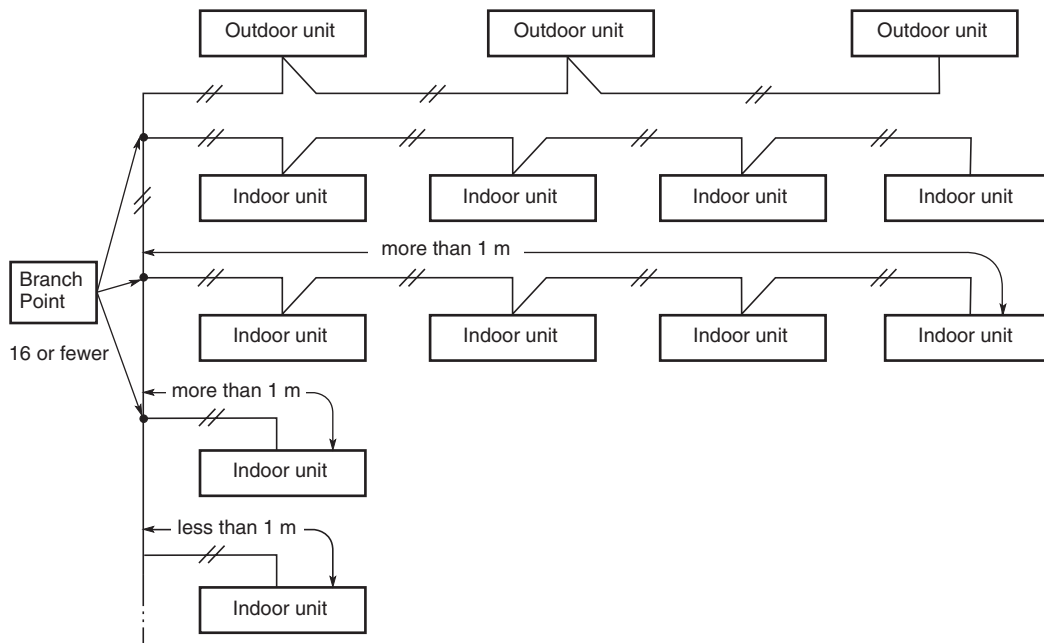


Fig. 4-6

- (5) Use shielded wires for inter-unit control wiring (c) and ground the shield on both sides, otherwise misoperation from noise may occur. (Fig. 4-7)  
Connect wiring as shown in Section “4-3. Wiring System Diagrams”.

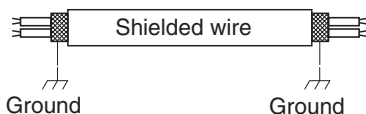


Fig. 4-7

**WARNING**

Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also occur. Therefore, ensure that all wiring is tightly connected.

When connecting each power wire to the terminal, follow the instructions on “How to connect wiring to the terminal” and fasten the wire securely with the terminal screw.

- (6) Use the standard power supply cables for Europe (such as H05RN-F or H07RN-F which conform to CENELEC (HAR) rating specifications) or use the cables based on IEC standard. (245 IEC57, 245 IEC66)



## How to connect wiring to the terminal

### ■ For stranded wiring

- (1) Cut the wire end with cutting pliers, then strip the insulation to expose the stranded wiring about 10 mm and tightly twist the wire ends. (Fig. 4-8)
- (2) Using a Phillips head screwdriver, remove the terminal screw(s) on the terminal plate.
- (3) Using a ring connector fastener or pliers, securely clamp each stripped wire end with a ring pressure terminal.
- (4) Place the ring pressure terminal, and replace and tighten the removed terminal screw using a screwdriver. (Fig. 4-9)

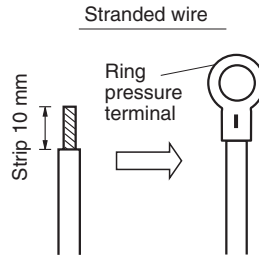


Fig. 4-8

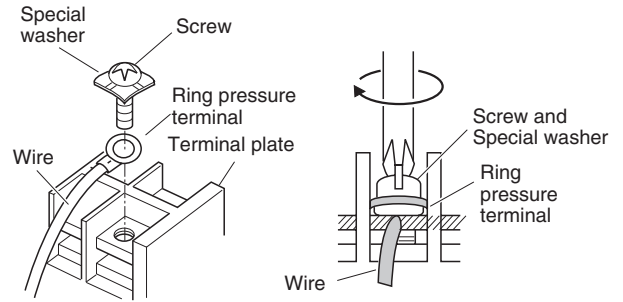


Fig. 4-9

### ■ Examples of shield wires

- (1) Remove cable coat not to scratch braided shield. (Fig. 4-10)
- (2) Unbraid the braided shield carefully and twist the unbraided shield wires tightly together. Insulate the shield wires by covering them with an insulation tube or wrapping insulation tape around them. (Fig. 4-11)
- (3) Remove coat of signal wire. (Fig. 4-12)
- (4) Attach ring pressure terminals to the signal wires and the shield wires insulated in Step (2). (Fig. 4-13)



Fig. 4-10

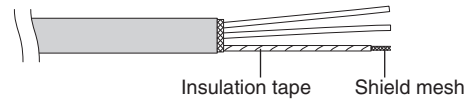


Fig. 4-11

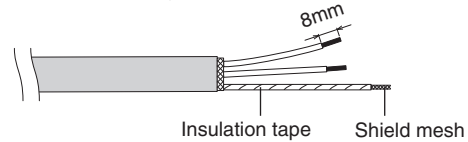


Fig. 4-12

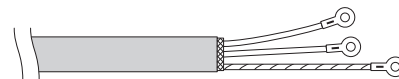


Fig. 4-13

### ■ Electric Diagram for PAW-10AIRC-MS and PAW-10AIRC-MJ

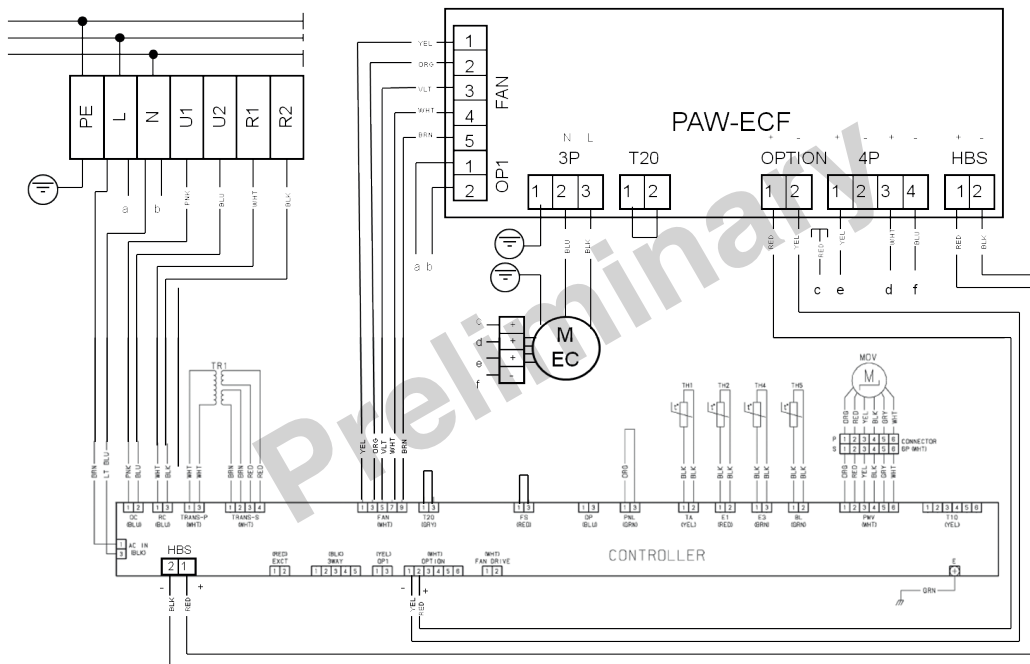


Fig. 4-14 shows the **preliminary** electric diagram for the PAW-10AIRC-MS and PAW-10AIRC-MJ models. It is subject to changes in the near future.

Fig. 4-14

■ **Electric Diagram for PAW-20EAIRC-MS and PAW-15/20/25EAIRC-MJ**

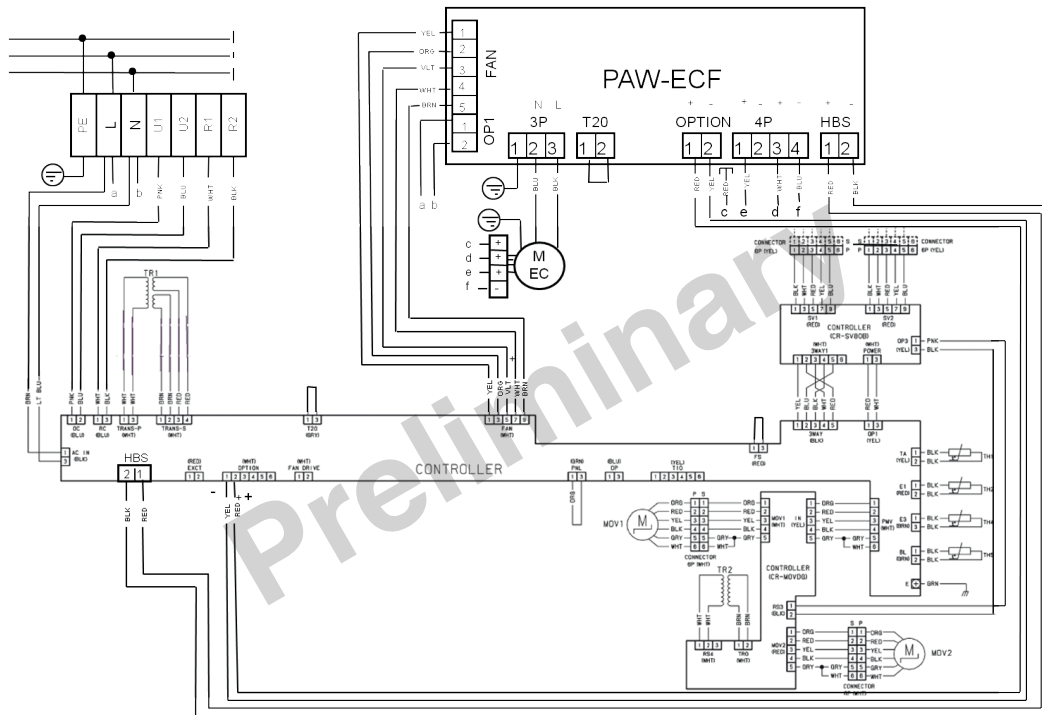


Fig. 4-15 shows the **preliminary** electric diagram for the PAW-20EAIRC-MS and PAW-15/20/25EAIRC-MJ models. It is subject to changes in the near future.

Fig. 4-15

## ■ Technical Data

### ● EAIRC-MJ Types

HP		4	8	10	14
Air Curtain		PAW-10EAIRC-MJ	PAW-15EAIRC-MJ	PAW-20EAIRC-MJ	PAW-25EAIRC-MJ
Air flow type		Jetflow			
Air volume (high)	m³/h	1800	2700	3600	4500
Air volume (medium)	m³/h	1500	2300	3000	3800
Air volume (low)	m³/h	1200	1900	2500	3100
Air flow length (A)	m	1.0	1.5	2.0	2.5
Heating capacity (nominal)	kW	11.4	25.0	31.5	31.5
Cooling capacity (nominal)	kW*1	9.2	17.5	23.1	24.4
Heating capacity with air in 20 °C, air out 40 °C	kW	11.9	17.9	23.9	29.9
Heating capacity with air in 20 °C, air out 35 °C	kW	8.9	13.4	17.9	22.4
Heating capacity with air in 20 °C, air out 30 °C	kW	5.9	8.9	11.9	14.9
Max inst. height in good conditions	m	3.5	3.5	3.5	3.5
Max inst. height in normal conditions	m	3.1	3.1	3.1	3.1
Max inst. height in bad conditions	m	2.7	2.7	2.7	2.7
Refrigerant		R410a			
Hot gas temperature	°C	70	70	70	70
Pressure	bar	45	45	45	45
Tubing Gas	mm	16	18	22	22
Tubing Liquid	mm	10	10	10	10
Fan		230V/50Hz/1/N/PE			
Fan type		EC	EC	EC	EC
Operating current (high)	A	2.10	2.80	4.20	4.90
Electrical consumption (high)	kW	0.44	0.59	0.89	1.03
Operating current (med)	A	0.80	1.10	1.60	1.90
Electrical consumption (med)	kW	0.17	0.23	0.34	0.40
Operating current (low)	A	0.30	0.40	0.60	0.70
Electrical consumption (low)	kW	0.06	0.08	0.12	0.14
Protecting fuse	A	M16A	M16A	M16A	M16A
Noise	dB(A)	40–55	40–56	40–57	40–58
Dimensions (L/H/D):	mm	1210 x 260 x 590	1710 x 260 x 590	2210 x 260 x 590	2710 x 260 x 590
Weight	kg	70	100	138	160

Mini ECOi with air out 40 °C	U-4LE1E5/8*2	U-6LE1E5/8*2	--	--
Mini ECOi with air out 35 °C	U-4LE1E5/8*2	U-4LE1E5/8*2	U-6LE1E5/8*2	--
Mini ECOi with air out 30 °C	U-4LE1E5/8*2	U-4LE1E5/8*2	U-4LE1E5/8*2	U-5LE1E5/8*2
ECOi with air out 40 °C	All models	All models	All models	All models without 8HP
ECOi with air out 30 °C or 35 °C	All models	All models	All models	All models
GHP all temperatures	All models	All models	All models	All models

All combinations under rated conditions. Heating: Outdoor +7 °C DB/+6 °C WB, Indoor +20 °C DB. In case of lower outdoor temperatures a higher capacity outdoor unit model may be necessary

\*1 Rated Conditions Cooling: Outdoor +35 °C DB, Indoor +27 °C DB/+19 °C WB, Discharge temp. ≥ 16 °C.

\*2 Or bigger size.

● EAIRC-MS Types

HP		4	10
Air Curtain		PAW-10EAIRC-MS	PAW-20EAIRC-MS
Air flow type		Standard	
Air volume (high)	m³/h	1800	2700
Air volume (medium)	m³/h	1500	2300
Air volume (low)	m³/h	1200	1900
Air flow length (A)	m	1.0	2.0
Heating capacity (nominal)	kW	11.4	31.5
Cooling capacity (nominal)	kW*1	9.2	17.5
Heating capacity with air in 20 °C, air out 40 °C	kW	11.9	17.9
Heating capacity with air in 20 °C, air out 35 °C	kW	8.9	13.4
Heating capacity with air in 20 °C, air out 30 °C	kW	5.9	8.9
Max inst. height in good conditions	m	3.0	3.0
Max inst. height in normal conditions	m	2.7	2.7
Max inst. height in bad conditions	m	2.4	2.4
Refrigerant		R410a	
Hot gas temperature	°C	70	70
Pressure	bar	45	45
Tubing Gas	mm	16	22
Tubing Liquid	mm	10	10
Fan		230V/50Hz/1/N/PE	
Fan type		EC	EC
Operating current (high)	A	2.10	4.20
Electrical consumption (high)	kW	0.44	0.89
Operating current (med)	A	0.80	1.60
Electrical consumption (med)	kW	0.17	0.34
Operating current (low)	A	0.30	0.60
Electrical consumption (low)	kW	0.06	0.12
Protecting fuse	A	M16A	M16A
Noise	dB(A)	40–55	40–57
Dimensions (L/H/D):	mm	1210 x 260 x 490	2210 x 260 x 490
Weight	kg	60	128

Mini ECOi with air out 40 °C	U-4LE1E5/8*2	U-6LE1E5/8*2
Mini ECOi with air out 35 °C	U-4LE1E5/8*2	U-4LE1E5/8*2
Mini ECOi with air out 30 °C	U-4LE1E5/8*2	U-4LE1E5/8*2
ECOi with air out 40 °C	All models	All models
ECOi with air out 30 °C or 35 °C	All models	All models
GHP all temperatures	All models	All models

All combinations under rated conditions. Heating: Outdoor +7 °C DB/+6 °C WB, Indoor +20 °C DB. In case of lower outdoor temperatures a higher capacity outdoor unit model may be necessary

\*1 Rated Conditions Cooling: Outdoor +35 °C DB, Indoor +27 °C DB/+19 °C WB, Discharge temp. ≥ 16 °C.

\*2 Or bigger size.

