

IMPORTANT!

Please Read Before Starting

This air conditioner must be installed by the sales dealer or installer.

This information is provided for use only by authorized persons.

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.
- This air conditioner shall be installed in accordance with National Wiring Regulations.
- This product is intended for professional use. Permission from the power supplier is required when installing the U-8ME2E8 and U-10ME2E8 outdoor units that are connected to a 16 A distribution network.
- This equipment complies with EN/IEC 61000-3-12 provided that the short-circuit power S_{sc} is greater than or equals to the values corresponding to each model as shown in the table below at the interface point between the user's supply and the public system. It is the responsibility of the installer or user of the equipment to ensure; by consultation with the distribution network operator if necessary that the equipment is connected only to supply with a short-circuit power S_{sc} greater than or equals to the values corresponding to each model as shown in the table below.

	U-12ME2E8	U-14ME2E8
S_{sc}	1,550 kVA	1,550 kVA

	U-16ME2E8
S_{sc}	1,550 kVA

- The product meets the technical requirements of EN/IEC 61000-3-3.
- 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 see the wiring diagram and section 2 when wiring. Improper connections and inadequate grounding can cause **accidental injury or death**.
- 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.
- ELCB must be incorporated in the fixed wiring. Circuit breaker must be incorporated in the fixed wiring in accordance with the wiring regulations.

	Circuit breaker
U-8ME2E8	20 A
U-10ME2E8	25 A
U-12ME2E8	30 A

	Circuit breaker
U-14ME2E8	35 A
U-16ME2E8	40 A

- Provide a power outlet exclusively for each unit, and full disconnection means having a contact separation by 3mm 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. 
- This equipment is strongly recommended to be installed with Earth Leakage Circuit Breaker (ELCB) or Residual Current Device (RCD). Otherwise, it may cause electrical shock and fire in case of equipment breakdown or insulation breakdown.

When Transporting

- It may need two or more people to carry out the installation work.
- 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...

Select an installation location which is rigid and strong enough to support or hold the unit, and select a location for easy maintenance.

...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


Pay particular attention to refrigerant leakages.



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.
- If the refrigerant comes in contact with a flame, it produces toxic gases.
- Do not add or replace refrigerant other than specified type. It may cause product damage, burst and injury, etc.
- Ventilate the room immediately, 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 toxic gases.
- Keep all tubing runs as short as possible.
- 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), wait at least 5 minutes until it is discharged, then open 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.



WARNING

- This product must not be modified or disassembled under any circumstances. Modified or disassembled unit may cause fire, electric shock or injury.
- 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 a repair and disposal.







CAUTION

- Ventilate any enclosed areas when installing or testing the refrigeration system. Leaked refrigerant gas, on contact with fire or heat, can produce dangerously toxic gases.
- 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 toxic gases.

Others



CAUTION

- 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.  

Check of Density Limit

Check the amount of refrigerant in the system and floor space of the room according to the legislation on refrigerant drainage. If there is no applicable legislation, follow the standards described below.

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).

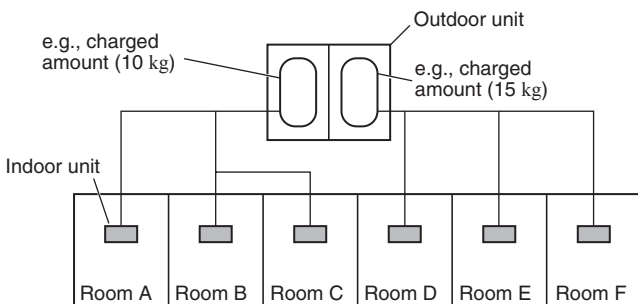
In a room where the density may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device. The density is as given below.

Total amount of refrigerant (kg)
Min. volume of the indoor unit installed room (m³) ≤ Density limit (kg/m³)
The density limit of refrigerant which is used in multi air conditioners is 0.44 kg/m³ (ISO 5149).

NOTE

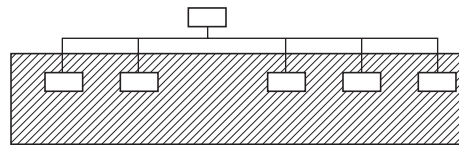
- If there are 2 or more refrigerating systems in a single refrigerating device, the amount of refrigerant should be as charged in each independent device.

For the amount of charge in this example:

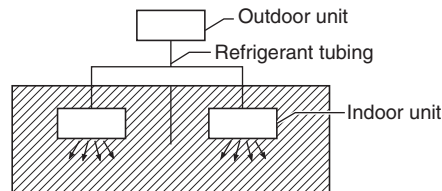


The possible amount of leaked refrigerant gas in rooms A, B and C is 10 kg.
The possible amount of leaked refrigerant gas in rooms D, E and F is 15 kg.

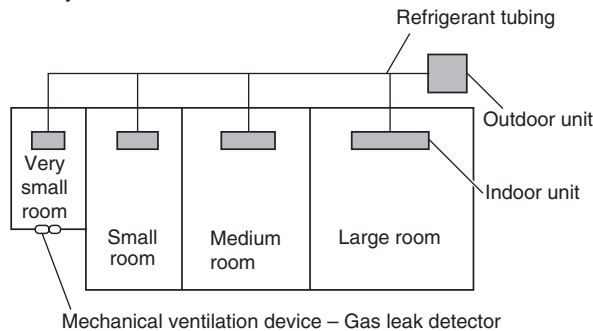
- The standards for minimum room volume are as follows.
- (1) No partition (shaded portion)



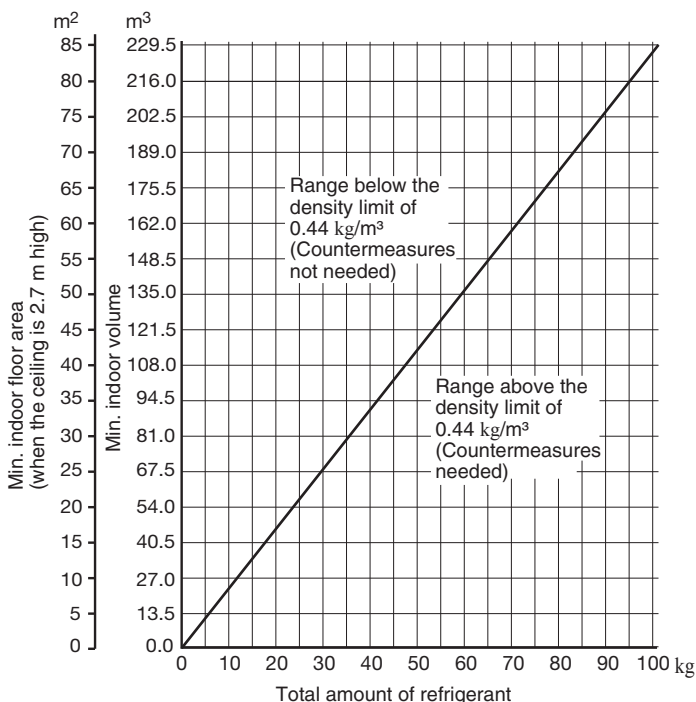
- (2) When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening without a door, or an opening 0.15% or larger than the respective floor spaces at the top or bottom of the door).



- (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.



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



Precautions for Installation Using New Refrigerant

1. Care regarding tubing

1-1. Process tubing

- **Material:** Use seamless phosphorous deoxidized copper tube for refrigeration. Wall thickness shall comply with the applicable legislation. The minimal wall thickness must be in accordance with the table below. For tubes of $\phi 22.22$ or larger, use the material of temper 1/2H or H (Hard copper tube). Do not bend the hard copper tube.
- **Tubing size:** Be sure to use the sizes indicated in the table below.
- Use a tube cutter when cutting the tubing, and be sure to remove any flash. This also applies to distribution joints (optional).
- When bending tubing, use a bending radius that is 4 times the outer diameter of the tubing or larger.



CAUTION

Use sufficient care in handling the tubing. Seal the tubing ends with caps or tape to prevent dirt, moisture, or other foreign substances from entering. These substances can result in system malfunction.

Unit: mm

Material		Temper - O (Soft copper tube)				
Copper tube	Outer diameter	6.35	9.52	12.7	15.88	19.05
	Wall thickness	0.8	0.8	0.8	1.0	1.2

Unit: mm

Material		Temper - 1/2 H, H (Hard copper tube)						
Copper tube	Outer diameter	22.22	25.4	28.58	31.75	38.1	41.28	44.45
	Wall thickness	1.0	1.0	1.0	1.1	over 1.35	over 1.45	over 1.55

1-2. Prevent impurities including water, dust and oxide from entering the tubing. Impurities can cause R410A refrigerant deterioration and compressor defects. Due to the features of the refrigerant and refrigerating machine oil, the prevention of water and other impurities becomes more important than ever.

2. Be sure to recharge the refrigerant only in liquid form.

- 2-1. Since R410A is a non-azeotrope, recharging the refrigerant in gas form can lower performance and cause defects in the unit.
- 2-2. Since refrigerant composition changes and performance decreases when gas leaks, collect the remaining refrigerant and recharge the required total amount of new refrigerant after fixing the leak.

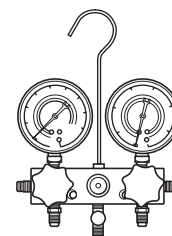
3. Different tools required

3-1. Tool specifications have been changed due to the characteristics of R410A.

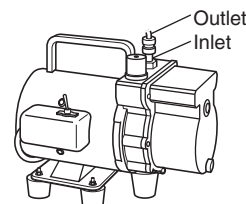
Some tools for R22- and R407C-type refrigerant systems cannot be used.

Item	New tool?	R407C tools compatible with R410A?	Remarks
Manifold gauge	Yes	No	Types of refrigerant, refrigerating machine oil, and pressure gauge are different.
Charge hose	Yes	No	To resist higher pressure, material must be changed.
Vacuum pump	Yes	Yes	Use a conventional vacuum pump if it is equipped with a check valve. If it has no check valve, purchase and attach a vacuum pump adapter.
Leak detector	Yes	No	Leak detectors for CFC and HCFC that react to chlorine do not function because R410A contains no chlorine. Leak detectors for HFC134a can be used for R410A.
Flaring oil	Yes	No	For systems that use R22, apply mineral oil (Suniso oil) to the flare nuts on the tubing to prevent refrigerant leakage. For machines that use R407C or R410A, apply synthetic oil (ether oil) to the flare nuts.

Manifold gauge



Vacuum pump

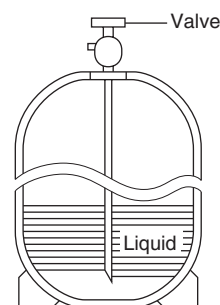


* Using tools for R22 and R407C and new tools for R410A together can cause defects.

3-2. Use R410A exclusive cylinder only.

Single-outlet valve (with siphon tube)

Liquid refrigerant should be recharged with the cylinder standing on end as shown.



Important Information Regarding The Refrigerant Used

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent gases into the atmosphere.

Refrigerant type: R410A

GWP⁽¹⁾ value: 1975

⁽¹⁾GWP = global warming potential


Periodical inspections for refrigerant leaks may be required depending on European or local legislation. Please contact your local dealer for more information.

Please fill in with indelible ink.

- ① the factory refrigerant charge of the product
- ② the additional refrigerant amount charged in the field and
- ① + ② the total refrigerant charge

on the refrigerant charge label supplied with the product.

The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the service cover).

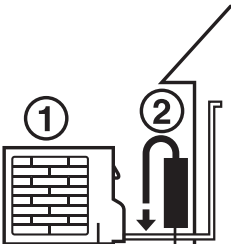
 This product contains fluorinated greenhouse gases covered by the Kyoto Protocol.

R410A

① = kg

② = kg

① + ② = kg



5 6

* English text printed on this label is original. Each language label will be sealed on this original text.

1. Factory refrigerant charge of the product: see unit name plate
2. Additional refrigerant amount charged in the field
3. Total refrigerant charge
4. Contains fluorinated greenhouse gases covered by the Kyoto Protocol
5. Outdoor unit
6. Refrigerant cylinder and manifold for charging