MITSUBISHI ELECTRIC

CITY MULTI

Air-Conditioners
PUMY-P250YBM
PUMY-P300YBM

For use with R410A

INSTALLATION MANUAL	FOR INSTALLER	English
INSTALLATIONSHANDBUCH	FÜR INSTALLATEURE	Deutsch
MANUEL D'INSTALLATION	POUR L'INSTALLATEUR	Français
INSTALLATIEHANDLEIDING	VOOR DE INSTALLATEUR	Nederlands
MANUAL DE INSTALACIÓN	PARA EL INSTALADOR	Español
MANUALE DI INSTALLAZIONE	PER L'INSTALLATORE	Italiano
ΕΓΧΕΙΡΙΔΙΟ ΟΔΗΓΙΩΝ ΕΓΚΑΤΑΣΤΑΣΗΣ	ΓΙΑ ΑΥΤΟΝ ΠΟΥ ΚΑΝΕΙ ΤΗΝ ΕΓΚΑΤΑΣΤΑΣΗ	Ελληνικά
MANUAL DE INSTALAÇÃO	PARA O INSTALADOR	Português
INSTALLATIONSMANUAL	TIL INSTALLATØREN	Dansk
INSTALLATIONSMANUAL	FÖR INSTALLATÖREN	Svenska
MONTAJ ELKİTABI	MONTÖR İÇİN	Türkçe
РУКОВОДСТВО ПО УСТАНОВКЕ	ДЛЯ УСТАНОВИТЕЛЯ	Русский
ПОСІБНИК З УСТАНОВЛЕННЯ	ДЛЯ СПЕЦІАЛІСТА З МОНТАЖУ	Українська
РЪКОВОДСТВО ЗА МОНТАЖ	ЗА МОНТАЖНИКА	Български
INSTRUKCJA MONTAŻU	DLA INSTALATORA	Polski
INSTALLASJONSHÅNDBOK	FOR MONTØR	Norsk
ASENNUSOPAS	ASENTAJALLE	Suomi
INSTALAČNÍ PŘÍRUČKA	PRO MONTÁŽNÍ PRACOVNÍKY	Čeština
NÁVOD NA INŠTALÁCIU	PRE MONTÉRA	Slovenčina
TELEPÍTÉSI KÉZIKÖNYV	A TELEPÍTŐ RÉSZÉRE	Magyar
NAMESTITVENI PRIROČNIK	ZA MONTERJA	Slovenščina
MANUAL DE INSTALARE	PENTRU INSTALATOR	Română
PAIGALDUSJUHEND	PAIGALDAJALE	Eesti
MONTĀŽAS ROKASGRĀMATA	UZSTĀDĪŠANAS SPECIĀLISTAM	Latviski
MONTAVIMO VADOVAS	SKIRTA MONTUOTOJUI	Lietuviškai
PRIRUČNIK ZA POSTAVLJANJE	ZA INSTALATERA	Hrvatski
UPUTSTVO ZA UGRADNJU	ZA MONTERA	Srpski

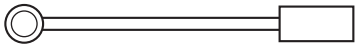
Contents

For safe and correct use, read this manual and the indoor unit installation manual thoroughly before installing the air-conditioner unit.

⚠ **Caution:**
- **Do not vent R410A into the atmosphere.**

Confirmation of parts attached

In addition to this manual, the following part is supplied with the outdoor unit.
It is used for grounding the S terminal of transmission terminal block TB7.
For details refer to “6. Electrical work”.



Grounding lead wire

1. Safety precautions

- **► Before installing the unit, make sure you read all the “Safety precautions”.**
- **► Please report to or take consent by the supply authority before connection to the system.**
- **► Equipment complying with IEC/EN 61000-3-12**
- **► It is designed for use in the residential, commercial and light-industrial environment.**
- **► PUMY-P250YBM, PUMY-P300YBM**
  “This equipment complies with IEC 61000-3-12 provided that the short-circuit power S_{sc} is greater than or equal to S_{sc} (*1) 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 consulation with the distribution network operator if necessary, that the equipment is connected only to a supply with a short-circuit power S_{sc} greater than or equal to S_{sc} (*1)”

S_{sc} (*1)

Model	S_{sc} (MVA)
PUMY-P250YBM	2.00
PUMY-P300YBM	2.28

⚠ **Warning:**
Describes precautions that must be observed to prevent danger of injury or death to the user.

⚠ **Caution:**
Describes precautions that must be observed to prevent damage to the unit.

After installation work has been completed, explain the “Safety Precautions” use, and maintenance of the unit to the customer according to the information in the Operation Manual and perform the test run to ensure normal operation. Both the Installation Manual and Operation Manual must be given to the user for keeping. These manuals must be passed on to subsequent users.

⏚ : Indicates a part which must be grounded.

⚠ **Warning:**
Carefully read the labels affixed to the main unit.

⚠ **Warning:**
- **The unit must not be installed by the user. Ask a dealer or an authorized technician to install the unit. If the unit is installed incorrectly, water leakage, electric shock, or fire may result.**
- **For installation work, follow the instructions in the installation manual and use tools and pipe components specifically made for use with R410A refrigerant.**
  The R410A refrigerant in the HFC system is pressurized 1.6 times the pressure of usual refrigerants. If pipe components not designed for R410A refrigerant are used and the unit is not installed correctly, the pipes may burst and cause damage or injuries. In addition, water leakage, electric shock, or fire may result.
- **When installing the unit, use appropriate protective equipment and tools for safety. Failure to do so could cause injuries.**
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**
- **The unit must be securely installed on a structure that can sustain its weight. If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.**
- **If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit in the event of refrigerant leakage. Consult a dealer regarding the appropriate measures to prevent the allowable concentration from being exceeded.**
  Should the refrigerant leak and cause the concentration limit to be exceeded, hazards due to lack of oxygen in the room may result.
- **Ventilate the room if refrigerant leaks during operation. If refrigerant comes into contact with a flame, poisonous gases will be released.**
- **All electric work must be performed by a qualified technician according to local regulations and the instructions given in this manual. The units must be powered by dedicated power lines and the correct voltage and circuit breakers must be used. Power lines with insufficient capacity or incorrect electrical work may result in electric shock or fire.**
- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. If the pipes are not connected correctly, the unit will not be properly grounded and electric shock may result.**
- **Use only specified cables for wiring. The wiring connections must be made securely with no tension applied on the terminal connections. Also, never splice the cables for wiring (unless otherwise indicated in this document). Failure to observe these instructions may result in overheating or a fire.**
- **The terminal block cover panel of the outdoor unit must be firmly attached. If the cover panel is mounted incorrectly and dust and moisture enter the unit, electric shock or fire may result.**
- **The appliance shall be installed in accordance with national wiring regulations.**
- **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.**
- **When installing or relocating, or servicing the air conditioner, use only the specified refrigerant (R410A) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.**
  If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.
  The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.
- **Do not perform pump down work when there is a gas leak. The intake of air or other gases causes abnormally high pressure in the refrigeration cycle, which may cause explosion or injury.**

1. Safety precautions

⚠ **Warning:**

- **Use only authorized accessories and ask a dealer or an authorized technician to install them. If accessories are incorrectly installed, water leakage, electric shock, or fire may result.**
- **Do not alter the unit. It may cause fire, electric shock, injury or water leakage.**
- **The user should never attempt to repair the unit or transfer it to another location.**
  If the unit is installed incorrectly, water leakage, electric shock, or fire may result. If the air conditioner must be repaired or moved, ask a dealer or an authorized technician.
- **After installation has been completed, check for refrigerant leaks. If refrigerant leaks into the room and comes into contact with the flame of a heater or portable cooking range, poisonous gases will be released.**
- **When opening or closing the valve below freezing temperatures, refrigerant may spurt out from the gap between the valve stem and the valve body, resulting in injuries.**

1.1. Before installation

⚠ **Caution:**

- **Do not use the unit in an unusual environment. If the air conditioner is installed in areas exposed to steam, volatile oil (including machine oil), or sulfuric gas, areas exposed to high salt content such as the seaside, or areas where the unit will be covered by snow, the performance can be significantly reduced and the internal parts can be damaged.**
- **Do not install the unit where combustible gases may leak, be produced, flow, or accumulate. If combustible gas accumulates around the unit, fire or explosion may result.**
- **The outdoor unit produces condensation during the heating operation. Make sure to provide drainage around the outdoor unit if such condensation is likely to cause damage.**
- **When installing the unit in a hospital or communications office, be prepared for noise and electronic interference. Inverters, home appliances, high-frequency medical equipment, and radio communications equipment can cause the air conditioner to malfunction or breakdown. The air conditioner may also affect medical equipment, disturbing medical care, and communications equipment, harming the screen display quality.**
- **Follow the instructions below to prevent abrasive components contained in sandpaper and cutting tools from entering the refrigerant circuit because those components can cause failures of the compressor and valves.**
  - To deburr pipes, use a reamer or other deburring tools, not sandpaper.
  - To cut pipes, use a pipe cutter, not a grinder or other tools that use abrasive materials.
  - When cutting or deburring pipes, do not allow cutting chips or other foreign matters to enter the pipes.
  - If cutting chips or other foreign matters enter pipes, wipe them off the inside of the pipes.

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1.2. Before installation (relocation)

⚠ **Caution:**

- **Be extremely careful when transporting the units. This work requires more than one person due to the heavy weight. Do not grasp the packaging bands. Wear protective gloves to remove the unit from the packaging and to move it, as you can injure your hands on the fins or the edge of other parts.**
- **Be sure to safely dispose of the packaging materials. Packaging materials, such as nails and other metal or wooden parts may cause stabs or other injuries.**
- **The base and attachments of the outdoor unit must be periodically checked for looseness, cracks or other damage. If such defects are left uncorrected, the unit may fall down and cause damage or injuries.**
- **Do not clean the air conditioner unit with water. Electric shock may result.**
- **Tighten all flare nuts to specification using a torque wrench. If tightened too much, the flare nut can break after an extended period and refrigerant can leak out.**

1.3. Before electric work

⚠ **Caution:**

- **Be sure to install circuit breakers. If not installed, electric shock may result.**
- **For the power lines, use standard cables of sufficient capacity. Otherwise, a short circuit, overheating, or fire may result.**
- **When installing the power lines, do not apply tension to the cables. If the connections are loosened, the cables can snap or break and overheating or fire may result.**
- **Be sure to ground the unit. Do not connect the ground wire to gas or water pipes, lightning rods, or telephone grounding lines. If the unit is not properly grounded, electric shock may result.**
- **Use circuit breakers (ground fault interrupter, isolating switch (+B fuse), and molded case circuit breaker) with the specified capacity. If the circuit breaker capacity is larger than the specified capacity, breakdown or fire may result.**

1.4. Before starting the test run

⚠ **Caution:**

- **Turn on the main power switch more than 12 hours before starting operation. Starting operation just after turning on the power switch can severely damage the internal parts. Keep the main power switch turned on during the operation season.**
- **Before starting operation, check that all panels, guards and other protective parts are correctly installed. Rotating, hot, or high voltage parts can cause injuries.**
- **Do not touch any switch with wet hands. Electric shock may result.**
- **Do not touch the refrigerant pipes with bare hands during operation. The refrigerant pipes are hot or cold depending on the condition of the flowing refrigerant. If you touch the pipes, burns or frostbite may result.**
- **After stopping operation, be sure to wait at least ten minutes before turning off the main power switch. Otherwise, water leakage or breakdown may result.**

1. Safety precautions

1.5. Using R410A refrigerant air conditioners

⚠ **Caution:**

- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. Make sure the insides of the pipes are clean and do not contain any harmful contaminants such as sulfuric compounds, oxidants, debris, or dust. Use pipes with the specified thickness. (Refer to 4.1.) Note the following if reusing existing pipes that carried R22 refrigerant.**
  - Replace the existing flare nuts and flare the flared sections again.
  - Do not use thin pipes. (Refer to 4.1.)
- **Store the pipes to be used during installation indoors and keep both ends of the pipes sealed until just before brazing. (Leave elbow joints, etc. in their packaging.) If dust, debris, or moisture enters the refrigerant lines, oil deterioration or compressor breakdown may result.**
- **Use ester oil, ether oil, alkylbenzene oil (small amount) as the refrigeration oil applied to the flared sections. If mineral oil is mixed in the refrigeration oil, oil deterioration may result.**
- **Do not use refrigerant other than R410A refrigerant. If another refrigerant is used, the chlorine will cause the oil to deteriorate.**
- **Use the following tools specifically designed for use with R410A refrigerant. The following tools are necessary to use R410A refrigerant. Contact your nearest dealer for any questions.**

Tools (for R410A)	
Gauge manifold	Flare tool
Charge hose	Size adjustment gauge
Gas leak detector	Vacuum pump adapter
Torque wrench	Electronic refrigerant charging scale

- **Be sure to use the correct tools. If dust, debris, or moisture enters the refrigerant lines, refrigeration oil deterioration may result.**
- **Do not use a charging cylinder. If a charging cylinder is used, the composition of the refrigerant will change and the efficiency will be lowered.**

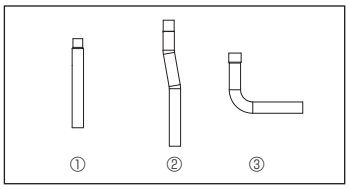

Fig. 1-1

1.6. Accessories of outdoor unit (Fig. 1-1)

ø12.7 and ø25.4 piping is included with the P300 series. Use it in connection with the on-site piping. Refer to 4.5.2.

① Joint pipe (liquid)·····×1
② Joint pipe (gas) ·····×1
③ Joint pipe-L (gas) ·····×1

2. Installation location

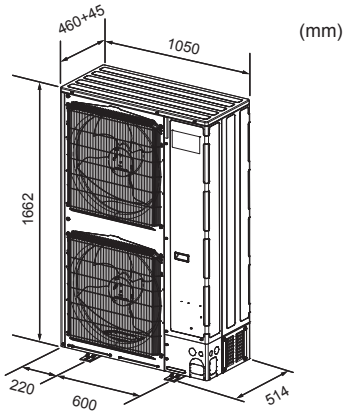

Fig. 2-1

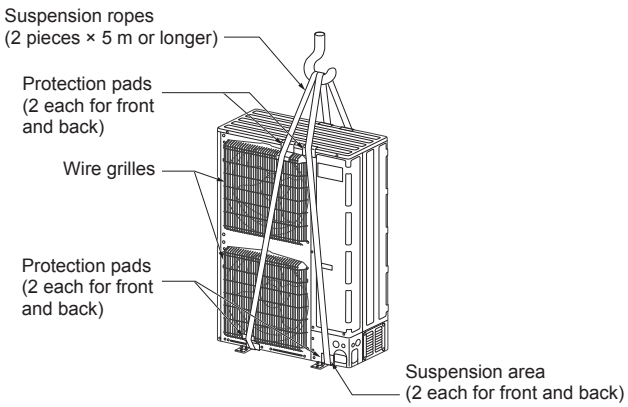

Fig. 2-2

2.1. Choosing the outdoor unit installation location

- Avoid locations exposed to direct sunlight or other sources of heat.
- Select a location from which noise emitted by the unit will not inconvenience neighbors.
- Select a location permitting easy wiring and pipe access to the power source and indoor unit.
- Avoid locations where combustible gases may leak, be produced, flow, or accumulate.
- Note that water may drain from the unit during operation.
- Select a level location that can bear the weight and vibration of the unit.
- Avoid locations where the unit can be covered by snow. In areas where heavy snow fall is anticipated, special precautions such as raising the installation location or installing a hood on the air intake must be taken to prevent the snow from blocking the air intake or blowing directly against it. This can reduce the airflow and a malfunction may result.
- Avoid locations exposed to oil, steam, or sulfuric gas.
- Transport the unit using rope or a cart, etc. Transporting the unit by holding the service panel handles may result in injury. If the unit is carried from the bottom, hands or fingers may be pinched.

2.2. Outline dimensions (Outdoor unit) (Fig. 2-1)

2.3. Transporting the unit

- Transport the unit using rope or a cart, etc. Transporting the unit by holding the service panel handles may result in injury.

2.3.1. Hanging the unit (Fig. 2-2)

- Do not subject the unit to shocks or impacts.
- When delivering the unit by suspending it, use two straps that are each 5 m or more in length.
- Place protection pads (boards, etc.) on parts that come into direct contact with the straps, such as the corners of the unit, etc., to prevent scratches.

⚠ **Warning:**

- **When delivering the unit, be sure to suspend it from specified positions on the unit.**
  Additionally, be sure to secure it so that it does not shift from side to side, and support it at four points.
- **If the unit is carried or suspended with support at only three points, the unit will be unstable and may tip over or fall, resulting in injury.**

2. Installation location

2.4. Constraints on indoor unit installation

You should note that indoor units that can be connected to this outdoor unit are the following models.

- Indoor units with model numbers 10-250 can be connected.
  When using Branch box, Indoor units with model numbers 15-50 can be connected.
  Refer to the table 1 below for possible room, indoor unit combinations.

Verification

The rated capacity should be determined by observing the table below. The unit's quantities are limited as shown in the following table 2. For the next step, make sure that the total rated capacity selected will stay in a range of 50% – 130% of the outdoor unit capacity.

- PUMY-P250 14.0 – 36.4 kW
- PUMY-P300 16.8 – 43.5 kW

Table 1-1 City Multi indoor units

Indoor unit type	10	15	20	25	32	40	50	63	71	80	100	125	140	200	250
Rated capacity (Cooling) (kW)	1.2	1.7	2.2	2.8	3.6	4.5	5.6	7.1	8.0	9.0	11.2	14.0	16.0	22.4	28.0

Table 1-2 M series

Indoor unit type	15	18	20	22	25	35	42	50
Rated capacity (Cooling) (kW)	1.5	1.8	2.0	2.2	2.5	3.5	4.2	5.0

Table 2 Connectable indoor units quantities

- Only system

Model	Only City Multi indoor units (Connection without Branch box)	Only M series indoor units (Connection with Branch box)
PUMY-P250	1-30	2-12
PUMY-P300	1-30	2-12

- Mixed system

Model	One Branch box		Two Branch box		Three Branch box		
	Total (City Multi indoor units and connection with Branch box)	City Multi indoor units	Total (City Multi indoor units and connection with Branch box)	City Multi indoor units	Total (City Multi indoor units and connection with Branch box)	Connection with Branch box	City Multi indoor units
PUMY-P250	Max. 30	Max. 25*1	Max. 30	Max. 23*1	Max. 30	Max. 12	Max. 22*1
PUMY-P300	Max. 30	Max. 25*1	Max. 30	Max. 23*1	Max. 30	Max. 12	Max. 22*1

Table 3 Connectable Branch box quantities

Model	Branch box
PUMY-P250/300	0-3*2

*1 PKFY-P10–32VLM, PFFY-P·VKM, PFFY-P·VCM, and PFFY-P·VL✻ type indoor units cannot be used in a mixed system.

*2 The maximum total capacity of the units that can be connected each branch box is 20.2 kW.

Combinations in which the total capacity of indoor units exceeds the capacity of the outdoor unit will reduce the cooling capacity of each indoor unit below their rated cooling capacity. Thus, combine indoor units with an outdoor unit within the outdoor unit's capacity, if possible.

2. Installation location

2.5. Connecting a PEFY-P·VMA3-E

When using a PEFY-P·VMA3-E, use the following combinations for the connected indoor units.

	PUMY-P250	PUMY-P300
OK	PEFY-P63VMA3-E × 4	PEFY-P80VMA3-E × 1 + PEFY-P71VMA3-E × 3
NO	All combinations excluding the above combinations Ex. 1: PEFY-P63VMA3-E × 3 + PEFY-P63VMA-E × 1 Ex. 2: PEFY-P63VMA3-E × 3 Ex. 3: PEFY-P63VMA3-E × 1 + PEFY-P80VMA3-E × 3 (A combination for a PUMY-P300) Ex. 4: PEFY-P63VMA3-E × 4 + MSZ-AP25VG × 1	All combinations excluding the above combinations Ex. 1: PEFY-P71VMA3-E × 3 + PEFY-P80VMA-E × 1 Ex. 2: PEFY-P71VMA3-E × 3 Ex. 3: PEFY-P63VMA3-E × 4 (A combination for a PUMY-P250) Ex. 4: PEFY-P80VMA3-E × 1 + PEFY-P71VMA3-E × 3 + MSZ-AP25VG × 1

Ex. 1: A ceiling-concealed unit other than a VMA3 series is selected. Combinations with a ceiling-concealed different series are not possible.
Ex. 2: The number of units is incorrect.
Ex. 3: The combination is for a unit with a different capacity.
Ex. 4: The combination is not an “OK” combination.

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2.6. Connecting a PLFY-EP·VEM-E

For the PLFY-EP·VEM-E, authorized connectable indoor units are only as follows.

- PUMY-P250: PLFY-EP63VEM-E × 4
- PUMY-P300: PLFY-EP50VEM-E × 1 + EP63VEM-E × 4

2. Installation location

(mm)

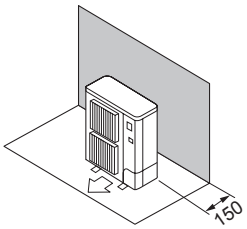


Fig. 2-3

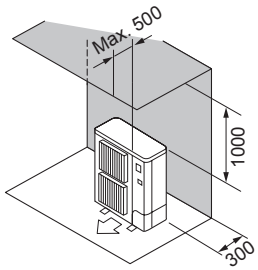


Fig. 2-4

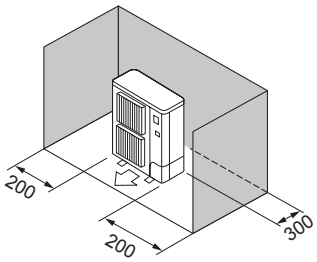


Fig. 2-5

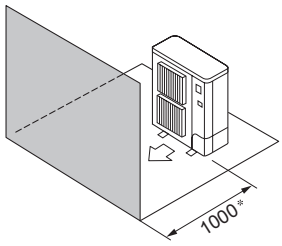


Fig. 2-6

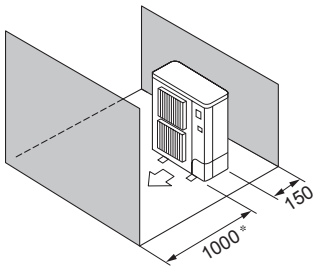


Fig. 2-7

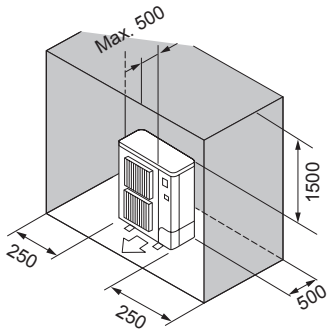


Fig. 2-8

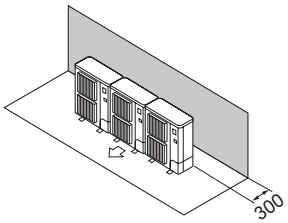


Fig. 2-9

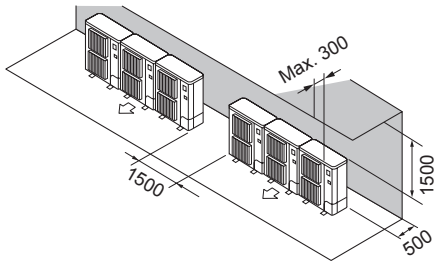


Fig. 2-10

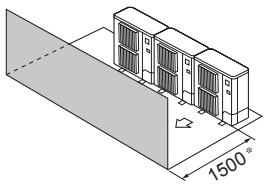


Fig. 2-11

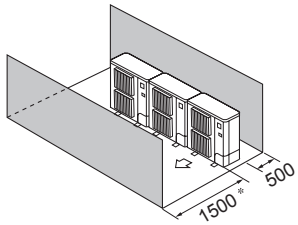


Fig. 2-12

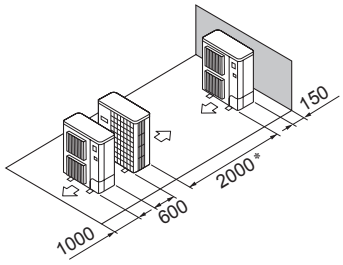


Fig. 2-13

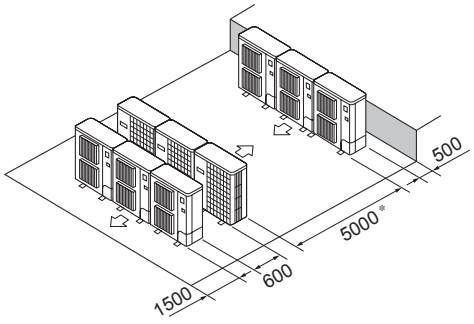


Fig. 2-14

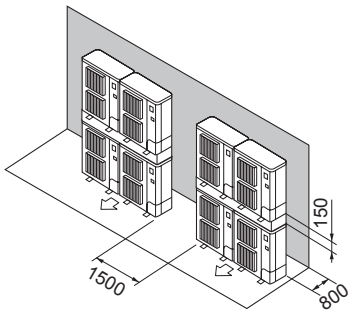


Fig. 2-15

2.7. Ventilation and service space

Note:
The dimensions given along the arrows above are required to guarantee the air conditioner's performance. Install the unit in as wide a place as possible for later service or repairs.

2.7.1. When installing a single outdoor unit

Minimum dimensions are as follows, except for Max., meaning Maximum dimensions, indicated.
Refer to the figures for each case.

① Obstacles at rear (Fig. 2-3)
② Obstacles at rear and above (Fig. 2-4)
③ Obstacles at rear and sides (Fig. 2-5)
④ Obstacles at front (Fig. 2-6)
* When using the optional air outlet guides, the clearance is 500 mm or more.
⑤ Obstacles at front and rear (Fig. 2-7)
* When using the optional air outlet guides, the clearance is 500 mm or more.
⑥ Obstacles at rear, sides, and above (Fig. 2-8)
• Do not install the optional air outlet guides for upward airflow.

2.7.2. When installing multiple outdoor units

Leave 25 mm space or more between the units.

① Obstacles at rear (Fig. 2-9)
② Obstacles at rear and above (Fig. 2-10)
• No more than 3 units must be installed side by side. In addition, leave space as shown.
• Do not install the optional air outlet guides for upward airflow.
③ Obstacles at front (Fig. 2-11)
* When using the optional air outlet guides, the clearance is 1000 mm or more.
④ Obstacles at front and rear (Fig. 2-12)
* When using the optional air outlet guides, the clearance is 1000 mm or more.
⑤ Single parallel unit arrangement (Fig. 2-13)
* When using the optional air outlet guides installed for upward airflow, the clearance is 1000 mm or more.
⑥ Multiple parallel unit arrangement (Fig. 2-14)
* When using the optional air outlet guides installed for upward airflow, the clearance is 2500 mm or more.
⑦ Stacked unit arrangement (Fig. 2-15)
• The units can be stacked up to 2 units.
• No more than 2 stacked units must be installed side by side. In addition, leave space as shown.

2. Installation location

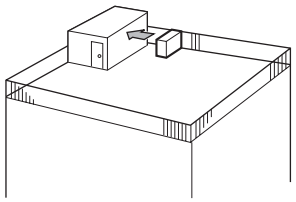


Fig. 2-16

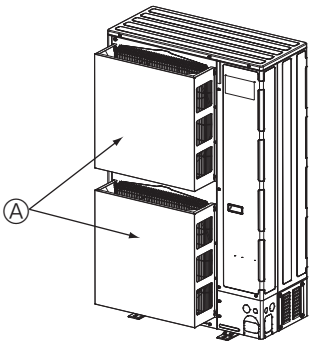


Fig. 2-17

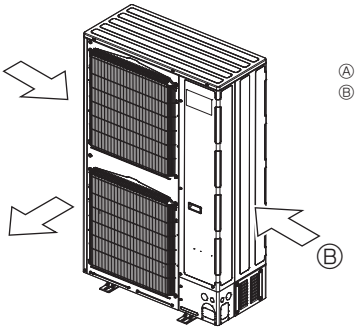


Fig. 2-18

2.7.3. Windy location installation

When installing the outdoor unit on a rooftop or other location unprotected from the wind, situate the air outlet of the unit so that it is not directly exposed to strong winds. Strong wind entering the air outlet may impede the normal airflow and a malfunction may result.

The following shows three examples of precautions against strong winds.

① Face the air outlet towards the nearest available wall about 50 cm away from the wall. (Fig. 2-16)

② Install an optional air protect guide if the unit is installed in a location where strong winds from a typhoon, etc. may directly enter the air outlet. (Fig. 2-17)

③ Position the unit so that the air outlet blows perpendicularly to the seasonal wind direction, if possible. (Fig. 2-18)

3. Installing the outdoor unit

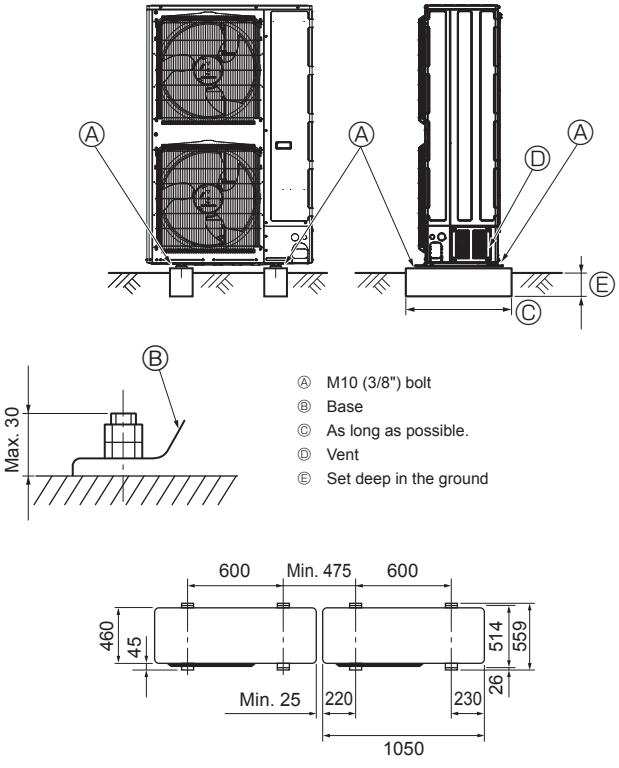


Fig. 3-1

- Be sure to install the unit in a sturdy, level surface to prevent rattling noises during operation. (Fig. 3-1)

<Foundation specifications>

Foundation bolt	M10
Thickness of concrete	120 mm
Length of bolt	70 mm
Weight-bearing capacity	320 kg

- Make sure that the length of the foundation bolt is within 30 mm of the bottom surface of the base.
- Secure the base of the unit firmly with four-M10 foundation bolts in sturdy locations.

Installing the outdoor unit

- Do not block the vent. If the vent is blocked, operation will be hindered and breakdown may result.
- In addition to the unit base, use the installation holes on the back of the unit to attach wires, etc., if necessary to install the unit. Use self-tapping screws (ø5 × 15 mm or less) and install on site.

⚠ Warning:

- **The unit must be securely installed on a structure that can sustain its weight.**
  If the unit is mounted on an unstable structure, it may fall down and cause damage or injuries.
- **The unit must be installed according to the instructions in order to minimize the risk of damage from earthquakes, typhoons, or strong winds. An incorrectly installed unit may fall down and cause damage or injuries.**

⚠ Caution:

- **Install the unit on a rigid structure to prevent excessive operation sound or vibration.**

4. Installing the refrigerant piping

4.1. Precautions for devices that use R410A refrigerant

- **Refer to 1.5. for precautions not included below on using air conditioners with R410A refrigerant.**
- **Use ester oil, ether oil, alkylbenzene oil (small amount) as the refrigeration oil applied to the flared sections.**
- **Use C1220 copper phosphorus, for copper and copper alloy seamless pipes, to connect the refrigerant pipes. Use refrigerant pipes with the thicknesses specified in the table to the below. Make sure the insides of the pipes are clean and do not contain any harmful contaminants such as sulfuric compounds, oxidants, debris, or dust.**

⚠ **Warning:**

When installing or relocating, or servicing the outdoor unit, use only the specified refrigerant (R410A) to charge the refrigerant lines. Do not mix it with any other refrigerant and do not allow air to remain in the lines.

If air is mixed with the refrigerant, then it can be the cause of abnormal high pressure in the refrigerant line, and may result in an explosion and other hazards.

The use of any refrigerant other than that specified for the system will cause mechanical failure or system malfunction or unit breakdown. In the worst case, this could lead to a serious impediment to securing product safety.

ø6.35 mm, ø9.52 mm, ø12.7 mm	Thickness 0.8 mm
ø15.88 mm, ø19.05 mm, ø22.2 mm, ø25.4 mm	Thickness 1.0 mm

- **Do not use pipes thinner than those specified above.**
- **Use 1/2 H or H pipes if the diameter is 19.05 mm or larger.**

- **The thicknesses listed in the table above are based on Japanese standards. Use pipes with a maximum working pressure of 4.15 MPa or higher according to local standards.**

⚠ **Caution:**

Follow the instructions below to prevent abrasive components contained in sandpaper and cutting tools from entering the refrigerant circuit because those components can cause failures of the compressor and valves.

- **To deburr pipes, use a reamer or other deburring tools, not sandpaper.**
- **To cut pipes, use a pipe cutter, not a grinder or other tools that use abrasive materials.**
- **When cutting or deburring pipes, do not allow cutting chips or other foreign matters to enter the pipes.**
- **If cutting chips or other foreign matters enter pipes, wipe them off the inside of the pipes.**

4. Installing the refrigerant piping

4.1.1. Connection without Branch box (Fig. 4-1)

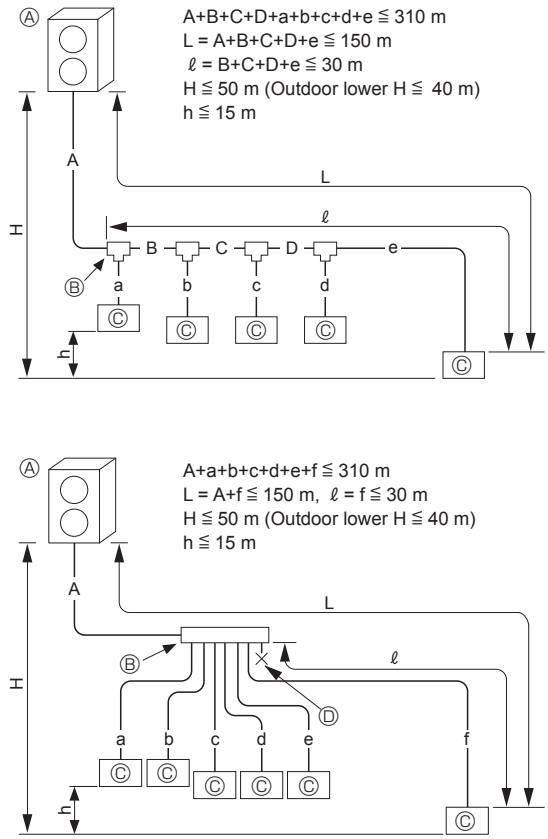


Fig. 4-1

A

		Liquid pipe	Gas pipe
P250	L ≦ 90 m	ø9.52*	ø22.2
	L > 90 m	ø12.7	ø22.2
P300	All	ø12.7	ø25.4

B, C, D

Total down-stream capacity of indoor units	Liquid pipe			Gas pipe
– 16.0 kW	P250	L ≦ 90 m	ø9.52*	ø15.88
		L > 90 m	ø12.7	
	P300	All	ø12.7	
16.1 – 22.4 kW	P250	L ≦ 90 m	ø9.52*	ø19.05
		L > 90 m	ø12.7	
	P300	All	ø12.7	
22.5 – 36.4 kW	P250	L ≦ 90 m	ø9.52*	ø22.2
		L > 90 m	ø12.7	
	P300	All	ø12.7	
36.5 kW –	P300	All	ø12.7	ø25.4

L: The farthest piping length from the outdoor unit to an indoor unit.

* ø12.7 when connecting the indoor unit for PEFY-P200 or P250.

a, b, c, d, e, f (mm)

Model number	Liquid pipe	Gas pipe
10, 15, 20, 25, 32, 40, 50	ø6.35	ø12.7
63, 71, 80, 100, 125, 140	ø9.52	ø15.88
200	ø9.52	ø19.05
250	ø9.52	ø22.2

Branch kit model
CMY-Y62-G-E

4-Branching header	8-Branching header
CMY-Y64-G-E	CMY-Y68-G-E

Note:
When connecting the CONNECTION KIT (PAC-LV11M-J) and an M series indoor unit, refer to the installation manual for the CONNECTION KIT when selecting the pipe size and piping length.

4.1.2. Connection with Branch box (Fig. 4-2)

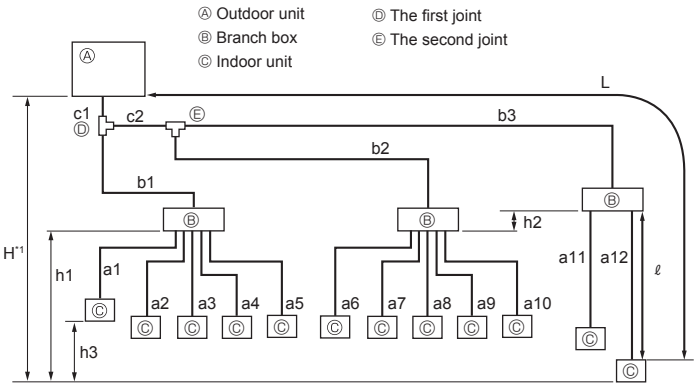


Fig. 4-2

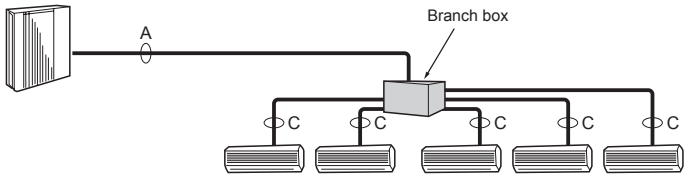
Permissible length (one-way)	Total piping length	c1 + c2 + b1 + b2 + b3 + a1 + a2 + a3 + a4 + a5 + a6 + a7 + a8 + a9 + a10 + a11 + a12 ≦ 240 m
	Farthest piping length (L)	c1 + c2 + b3 + a12 ≦ 80 m
	Piping length between outdoor unit and branch boxes	c1 + c2 + b1 + b2 + b3 ≦ 95 m
	Farthest branch box from the first joint	c2 + b3 ≦ 30 m
	Farthest piping length after branch box (ℓ)	a12 ≦ 25 m
	Total piping length between branch boxes and indoor units	a1 + a2 + a3 + a4 + a5 + a6 + a7 + a8 + a9 + a10 + a11 + a12 ≦ 145 m
Permissible height difference (one-way)	In indoor/outdoor section (H) *1	H ≦ 50 m (In case of outdoor unit is set higher than indoor unit)
		H ≦ 40 m (In case of outdoor unit is set lower than indoor unit)
	In branch box / indoor unit section	h1 + h2 ≦ 15 m
	In each branch unit (h2)	h2 ≦ 15 m
	In each indoor unit (h3)	h3 ≦ 12 m
Number of bends		| c1 + b1 + a1 |, | c1 + b1 + a2 |, | c1 + b1 + a3 |, | c1 + b1 + a4 |, | c1 + b1 + a5 |, | c1 + c2 + b2 + a6|, |c1 + c2 + b2 + a7|, |c1 + c2 + b2 + a8|, |c1 + c2 + b2 + a9|, |c1 + c2 + b2 + a10|, |c1 + c2 + b3 + a11|, |c1 + c2 + b3 + a12| ≦ 23

*1 Branch box should be placed within the level between the outdoor unit and indoor units.

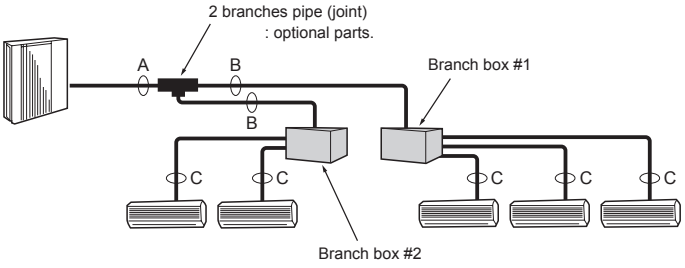
4. Installing the refrigerant piping

■ **In case of using 1-branch box**

Flare connection employed. (No. brazing)



■ **In case of using 2-branch boxes**



■ **In case of using 3-branch boxes**

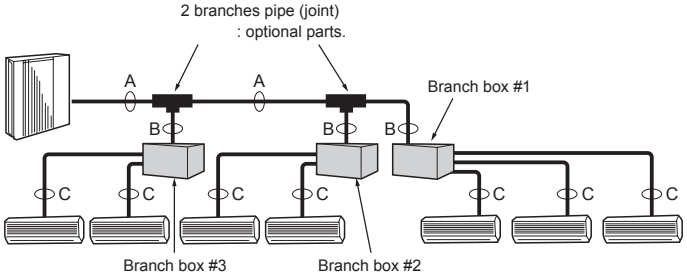


Fig. 4-3

(1)Valve size of branch box for outdoor unit

For liquid	ø9.52 mm
For gas	ø15.88 mm

(2)Valve size of branch box for indoor unit

Ⓐ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø9.52 mm
Ⓑ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø9.52 mm
Ⓒ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø9.52 mm
Ⓓ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø9.52 mm
Ⓔ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø12.7 mm

* 3-branch type : only Ⓐ, Ⓑ, Ⓒ unit

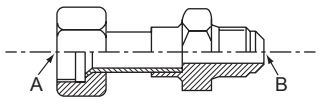


Fig. 4-4

Conversion formula

1/4 F	ø6.35
3/8 F	ø9.52
1/2 F	ø12.7
5/8 F	ø15.88
3/4 F	ø19.05
7/8 F	ø22.2
1 F	ø25.4

Fig. 4-5

Selecting pipe size (Fig. 4-3)

A

Model	Liquid pipe	Gas pipe
P250	ø9.52	ø22.2
P300	ø12.7	ø25.4

B

Total down-stream capacity of indoor units	Model	Liquid pipe	Gas pipe
– 16.0 kW	P250	ø9.52	ø15.88
	P300	ø12.7	
16.1 kW – 22.4 kW	P250	ø9.52	ø19.05
	P300	ø12.7	
22.5 kW –	P250	ø9.52	ø22.2
	P300	ø12.7	

C

The piping connection size differs according to the type and capacity of indoor units. Match the piping connection size of branch box with indoor unit.

If the piping connection size of branch box does not match the piping connection size of indoor unit, use optional different-diameter (deformed) joints to the branch box side.

(Connect deformed joint directly to the branch box side.)

en

Different-diameter joint (optional parts) (Fig. 4-4, 4-5)

Model name	Connected pipes diameter	Diameter A	Diameter B
	mm	mm	mm
MAC-A454JP	ø9.52 → ø12.7	ø9.52	ø12.7
MAC-A455JP	ø12.7 → ø9.52	ø12.7	ø9.52
MAC-A456JP	ø12.7 → ø15.88	ø12.7	ø15.88
PAC-493PI	ø6.35 → ø9.52	ø6.35	ø9.52
PAC-SG76RJ-E	ø9.52 → ø15.88	ø9.52	ø15.88
PAC-SG75RJ-E	ø15.88 → ø19.05	ø15.88	ø19.05
PAC-SG71RJ-E	ø15.88 *1 → ø22.2 *2	ø15.88 *1	ø22.2 *2
PAC-SG77RJ-E	ø15.88 *1 → ø25.4 *2	ø15.88 *1	ø25.4 *2

*1 When connecting to MSDD-50AR-E or a branch box, flare the pipes on-site. Use the nuts that are included with the 2-branch pipe and branch box.

*2 Brazing

2 branch pipe (Joint) : Optional parts (According to the connection method, you can choose the favorite one.)

Model name	Connection method
MSDD-50AR-E	flare
MSDD-50BR-E	brazing

■ **Installation procedure (2 branches pipe (Joint))**

Refer to the installation manuals of MSDD-50AR-E and MSDD-50BR-E.

The lineup of a connectable indoor unit depends on a district/areas/country.

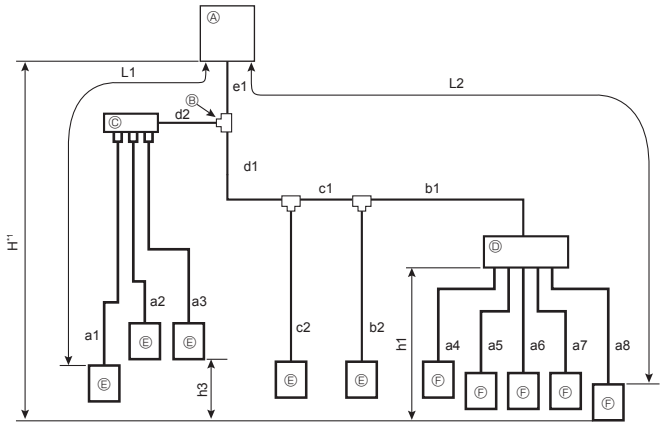
■ **Pipe size (Branch box-Indoor unit) *Case of M series Indoor unit**

Indoor unit type	(kW)	15	20	22	25	35	42	50
Pipe size (mm)	Liquid	ø6.35	ø6.35	ø6.35	ø6.35	ø6.35	ø6.35	ø6.35
	Gas	ø9.52	ø9.52	ø9.52	ø9.52	ø9.52	ø9.52	ø12.7

4. Installing the refrigerant piping

4.1.3. Mixing system (City Multi indoor units and M series indoor units (Connection with Branch box)) (Fig. 4-6)

4.1.3-1 In case of using 1-Branch box



Ⓐ Outdoor unit
Ⓑ First joint
Ⓒ Branch header
Ⓓ Branch box
Ⓔ City Multi Indoor unit
Ⓕ M series Indoor unit

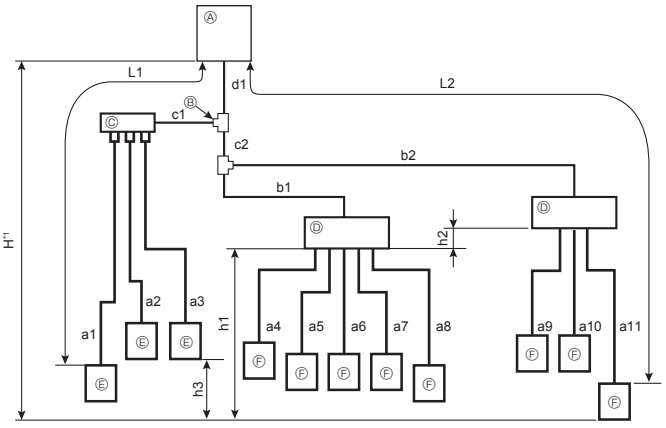
Fig. 4-6 (a)

en

Permissible length (One-way)	Total piping length	e1 + d1 + d2 + c1 + c2 + b1 + b2 + a1 + a2 + a3 + a4 + a5 + a6 + a7 + a8 ≦ 310 m
	Farthest piping length (L1)	e1 + d2 + a1 or e1 + d1 + c1 + b2 ≦ 85 m
	Farthest piping length. Via Branch box (L2)	e1 + d1 + c1 + b1 + a8 ≦ 80 m
	Piping length between outdoor unit and branch box	e1 + d1 + c1 + b1 ≦ 80 m
	Farthest piping length from the first joint	d1 + c1 + b1 or d1 + c1 + b2 ≦ 30 m
	Farthest piping length after branch box	a8 ≦ 25 m
	Total piping length between branch boxes and indoor units	a4 + a5 + a6 + a7 + a8 ≦ 145 m
Permissible height difference (One-way)	In indoor/outdoor section (H)*1	H ≦ 50 m (In case of outdoor unit is set higher than indoor unit)
		H ≦ 40 m (In case of outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section (h1)	h1 ≦ 15 m
	In each indoor unit (h3)	h3 ≦ 12 m
Number of bends		|e1 + d2 + a1|, |e1 + d2 + a2|, |e1 + d2 + a3|, |e1 + d1 + c2|, |e1 + d1 + c1 + b2|, |e1 + d1 + c1 + b1 + a4|, |e1 + d1 + c1 + b1 + a5|, |e1 + d1 + c1 + b1 + a6|, |e1 + d1 + c1 + b1 + a7|, |e1 + d1 + c1 + b1 + a8| ≦ 23

*1: Branch box should be placed within the level between the outdoor unit and indoor units.

4.1.3-2 In case of using 2-Branch boxes



Ⓐ Outdoor unit
Ⓑ First joint
Ⓒ Branch header
Ⓓ Branch box
Ⓔ City Multi Indoor unit
Ⓕ M series Indoor unit

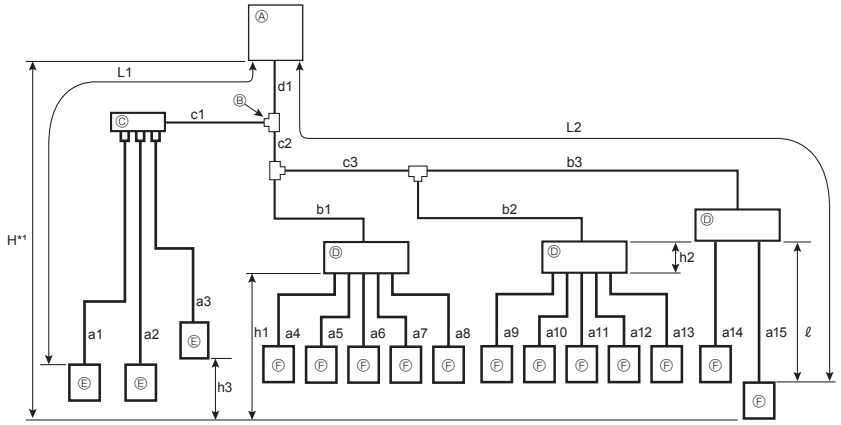
Fig. 4-6 (b)

Permissible length (One-way)	Total piping length	d1 + c1 + c2 + b1 + b2 + a1 + a2 + a3 + a4 + a5 + a6 + a7 + a8 + a9 + a10 + a11 ≦ 310 m
	Farthest piping length (L1)	d1 + c1 + a1 ≦ 85 m
	Farthest piping length. Via branch box (L2)	d1 + c2 + b2 + a11 ≦ 80 m
	Piping length between outdoor unit and branch boxes	d1 + c2 + b1 + b2 ≦ 95 m
	Farthest piping length from the first joint	c2 + b2 or c1 + a1 ≦ 30 m
	Farthest piping length after branch box	a11 ≦ 25 m
	Total piping length between branch boxes and indoor units	a4 + a5 + a6 + a7 + a8 + a9 + a10 + a11 ≦ 145 m
Permissible height difference (One-way)	In indoor/outdoor section (H)*1	H ≦ 50 m (In case of outdoor unit is set higher than indoor unit)
		H ≦ 40 m (In case of outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section	h1 + h2 ≦ 15 m
	In each branch unit (h2)	h2 ≦ 15 m
	In each indoor unit (h3)	h3 ≦ 12 m
Number of bends		|d1 + c1 + a1|, |d1 + c1 + a2|, |d1 + c1 + a3|, |d1 + c2 + b1 + a4|, |d1 + c2 + b1 + a5|, |d1 + c2 + b1 + a6|, |d1 + c2 + b1 + a7|, |d1 + c2 + b1 + a8|, |d1 + c2 + b2 + a9|, |d1 + c2 + b2 + a10|, |d1 + c2 + b2 + a11| ≦ 23

*1: Branch box should be placed within the level between the outdoor unit and indoor units.

4. Installing the refrigerant piping

4.1.3-3 In case of using 3-Branch boxes



Ⓐ Outdoor unit
Ⓑ First joint
Ⓒ Branch header
Ⓓ Branch box
Ⓔ City Multi indoor unit
Ⓕ M series indoor unit

Fig. 4-6 (c)

Permissible length (one-way)	Total piping length	d1 + c1 + c2 + c3 + b1 + b2 + b3 + a1 + a2 + a3 + a4 + a5 + a6 + a7 + a8 + a9 + a10 + a11 + a12 + a13 + a14 + a15 ≦ 310 m
	Farthest piping length (L1)	d1 + c1 + a1 ≦ 85 m
	Farthest piping length via branch box (L2)	d1 + c2 + c3 + b3 + a15 ≦ 80 m
	Piping length between outdoor unit and branch boxes	d1 + c2 + c3 + b1 + b2 + b3 ≦ 95 m
	Farthest piping length from the first joint	c2 + c3 + b3 or c1 + a1 ≦ 30 m
	Farthest piping length after branch box (ℓ)	a15 ≦ 25 m
	Total piping length between branch boxes and indoor units	a4 + a5 + a6 + a7 + a8 + a9 + a10 + a11 + a12 + a13 + a14 + a15 ≦ 145 m
Permissible height difference (one-way)	In indoor/outdoor section (H) *1	H ≦ 50 m (In case of outdoor unit is set higher than indoor unit)
		H ≦ 40 m (In case of outdoor unit is set lower than indoor unit)
	In branch box/indoor unit section	h1 + h2 ≦ 15 m
	In each branch unit (h2)	h2 ≦ 15 m
	In each indoor unit (h3)	h3 ≦ 12 m
Number of bends		|d1 + c1 + a1| , |d1 + c1 + a2| , |d1 + c1 + a3|, |d1 + c2 + b1 + a4| , |d1 + c2 + b1 + a5|, |d1 + c2 + b1 + a6|, |d1 + c2 + b1 + a7|, |d1 + c2 + b1 + a8|, |d1 + c2 + c3 + b2 + a9|, |d1 + c2 + c3 + b2 + a10|, |d1 + c2 + c3 + b2 + a11|, |d1 + c2 + c3 + b2 + a12|, |d1 + c2 + c3 + b2 + a13|, |d1 + c2 + c3 + b3 + a14|, |d1 + c2 + c3 + b3 + a15| ≦ 23

*1 Branch box should be placed within the level between the outdoor unit and indoor units.

4.1.3-4 Selecting pipe size (Fig. 4-7)

System pipe size

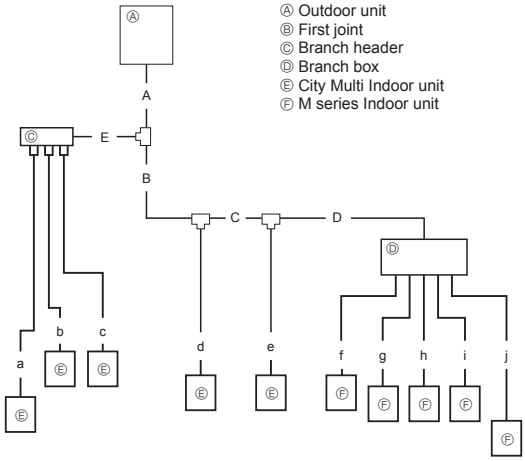


Fig. 4-7

Branch box pipe size

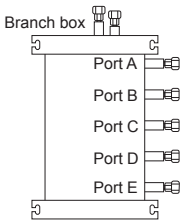
(1)Valve size of branch box for outdoor unit

For liquid	ø9.52 mm
For gas	ø15.88 mm

(2)Valve size of branch box for indoor unit

Ⓐ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø9.52 mm
Ⓑ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø9.52 mm
Ⓒ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø9.52 mm
Ⓓ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø9.52 mm
Ⓔ UNIT	Liquid pipe	ø6.35 mm
	Gas pipe	ø12.7 mm

* 3-branch type : only Ⓐ, Ⓑ, Ⓒ unit



A

Model	Liquid pipe	Gas pipe
P250	ø9.52*	ø22.2
P300	ø12.7	ø25.4

B, C, D, E

Total down-stream capacity of indoor units	Model	Liquid pipe	Gas pipe
– 16.0 kW	P250	ø9.52*	ø15.88
	P300	ø12.7	
16.1 kW – 22.4 kW	P250	ø9.52*	ø19.05
	P300	ø12.7	
22.5 kW – 36.4 kW	P250	ø9.52*	ø22.2
	P300	ø12.7	
36.5 kW –	P300	ø12.7	ø25.4

* ø12.7 when connecting the indoor unit for PEFY-P200 or P250.

a, b, c – j

Indoor unit series	Model number	Ⓐ Liquid pipe	Ⓑ Gas pipe
City Multi	10 – 50	ø6.35	ø12.7
	63 – 140	ø9.52	ø15.88
	200	ø9.52	ø19.05
	250	ø9.52	ø22.2
M series	15 – 42	ø6.35	ø9.52
	50	ø6.35	ø12.7

2-branch joint	CMY-Y62-G-E
4-branch header	CMY-Y64-G-E
8-branch header	CMY-Y68-G-E

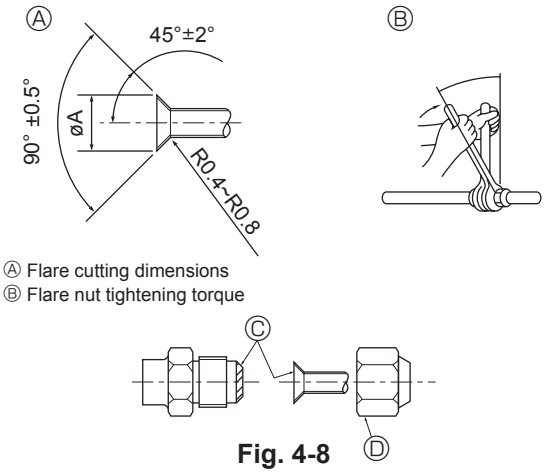
Different-diameter joint (optional parts) (Fig. 4-4, 4-5)

Model name	Connected pipes diameter	Diameter A	Diameter B
	mm	mm	mm
MAC-A454JP	ø9.52 → ø12.7	ø9.52	ø12.7
MAC-A455JP	ø12.7 → ø9.52	ø12.7	ø9.52
MAC-A456JP	ø12.7 → ø15.88	ø12.7	ø15.88
PAC-493PI	ø6.35 → ø9.52	ø6.35	ø9.52
PAC-SG76RJ-E	ø9.52 → ø15.88	ø9.52	ø15.88
PAC-SG75RJ-E	ø15.88 → ø19.05	ø15.88	ø19.05
PAC-SG71RJ-E	ø15.88 *1 → ø22.2 *2	ø15.88 *1	ø22.2 *2
PAC-SG77RJ-E	ø15.88 *1 → ø25.4 *2	ø15.88 *1	ø25.4 *2

*1 When connecting to MSDD-50AR-E or a branch box, flare the pipes on-site. Use the nuts that are included with the 2-branch pipe and branch box.
*2 Brazing

2 branch pipe (Joint) : Optional parts (According to the connection method, you can choose the favorite one.)

Model name	Connection method
MSDD-50AR-E	flare
MSDD-50BR-E	brazing



Ⓐ Flare cutting dimensions
Ⓑ Flare nut tightening torque

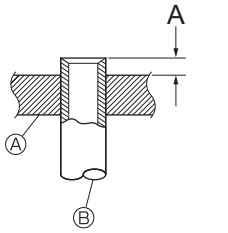
Fig. 4-8

Ⓐ (Fig. 4-8)

Copper pipe O.D. (mm)	Flare dimensions øA dimensions (mm)
ø6.35	8.7 - 9.1
ø9.52	12.8 - 13.2
ø12.7	16.2 - 16.6
ø15.88	19.3 - 19.7
ø19.05	23.6 - 24.0

Ⓑ (Fig. 4-8)

Copper pipe O.D. (mm)	Flare nut O.D. (mm)	Tightening torque (N·m)
ø6.35	17	14 - 18
ø6.35	22	34 - 42
ø9.52	22	34 - 42
ø12.7	26	49 - 61
ø12.7	29	68 - 82
ø15.88	29	68 - 82
ø15.88	36	100 - 120
ø19.05	36	100 - 120



Ⓐ Die
Ⓑ Copper pipe

Fig. 4-9

4.2. Connecting pipes (Fig. 4-8)

Fig. 4-1, 4-2, 4-6 are samples of piping systems.

- When commercially available copper pipes are used, wrap liquid and gas pipes with commercially available insulation materials (heat-resistant to 120 °C or more, thickness of 15 mm or more).
- Be sure to separate thermal insulation for gas and liquid refrigerant pipes.
- The indoor parts of the drain pipe should be wrapped with polyethylene foam insulation materials (specific gravity of 0.03, thickness of 9 mm or more).
- Apply thin layer of refrigerant oil to pipe and joint seating surface before tightening flare nut. Ⓐ
- For connection, first align the center, then tighten the first 3 to 4 turns of flare nut by hand.
- Use 2 wrenches to tighten piping connections. Ⓑ
- Use leak detector or soapy water to check for gas leaks after connections are completed.
- Apply refrigerating machine oil over the entire flare seat surface. Ⓒ
- Use a flare nut that corresponds to the size of the pipe described in section 4.1. Ⓓ
- When bending the pipes, be careful not to break them. Bend radius of 100 mm to 150 mm is sufficient.
- Make sure the pipes do not contact the compressor. Abnormal noise or vibration may result.
- Pipes must be connected starting from the indoor unit.
  Flare nuts must be tightened with a torque wrench.
- Flare the liquid pipes and gas pipes and apply a thin layer of refrigeration oil (Applied on site).
- When usual pipe sealing is used, refer to Table 1 for flaring of R410A refrigerant pipes.
  The size adjustment gauge can be used to confirm A measurements.
- Install local piping on the outdoor unit side with non-oxidizing brazing.
  For installation details, refer to Fig. 4-13.

Table 1 (Fig. 4-9)

Copper pipe O.D. (mm)	A (mm)	
	Flare tool for R410A	Flare tool for R22·R407C
	Clutch type	
ø6.35 (1/4")	0 - 0.5	1.0 - 1.5
ø9.52 (3/8")	0 - 0.5	1.0 - 1.5
ø12.7 (1/2")	0 - 0.5	1.0 - 1.5
ø15.88 (5/8")	0 - 0.5	1.0 - 1.5
ø19.05 (3/4")	0 - 0.5	1.0 - 1.5

4.3. Additional refrigerant charge

Additional refrigerant charge

Refrigerant for the extended piping is not included in the outdoor unit when the unit is shipped from the factory. Therefore, charge each refrigerant piping system with additional refrigerant at the installation site. In addition, in order to carry out service, enter the size and length of each liquid pipe and additional refrigerant charge amounts in the spaces provided on the “Refrigerant amount” plate on the outdoor unit.

* When the unit is stopped, charge the unit with the additional refrigerant through the liquid stop valve after the pipe extensions and indoor units have been vacuumized. When the unit is operating, add refrigerant to the gas check valve using a safety charger. Do not add liquid refrigerant directly to the check valve.

Calculation of additional refrigerant charge

- Calculate the additional charge using the liquid pipe size and length of the extended piping and total capacity of connected indoor units.
- Calculate the additional refrigerant charge using the procedure shown to the right, and charge with the additional refrigerant.
- For amounts less than 0.1 kg, round up the calculated additional refrigerant charge. (For example, if the calculated charge is 6.01 kg, round up the charge to 6.1 kg.)
- The amount of additional refrigerant which is calculated from the total capacity of indoor units and the combination of extended pipes must not be over 22.8 kg. (Refer to 2.4. for the capacity of indoor units, and 4.1. for extended piping.)

en

<Additional charge>

Calculation of refrigerant charge

Pipe size Liquid pipe ø6.35	+	Pipe size Liquid pipe ø9.52	+	Pipe size Liquid pipe ø12.7	+
(m) × 19.0 (g/m)		(m) × 50.0 (g/m)		(m) × 92.0 (g/m)	

Total capacity of connected indoor units	Amount for the indoor units
– 16.0 kW	2.5 kg
16.1 kW – 27.0 kW	3.0 kg
27.1 kW – 31.0 kW	3.5 kg
31.1 kW – 34.0 kW	4.0 kg
34.1 kW – 36.5 kW	4.5 kg
36.6 kW – 39.0 kW	5.0 kg
39.1 kW – 41.0 kW	5.5 kg
41.1 kW –	6.1 kg

Included refrigerant amount when shipped from the factory

Model name	Included refrigerant amount
PUMY-P250YBM	9.3 kg
PUMY-P300YBM	

<Example>

Outdoor model: PUMY-P250YBM
Indoor 1: P63 (7.1 kW)
2: P63 (7.1 kW)
3: P63 (7.1 kW)
4: P63 (7.1 kW)
5: P40 (4.5 kW)

A : ø9.52 30 m
a : ø9.52 15 m
b : ø9.52 10 m
c : ø9.52 10 m
d : ø9.52 10 m
e : ø6.35 15 m

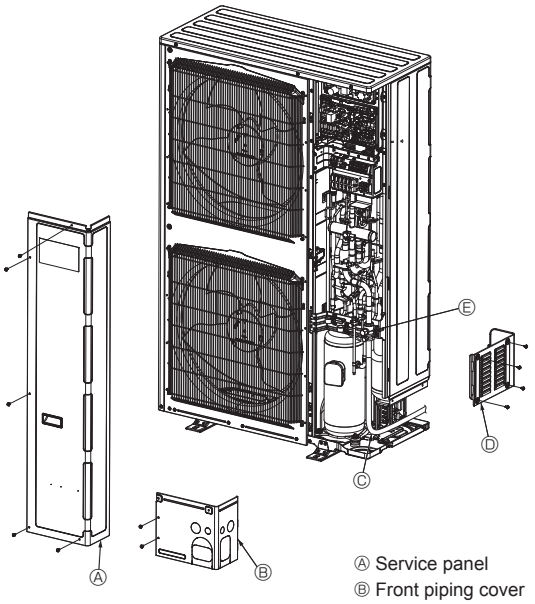
} At the conditions below:

The total length of each liquid line is as follows:
ø9.52 : A + a + b + c + d = 75 m
ø6.35 : e = 15 m

The total capacity of connected indoor unit is as follows:
7.1 + 7.1 + 7.1 + 7.1 + 4.5 = 32.9 (kW)

<Calculation example>
Additional refrigerant charge

$$75 \times \frac{50.0}{1000} + 15 \times \frac{19.0}{1000} + 4.0 = 8.1 \text{ kg (rounded up)}$$



Ⓐ Service panel
Ⓑ Front piping cover
Ⓒ Bend radius : 100 mm or more
Ⓓ Rear piping cover
Ⓔ Stop (Ball) valve

Fig. 4-10

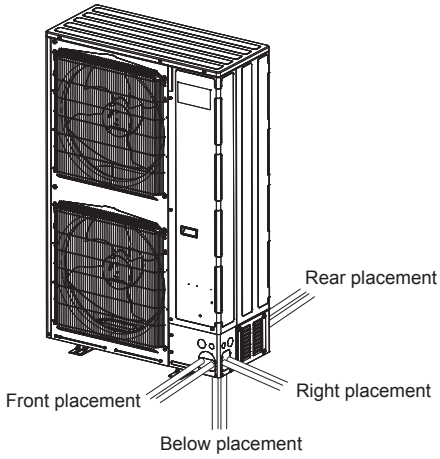


Fig. 4-11

4.4. Refrigerant piping (Fig. 4-10)

Remove the service panel Ⓐ (5 screws) and the front piping cover Ⓑ (2 screws) and rear piping cover Ⓓ (4 screws).

① Perform refrigerant piping connections for the indoor/outdoor unit when the outdoor unit's stop valve is completely closed.

② Vacuum-purge air from the indoor unit and the connection piping.

③ Attach the front cover and back cover to match each of the directions the piping passes through. (Fig. 4-11)

Evacuation

Evacuate with the valve of the outdoor unit closed and evacuate both the connection piping and the indoor unit from the service port provided on the valve of the outdoor unit using a vacuum pump. (Always evacuate from the service port of both liquid pipe and gas pipe.) After the vacuum reaches 650 Pa [abs], continue evacuation for at least one hour or more. Then, stop the vacuum pump and leave it for 1 hour. Ensure the degree of vacuum has not increased. **(If the degree of vacuum increase is larger than 130 Pa, water might have entered. Apply pressure to dry nitrogen gas up to 0.05 MPa and vacuum again.)** Finally, seal in with the liquid refrigerant through the liquid pipe, and adjust the gas piping to obtain an appropriate amount of the refrigerant during operation.

* Never perform air purging using refrigerant.

④ After connecting the refrigerant pipes, check the connected pipes and the indoor unit for gas leaks. (Refer to 4.6. Refrigerant pipe airtight testing method)

⑤ Vacuumize the refrigerant lines through the service port of the liquid and gas stop valves. And then open the stop valves completely (for both the liquid and gas stop valves). This will completely connect the refrigerant lines of the indoor and outdoor units.

- If the stop valves are left closed and the unit is operated, the compressor and control valves will be damaged.
- Use a leak detector or soapy water to check for gas leaks at the pipe connection sections of the outdoor unit.
- Do not use the refrigerant from the unit to purge air from the refrigerant lines.
- After the valve work is completed, tighten the valve caps to the correct torque: 20 to 24.5 N·m (200 to 245 kgf·cm).
  Failure to replace and tighten the caps may result in refrigerant leakage. In addition, do not damage the insides of the valve caps as they act as a seal to prevent refrigerant leakage.

⑥ Use sealant to seal the ends of the thermal insulation around the pipe connection sections to prevent water from entering the thermal insulation.

Refrigerant pipes are protectively wrapped

- When routing piping using a piping cover, cut out the knockout in the piping cover (Ⓑ or Ⓓ) following the groove, and wrap the pipes. (Fig. 4-11)

Pipe inlet gap

- Use putty or sealant to seal the pipe inlet around the pipes so that no gaps remain. (If the gaps are not closed, noise may be emitted or water and dust will enter the unit and breakdown may result.)

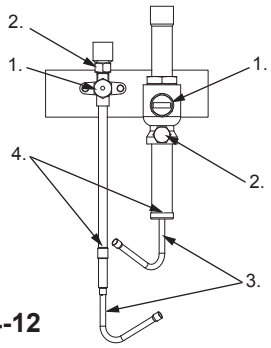


Fig. 4-12

4.5. Installing the refrigerant piping (main pipe) (Fig. 4-12)

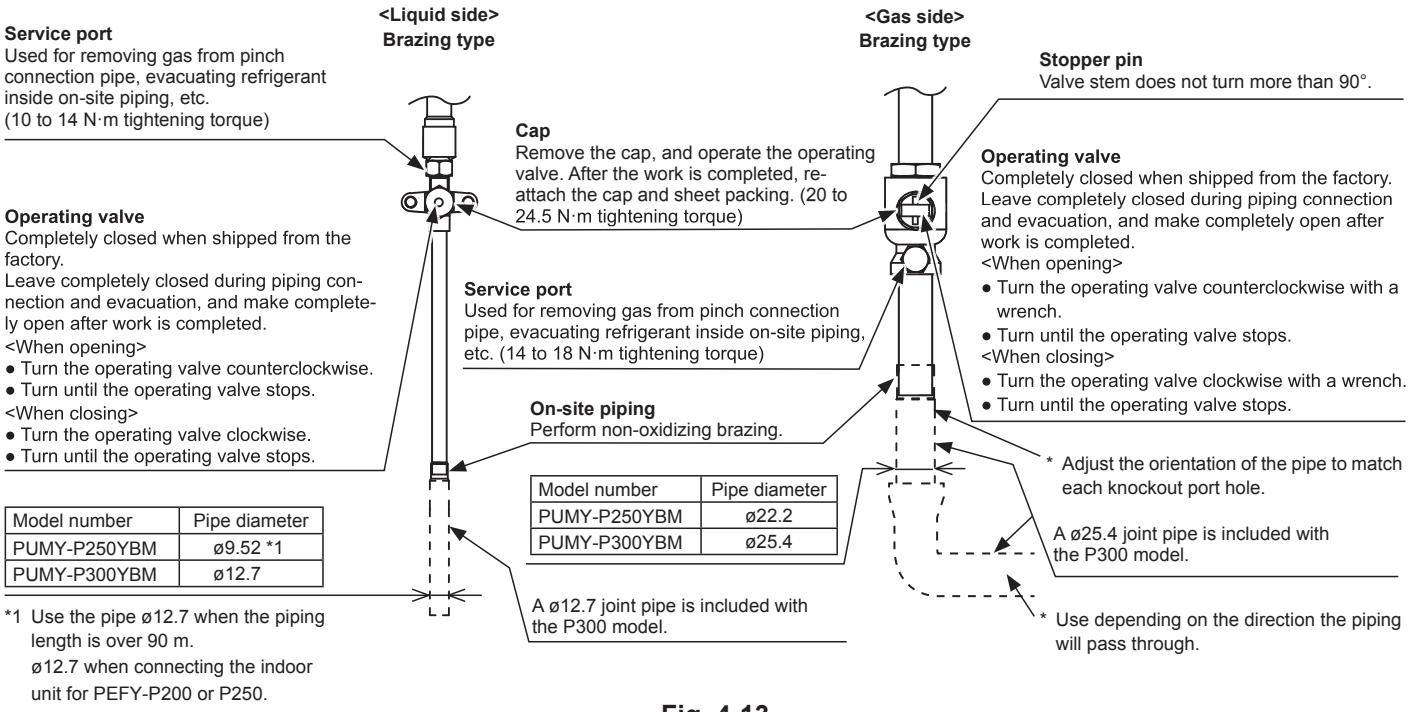
4.5.1. Removing pinch connection pipes

- Perform piping connection and valve operation according to the procedure.
- Pinch connection pipes are attached to the on-site piping end of the liquid side and gas side operation valves when shipped from the factory in order to prevent gas leakage. When connecting the refrigerant piping to the outdoor unit, remove the pinch connection pipe of the operation valve according to the following procedure.

Procedure

1. Check that the operation valves are completely closed (turned clockwise).
2. Attach a charging hose to the service port of the liquid side and gas side operation valves, and remove the gas inside the pinch connection pipes.
3. After removing the gas from inside the pinch connection pipes, cut the pinch connection pipes at the position shown in the figure, and remove the refrigerant oil inside.
4. After the work is completed, heat the brazing section and remove the pinch connection pipes.

4.5.2. Piping connection and valve operation (Fig. 4-13)



Model number	Pipe diameter
PUMY-P250YBM	ø9.52 *1
PUMY-P300YBM	ø12.7

*1 Use the pipe ø12.7 when the piping length is over 90 m.
ø12.7 when connecting the indoor unit for PEFY-P200 or P250.

Model number	Pipe diameter
PUMY-P250YBM	ø22.2
PUMY-P300YBM	ø25.4

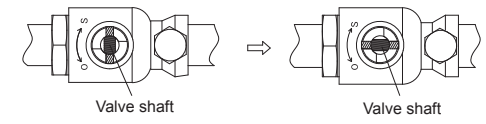
Fig. 4-13

● Refer to the table to the under for the cap and operating valve section tightening torque. As a guideline when not using a torque wrench, tighten until the tightening torque suddenly increases.

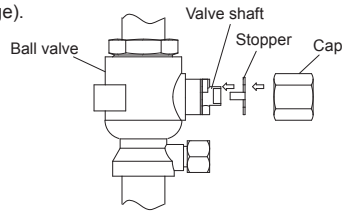
When widening the piping on-site, be sure to satisfy the minimum pipe coupling depth in the table below.

Pipe diameter (mm)	Minimum coupling depth (mm)
More than 5, less than 8	6
More than 8, less than 12	7
More than 12, less than 16	8
More than 16, less than 25	10
More than 25, less than 35	12
More than 35, less than 45	14

Follow the procedure below to open or close the valve (after refrigerant leak test, purging work, and refrigerant charge).



1. Remove the cap.
2. Remove the stopper.
3. Fully open the valve.
4. Attach the removed stopper.
5. Tighten the cap.



Note:
Be sure to attach the stopper. Failure to do so may lead to unintentional rotation of the valve shaft, that is to say, the valve opened in the above procedure may be closed, causing the flow of refrigerant interrupted.

⚠ **Caution:**

- **Wrap the body of the operation valve with a wet towel before performing brazing work. If the body of the operation valve reaches a temperature of 120°C or higher, the device may be damaged.**
- **During brazing work, be careful not to apply the flame to the surrounding wiring or sheet metal. If they come into contact with the flame, they may be burned or fail due to the heat.**
- **Perform non-oxidizing brazing through nitrogen substitution. Oxidization on the inside of the refrigerant piping may cause deterioration of refrigerant oil or compressor malfunction.**
- **After evacuation and refrigerant filling is completed, completely open the valve. If the unit is operated with the valve closed, the high pressure side or low pressure side of the refrigerant circuit will become improperly pressurized, which may damage the compressor.**
- **Determine the amount of additional refrigerant charge (refer to "4.3. Additional refrigerant charge"), and charge refrigerant additionally through the service port after completing piping connection work.**

⚠ **Warning:**

- **When installing the unit, securely connect the refrigerant pipes before starting the compressor.**
- **When opening or closing the valve below freezing temperatures, refrigerant may spurt out from the gap between the valve stem and the valve body, resulting in injuries.**

4. Installing the refrigerant piping

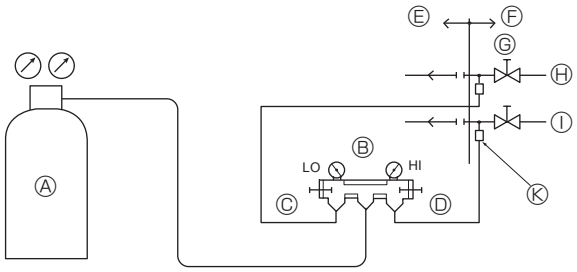
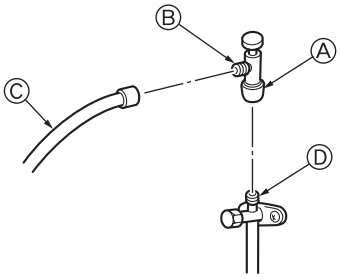


Fig. 4-14



* The figure to the left is an example only. The stop valve shape, service port position, etc., may vary according to the model.

* Turn section Ⓐ only. (Do not further tighten sections Ⓐ and Ⓑ together.)

Ⓒ Charge hose
Ⓓ Service port

Fig. 4-15

4.6. Refrigerant pipe airtight testing method

Airtight test (Fig. 4-14)

Airtight test should be made by pressurizing nitrogen gas. For the test method, refer to the following figure.

(1) Connecting the testing tool. Make a test with the stop valve closed. Be also sure to pressurize both liquid or high-pressure pipe and gas or low pressure pipe.

(2) Do not add pressure to the specified pressure all at once; add pressure little by little.
- ① Pressurize to 0.5 MPa, wait 5 minutes, and make sure the pressure does not decrease.
- ② Pressurize to 1.5 MPa, wait 5 minutes, and make sure the pressure does not decrease.
- ③ Pressurize to 4.15 MPa and measure the surrounding temperature and refrigerant pressure.

(3) If the specified pressure holds for about one day and does not decrease, the pipes have passed the test and there are no leaks.
- If the surrounding temperature changes by 1°C, the pressure will change by about 0.01 MPa. Make the necessary corrections.

(4) If the pressure decreases in steps (2) or (3), there is a gas leak. Look for the source of the gas leak.

Ⓐ Nitrogen gas
Ⓑ System analyzer
Ⓒ Lo-knob
Ⓓ Hi-knob
Ⓔ To indoor unit
Ⓕ Outdoor unit
Ⓖ Stop valve
Ⓗ Liquid pipe or high-pressure pipe
Ⓘ Gas pipe or low-pressure pipe
Ⓚ Service port

Precautions when using the charge valve (Fig. 4-15)

Do not tighten the service port too much when installing it, otherwise, the valve core could be deformed and become loose, causing a gas leak.

After positioning section Ⓑ in the desired direction, turn section Ⓐ only and tighten it. Do not further tighten sections Ⓐ and Ⓑ together after tightening section Ⓐ.

en

5. Drainage piping work

Outdoor unit drainage pipe connection

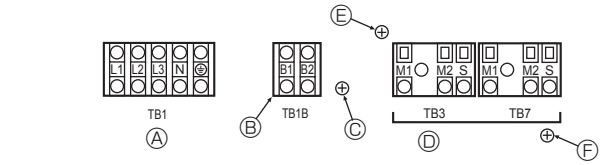
When drain piping is necessary, use the drain socket or the drain pan (option).

Drain socket	PAC-SK27DS-E
Drain pan	PAC-SJ83DP-E

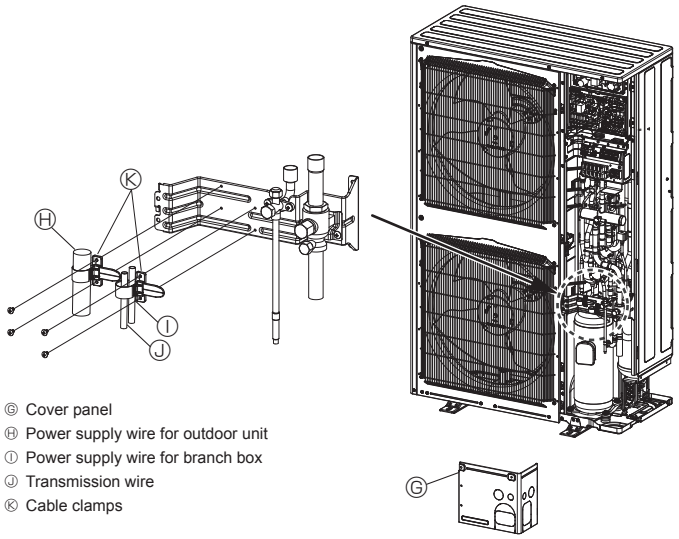
6. Electrical work

6.1. Caution

① Follow ordinance of your governmental organization for technical standard related to electrical equipment, wiring regulations and guidance of each electric power company.
② Use self-extinguishing distribution cables for power supply wiring.
③ Wiring for control (hereinafter referred to as transmission line) shall be (5 cm or more) apart from power source wiring so that it is not influenced by electric noise from power source wiring. (Do not insert transmission line and power source wire in the same conduit.)
④ Be sure to provide designated grounding work to outdoor unit.
⑤ Give some allowance to wiring for electrical part box of indoor and outdoor units, because the box is sometimes removed at the time of service work.
⑥ Never connect the main power source to terminal block of transmission line. If connected, electrical parts will be burnt out.
⑦ Use 2-core shield cable for transmission line. If transmission lines of different systems are wired with the same multiplecore cable, the resultant poor transmitting and receiving will cause erroneous operations.
⑧ Only the transmission line specified should be connected to the terminal block for outdoor unit transmission.
(Transmission line to be connected with indoor unit : Terminal block TB3 for transmission line, Other : Terminal block TB7 for centralized control)
Erroneous connection does not allow the system to operate.
⑨ In case to connect with centralized controller or to conduct group operation in different refrigerant systems, the control line for transmission is required between the outdoor units each other.
Connect this control line between the terminal blocks for centralized control. (2-wire line with no polarity)
When conducting group operation in different refrigerant systems without connecting to centralized controller, replace the insertion of the short circuit connector from CN41 of one outdoor unit to CN40.
⑩ Group is set by operating the remote controller.

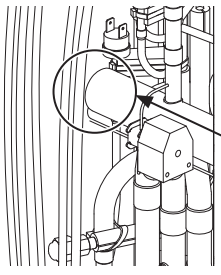


Ⓐ Power source
Ⓑ Power supply for branch box
Ⓒ Screw on the electrical component box
Ⓓ Transmission line
Ⓔ Screw on the electrical component box for ground connection (TB3)
Ⓕ Screw on the electrical component box for ground connection (TB7)



Ⓖ Cover panel
Ⓗ Power supply wire for outdoor unit
Ⓘ Power supply wire for branch box
Ⓙ Transmission wire
Ⓚ Cable clamps

Fig. 6-1



When connecting wiring to the terminal block during wiring work, route the wiring so that it does not come into direct contact with especially hot parts (such as the 4 way valve) of the devices inside the outdoor unit.

Fig. 6-2

6.2. Control box and connecting position of wiring (Fig. 6-1)

1. Connect the wiring between the outdoor unit and the branch box to the transmission terminal block (TB3) of the outdoor unit.
Connect the wiring between the outdoor unit and the centralized control system to the transmission terminal block (TB7) of the outdoor unit.
Connect the ground of the shielded wiring to the shield terminal (S) of the terminal block (TB3) or (TB7).
If the connection of the outdoor unit's transmission power supply connector has been changed from CN41 to CN42, connect the shield terminal (S) of the terminal block (TB7) to the screw (Ⓕ) using the grounding lead wire attached this manual.
* The shield terminal (S) of the transmission terminal block (TB3) is connected to the ground (Ⓔ) when the unit is shipped from the factory.
2. The terminal block (TB1B) is for supplying power to the branch box (220 V-240 V. max 10A).
3. After removing the knock-out pieces from cover panel Ⓖ.
Pass the power supply and transmission wires through the knock-out holes.
4. Fix the power supply and transmission wires using clamps Ⓚ. Refer to Fig. 6-1.

⚠ **Caution:**
Never connect the transmission line for the branch box or the central control system transmission line to this terminal block (TB1B). If the transmission lines are connected, the indoor unit terminal block, branch box terminal block or centralized control terminal block could be damaged.

6. Electrical work

6.3. Wiring of main power supply and equipment capacity

Schematic Drawing of Wiring: When Not Using a Branch box (Example) (Fig. 6-3)

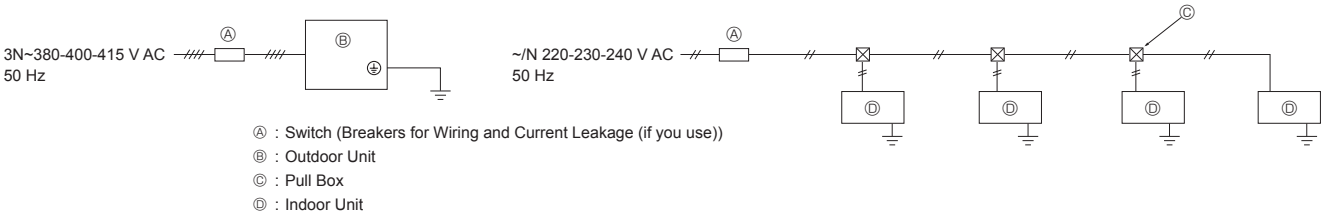


Fig. 6-3

Schematic Drawing of Wiring Connection with Branch box (Example) (Fig. 6-4)
<When power to Branch box is supplied from the outdoor unit>

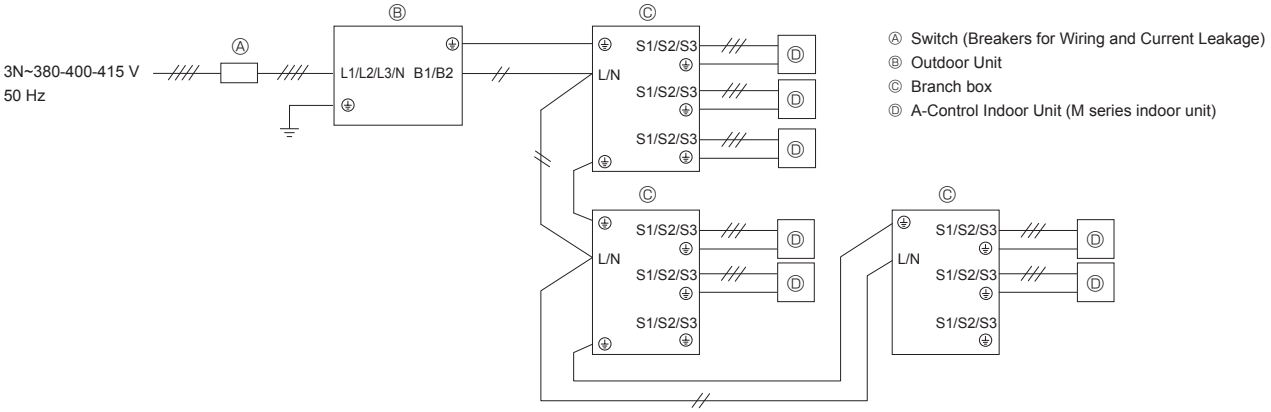


Fig. 6-4

<When power is supplied separately>

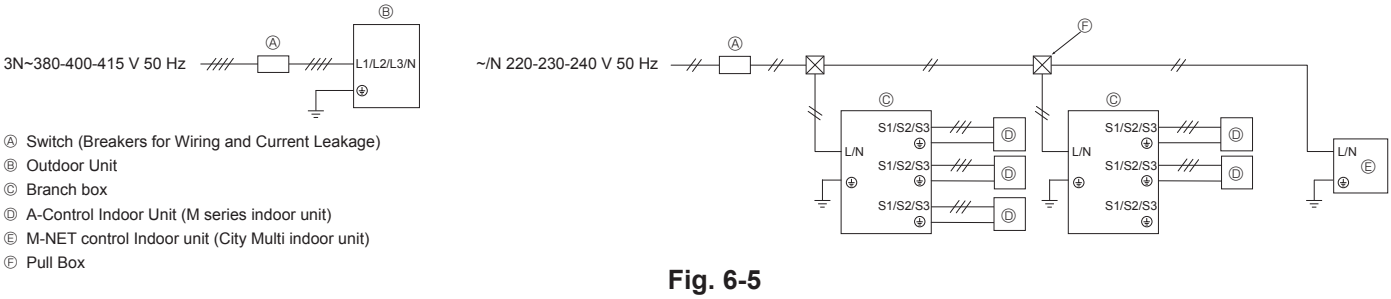


Fig. 6-5

<When power is supplied separately>

Model		Power supply *2	Minimum Wire Cross-sectional area (mm²)		Breaker for Wiring *1	Breaker for Current Leakage
			Main Cable	Ground		
Outdoor unit	PUMY-P250YBM	3N~ 380-400-415 V 50 Hz	4.0	4.0	32 A	32 A 30 mA 0.1 sec. or less
	PUMY-P300YBM	3N~ 380-400-415 V 50 Hz	6.0	6.0	40 A	40 A 30 mA 0.1 sec. or less

<When power is supplied from the outdoor unit>

Model		Power supply *2	Minimum Wire Cross-sectional area (mm²)		Breaker for Wiring *1	Breaker for Current Leakage
			Main Cable	Ground		
Outdoor unit	PUMY-P250YBM	3N~ 380-400-415 V 50 Hz	6.0	6.0	40 A	40 A 30 mA 0.1 sec. or less
	PUMY-P300YBM	3N~ 380-400-415 V 50 Hz	6.0	6.0	40 A	40 A 30 mA 0.1 sec. or less

*1 A breaker with at least 3.0 mm contact separation in each poles shall be provided. Use non-fuse breaker (NF) or earth leakage breaker (NV).
*2 In multi-phase appliances, the colour of the neutral conductor of the supply cord, if any, shall be blue.

<Indoor units> When power is supplied to indoor unit and outdoor unit separately

Total operating current of the indoor unit	Minimum wire thickness (mm²)			Ground-fault interrupter *1	Local switch (A)		Breaker for wiring (NFB)
	Main Cable	Branch	Ground		Capacity	Fuse	
F0 = 16 A or less *2	1.5	1.5	1.5	20 A current sensitivity *3	16	16	20
F0 = 25 A or less *2	2.5	2.5	2.5	30 A current sensitivity *3	25	25	30
F0 = 32 A or less *2	4.0	4.0	4.0	40 A current sensitivity *3	32	32	40

Apply to IEC61000-3-3 about max. permissive system impedance.
*1 The Ground-fault interrupter should support inverter circuit.
The Ground-fault interrupter should combine using of local switch or wiring breaker.
*2 Please take the larger of F1 or F2 as the value for F0.
F1 = Total operating maximum current of the indoor units × 1.2
F2 = {V1 × (Quantity of Type 1)/C} + {V1 × (Quantity of Type 2)/C} + {V1 × (Quantity of Type 3)/C} + ⋯ + {V1 × (Quantity of Type 14)/C}

Connect to Branch box (PAC-MK·BC)

Indoor unit		V1	V2
Type 1	MSZ-AP·VG, MSZ-EF·VG-E2/ER2/ET2, MSZ-EF·VGK-E1/ER1/ET1, MSZ-AP·VGK, MFZ-KT·VG, MSZ-LN·VG2	7.4	2.4
Type 2	MSZ-FH·VE2	6.8	
Type 3	Branch box (PAC-MK·BC)	5.1	3.0

Connect to Connection kit (PAC-LV11M)

Indoor unit		V1	V2
Type 4	MSZ-AP·VG, MSZ-EF·VG-E2/ER2/ET2, MSZ-EF·VGK-E1/ER1/ET1, MSZ-AP·VGK, MFZ-KT·VG, MSZ-LN·VG2	7.4	2.4
Type 5	MSZ-FH·VE2	6.8	
Type 6	Connection kit (PAC-LV11M)	3.5	

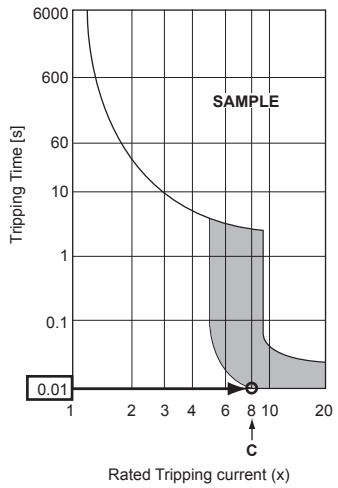
Connect to City Multi

Indoor unit		V1	V2
Type 7	PEFY-P·VMA3-E, PEFY-P·VMA(L)-E1	38.0	1.6
Type 8	PEFY-P·VMHS-E-F, PEFY-P40–140VMHS-E	26.8	
Type 9	PEFY-M·VMA(2)(L)-A, PEFY-P·VMA(L)-E3	18.6	3.0
Type 10	PMFY-P·VBM-E, PLFY-EP·VEM-E, PLFY-P·VFM-E, PEFY-P·VMS1(L)-E, PCFY-P·VKM-E, PKFY-P·VKM-E, PFFY-P·VCM-E, PKFY-P·VLM-E/ET, PLFY-M·VEM-E/ET, PLFY-P·VEM-E	19.8	2.4
Type 11	PLFY-P·VEM-PA	17.1	
Type 12	PLFY-P·VLMD-E, PEFY-P·VMR-E-L/R, PFFY-P·VKM-E2, PFFY-P·VLEM-E, GUF-RD(H)4, PEFY-P·VMH-E/E2	0	0
Type 13	PEFY-P200/250VMHS-E	13.8	4.8
Type 14	PEFY-P·VMX(L)-E(1)	38.0	2.4

C : Multiple of tripping current at tripping time 0.01s
Please pick up “C” from the tripping characteristic of the breaker.

<Example of “F2” calculation>
Condition PLFY-VBM × 4 + PEFY-VMA × 1, C = 8 (refer to right sample chart)
F2 = 19.8 × 4/8 + 38 × 1/8
= 14.65
→ 16 A breaker (Tripping current = 8 × 16 A at 0.01s)
*3 Current sensitivity is calculated using the following formula.
G1= V2 × (Quantity of Type 1) + V2 × (Quantity of Type 2) + V2 × (Quantity of Type 3) + ⋯ + V2 × (Quantity of Type 14)
+ V3 × (Wire length [km])

Sample chart



G1	Current sensitivity
30 or less	30 mA 0.1 sec. or less
100 or less	100 mA 0.1 sec. or less

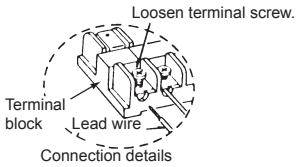
Wire thickness	V3
1.5 mm²	48
2.5 mm²	56
4.0 mm²	66

1. **Bear in mind ambient conditions (ambient temperature, direct sunlight, rain water, etc.) when proceeding with the wiring and connections.**
2. **The wire size is the minimum value for metal conduit wiring. The power cord size should be 1 rank thicker consideration of voltage drops. Make sure the power-supply voltage does not drop more than 10%.**
3. **Specific wiring requirements should adhere to the wiring regulations of the region.**
4. **Power supply cords of parts of appliances for outdoor use shall not be lighter than polychloroprene sheathed flexible cord (design 60245 IEC57). For example, use wiring such as YZW.**
5. **Install an earth longer than other cables.**

6. Electrical work

⚠ **Warning:**
- **Be sure to use specified wires to connect so that no external force is imparted to terminal connections. If connections are not fixed firmly, it may cause heating or fire.**
- **Be sure to use the appropriate type of overcurrent protection switch. Note that generated overcurrent may include some amount of direct current.**
- **Be sure to attach the terminal block covers/panel of the outdoor unit securely. If it is not attached correctly, if could result in a fire or an electric shock due to dust, water. etc.**

⚠ **Caution:**
- **Be careful not to make mis-wiring.**
- **Firmly tighten the terminal screws to prevent them from loosening.**
- **After tightening, pull the wires lightly to confirm that they not move.**
- **If the connecting wire is incorrectly connected to the terminal block, the unit does not operate normally.**
- **Some installation site may require attachment of an earth leakage breaker. If no earth leakage breaker is installed, it may cause an electric shock.**
- **Do not use anything other than breaker and fuse with correct capacity. Using fuse and wire or copper wire with too large capacity may cause a malfunction of unit or fire.**
- **Properly route wiring so as not to contact the sheet metal edge or a screw tip.**



IMPORTANT
Make sure that the current leakage breaker is one compatible with higher harmonics.
Always use a current leakage breaker that is compatible with higher harmonics as this unit is equipped with an inverter.
The use of an inadequate breaker can cause the incorrect operation of inverter.

Never splice the power cable or the indoor-outdoor connection cable, otherwise it may result in a smoke, a fire or communication failure.

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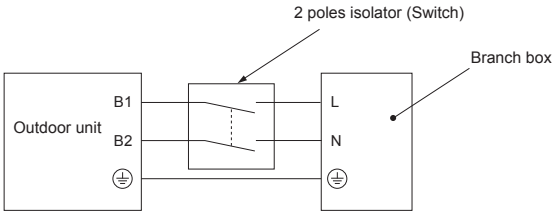
⚠ **Warning:**
- **Please turn off the main power supply when servicing. And do not touch the B1, B2 terminals when the power is energized. If isolator should be used between outdoor unit and branch box/indoor unit and branch box, please use 2-pole type. (Please refer to figure below.)**



⚠ **Caution:**
After using the isolator, be sure to turn off and on the main power supply to reset the system. Otherwise, the outdoor unit may not be able to detect the branch box(es) or indoor units.

Be sure to connect the outdoor-branch box/indoor-branch box connecting cables directly to the units (no intermediate connections).
Intermediate connections can lead to communication errors if water enters the cables and causes insufficient insulation to ground or a poor electrical contact at the intermediate connection point.

6.4. Wiring transmission cables

① **Types of control cables**

1. Wiring transmission cables

Types of transmission cables	Shielding wire CVVS, CPEVS or MVVS
Cable diameter	More than 1.25 mm²
Maximum wiring length	Within 200 m

2. M-NET Remote control cables

Types of remote control cables	Shielding wire CVVS, CPEVS or MVVS
Cable diameter	0.5 to 1.25 mm²
Remarks	When 10 m is exceeded, use cable with the same specifications as 1. Wiring transmission cable

3. MA Remote control cable

Type of remote control cable	Sheathed 2 - core cable (unshielded) CVV
Cable diameter	0.3 to 1.25 mm² (0.75 to 1.25 mm²)*
Remarks	Within 200 m

* Connected with simple remote controller.

② **Connection restrictions**

• Controller name, symbol and allowable number of controllers.

Name		Symbol	Allowable number of controllers
Outdoor unit controller		OC	–
Indoor unit controller	CITY MULTI series	M-IC	1 to 30 units per 1 OC *1
	M series	A-IC	2 to 12 units per 1 OC *1
Branch box		BC	0 to 3 units per 1 OC
Remote controller	M-NET	M-NET RC	Maximum of 30 controllers for 1 OC *1
	MA	MA-RC	Maximum of 2 per group
	Wireless	WL-RC	–

Note:
***1. The number of connectable units may be limited by some conditions such as an indoor unit's capacity or each unit's equivalent power consumption.**

Example of a group operation system with multiple outdoor units (Shielding wires and address setting are necessary.)

<Examples of Transmission Cable Wiring>

■ **M-NET Remote Controller (Fig. 6-6)**

■ **MA Remote Controller (Fig. 6-7)**

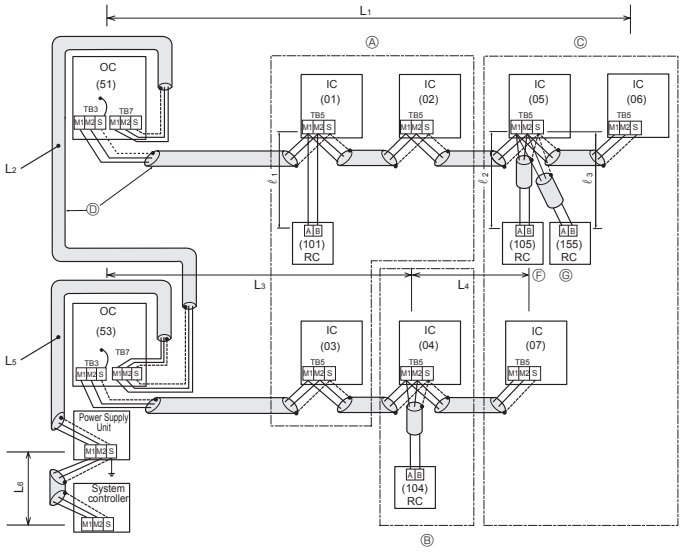
<Wiring Method and Address Settings>

a. Always use shielded wire when making connections between the outdoor unit (OC) and the indoor unit (M-IC), as well for all OC-OC, and M-IC-M-IC wiring intervals.
b. Use feed wiring to connect terminals M1 and M2 and the ground terminal on the transmission cable terminal block (TB3) of each outdoor unit (OC) to terminals M1, M2 and terminal S on the transmission cable block of the indoor unit (M-IC).
c. Connect terminals *1 on the transmission cable terminal block of the indoor unit (M-IC) that has the most recent address within the same group to the terminal block on the remote controller. (*1. When using an M-NET remote controller, connect to terminals M1 and M2, and when using an MA remote controller, connect to terminals 1 and 2.)
d. Connect together terminals M1, M2 and terminal S on the terminal block for central control (TB7) for the outdoor unit (OC).
e. The jumper connector CN41 on the control panel does not change.
f. Connect shield ground of the indoor units transmission line to the shield (S) terminal of (TB3).
Connect shield ground of the line between outdoor units and central control system transmission line to the shield (S) terminal of (TB7).
g. Set the address setting switch as follows.

Unit	Range	Setting Method
M-IC (Main)	01 to 50	Use the most recent address within the same group of indoor units
M-IC (Sub)	01 to 50	Use an address, other than that of the M-IC (Main) from among the units within the same group of indoor units. This must be in sequence with the M-IC (Main)
OC	51 to 100	Use the most recent address of all the indoor units plus 50 * The address automatically becomes “100” if it is set as “01 - 50”.
M-NET RC (Main)	101 to 150	Set at an M-IC (Main) address within the same group plus 100
M-NET RC (Sub)	151 to 200	Set at an M-IC (Main) address within the same group plus 150
MA-RC	—	Unnecessary address setting (Necessary main/sub setting)

h. The group setting operations among the multiple indoor units is done by the M-NET remote controller (M-NET RC) after the electrical power has been turned on.

■ **M-NET Remote Controller**



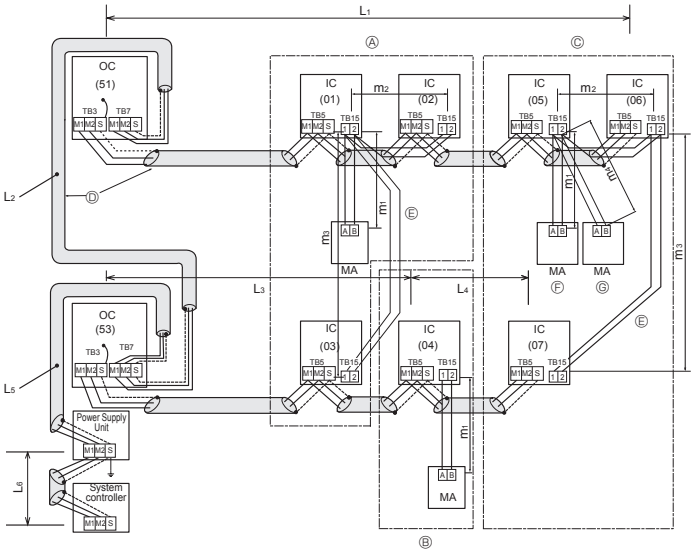
Ⓐ : Group 1
Ⓑ : Group 3
Ⓒ : Group 5
Ⓓ : Shielded Wire
Ⓔ : Unshielded Wire
Ⓕ : Main Remote Controller
Ⓖ : Sub Remote Controller
( ): Address

<Permissible Lengths>

- **Max length via outdoor units: $L_1+L_2+L_3+L_4$, $L_3+L_4+L_5+L_6$ and $L_1+L_2+L_5+L_6 \leqq 500$ m (1.25 mm² or more)**
- **Max transmission cable length: L_1, L_3+L_4, L_2+L_5 and $L_6 \leqq$ 200 m (1.25 mm² or more)**
- **Remote controller cable length: ℓ_1, $\ell_2+\ell_3 \leqq 10$ m (0.5 to 1.25 mm²) If the length exceeds 10 m, use a 1.25 mm² shielded wire. The section of the cable that exceeds 10 m must be included in the max length via outdoor units and max transmission cable length.**

Fig. 6-6

■ **MA Remote Controller**



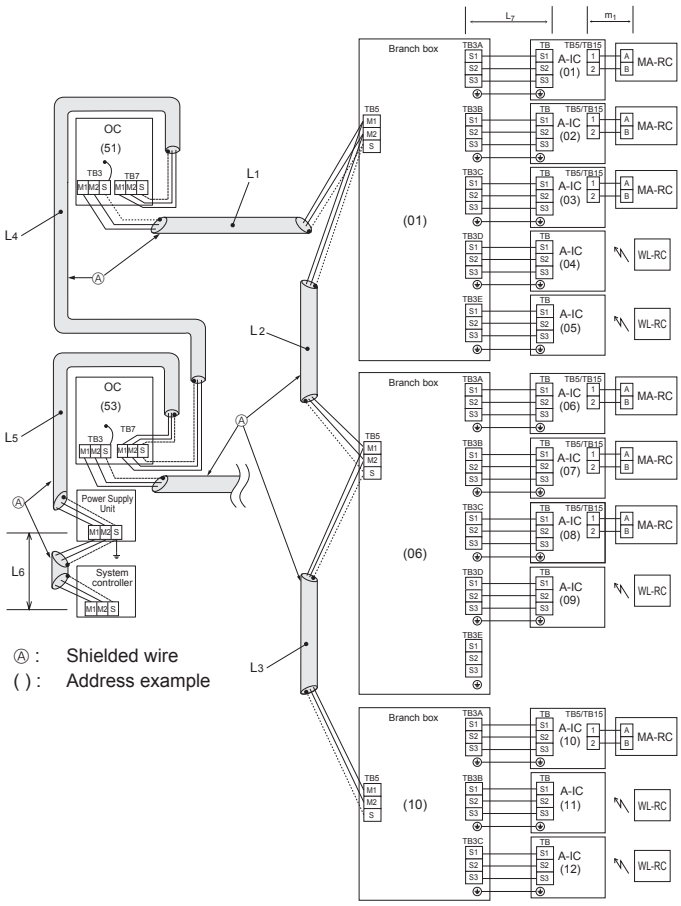
<Permissible Lengths>

- **Max length via outdoor unit (M-NET cable): $L_1+L_2+L_3+L_4$, $L_3+L_4+L_5+L_6$ and $L_1+L_2+L_5+L_6 \leqq 500$ m (1.25 mm² or more)**
- **Max transmission cable length (M-NET cable): L_1, L_3+L_4, L_2+L_5 and $L_6 \leqq$ 200 m (1.25 mm² or more)**
- **Remote controller cable length: m_1, $m_1+m_2+m_3$ and $m_1+m_2+m_3+m_4 \leqq 200$ m (0.3 to 1.25 mm²)**

Fig. 6-7

6. Electrical work

<Example of Transmission Cable Wiring: Connecting with Branch box>

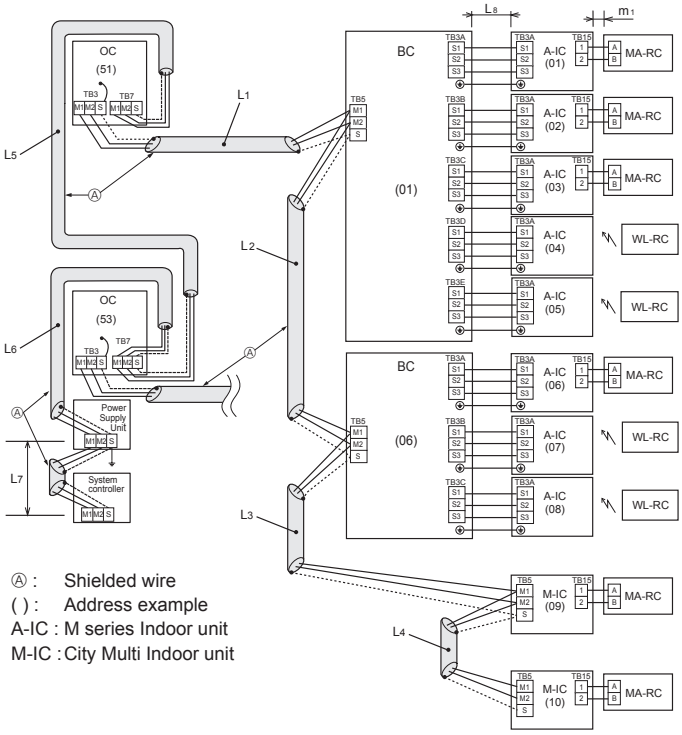


<Permissible Lengths>

- **Max length via outdoor units (M-NET cable):**
  $L_1 + L_2 + L_3 + L_4 + L_5 + L_6 \leqq 500$ m (1.25 mm² or more)
- **Max transmission cable length (M-NET cable):**
  $L_1 + L_2 + L_3$, $L_4 + L_5$, $L_6 \leqq 200$ m (1.25 mm² or more)
- **Max transmission cable length (A-Control cable):**
  $L_7 \leqq 25$ m (1.5 mm²)
- **Remote controller cable length:**
  $m_1 \leqq 200$ m (0.3 to 1.25 mm²)

Fig. 6-8

<Example of Transmission Cable Wiring: Mixing system>



<Permissible length>

- **Max length via outdoor units:**
  $L_1 + L_2 + L_3 + L_4 + L_5 + L_6 + L_7 \leqq 500$ m (1.25 mm² or more)
- **Max transmission cable length:**
  $L_1 + L_2 + L_3 + L_4$, $L_5 + L_6$, $L_7 \leqq 200$ m (1.25 mm² or more)
- **Max transmission cable length (M-NET cable):**
  $L_8 \leqq 25$ m (1.5 mm²)
- **Remote controller cable length:**
  $m_1 \leqq 200$ m (0.3 to 1.25 mm²)

Fig. 6-9

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[1] Incorrect systems

- Group operation by single remote controller

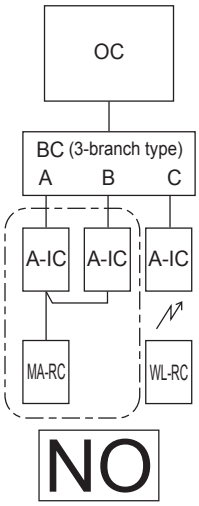


Fig. 6-10

- Group operation between different refrigerant systems

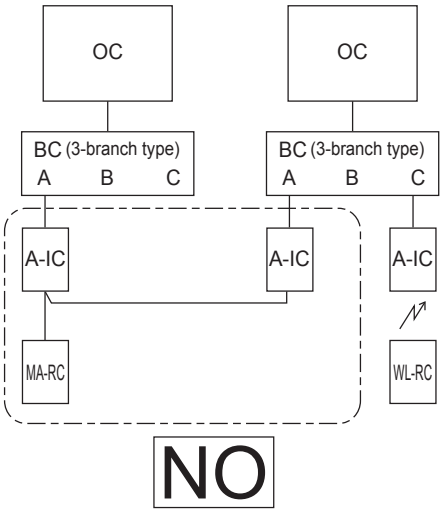


Fig. 6-11

- Connection of M-NET Remote controller

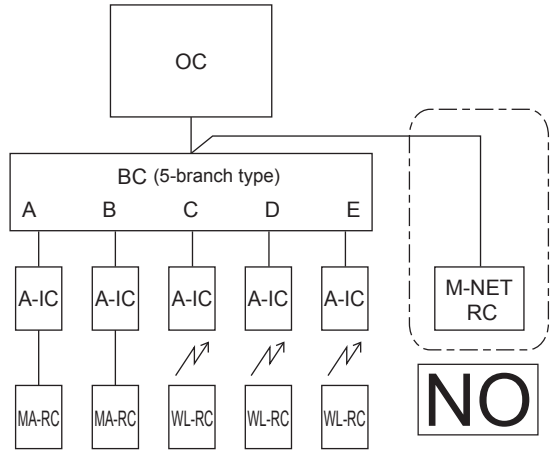


Fig. 6-12

① Plural indoor units cannot be operated by a MA remote controller.
② Different refrigerant systems cannot be connected together.
③ Different types control systems (A-IC/M-IC) cannot be connected together.
④ An ME remote controller cannot be connected to a system that contains a branch box.

- 3-branch boxes (3 or 5-branch type, maximum 12 indoor units)

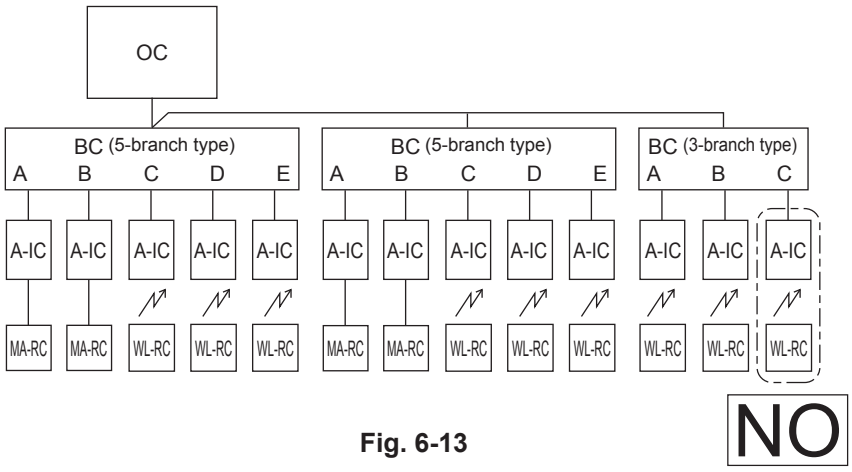
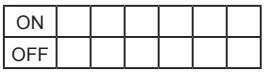
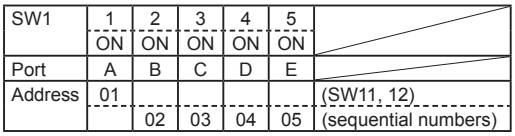
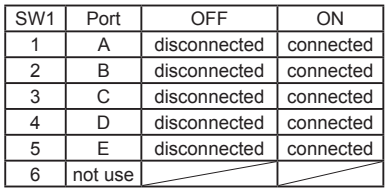


Fig. 6-13

6. Electrical work

6.5. Address setting

Switch address setting

<table>
<tr><th>Unit / Address</th><th>Outdoor</th><th colspan="2">Branch box</th><th>Indoor</th></tr>
<tr><td></td><td></td><td>Address</td><td>Connection Setting</td><td></td></tr>
<tr><td>Switch</td><td> 
tens digit SWU2 ones digit SWU1</td><td> 
tens digit SW12 ones digit SW11</td><td> 
SW1</td><td>None</td></tr>
<tr><td>range</td><td>51 - 100</td><td>1 - 50</td><td>–</td><td>–</td></tr>
<tr><td>setting</td><td>Branch address + 50</td><td>• According to the set address (for example, 01), the addresses for the connected indoor units are set sequentially (for example, 02, 03, 04, and 05).
 
SW1: 1 2 3 4 5 = ON ON ON ON ON
Port: A B C D E
Address: 01 02 03 04 05 (sequential numbers)
(SW11, 12)</td><td>• Specify whether indoor units are connected to each port (A, B, C, D, and E).
 
SW1 / Port / OFF / ON
1 / A / disconnected / connected
2 / B / disconnected / connected
3 / C / disconnected / connected
4 / D / disconnected / connected
5 / E / disconnected / connected
6 / not use</td><td>There are no address settings for the indoor units.</td></tr>
</table>

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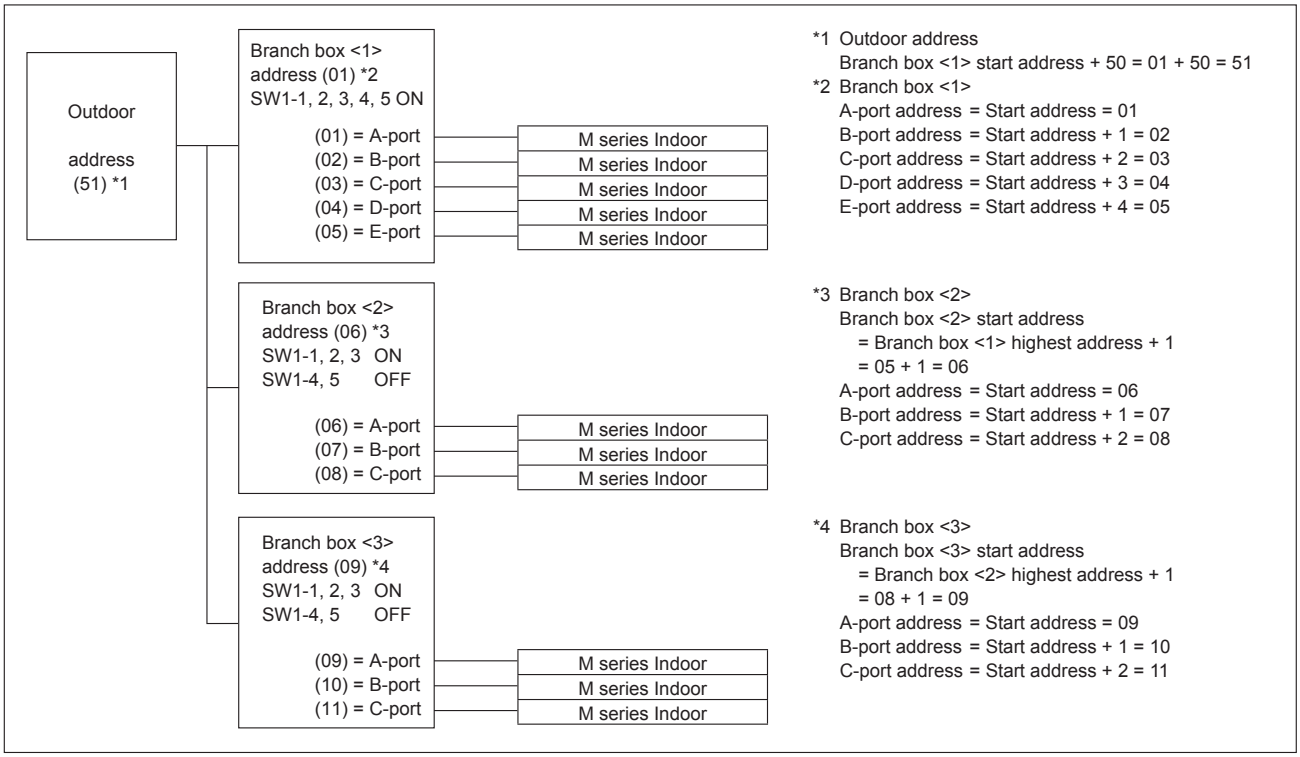
Note: 1. Branch box address

When setting the address, use a number within the range 1–50.

Ex. The set address is (47) and there are 5 indoor units (A, B, C, D, and E).

If A: (47), B: (48), C: (49), D: (50), and E: (51), E is incorrect because it exceeds 50.

Ex 1. Outdoor + Branch <1> (Indoor A, B, C, D, E) + Branch <2> (Indoor A, B, C) + Branch <3> (Indoor A, B, C)



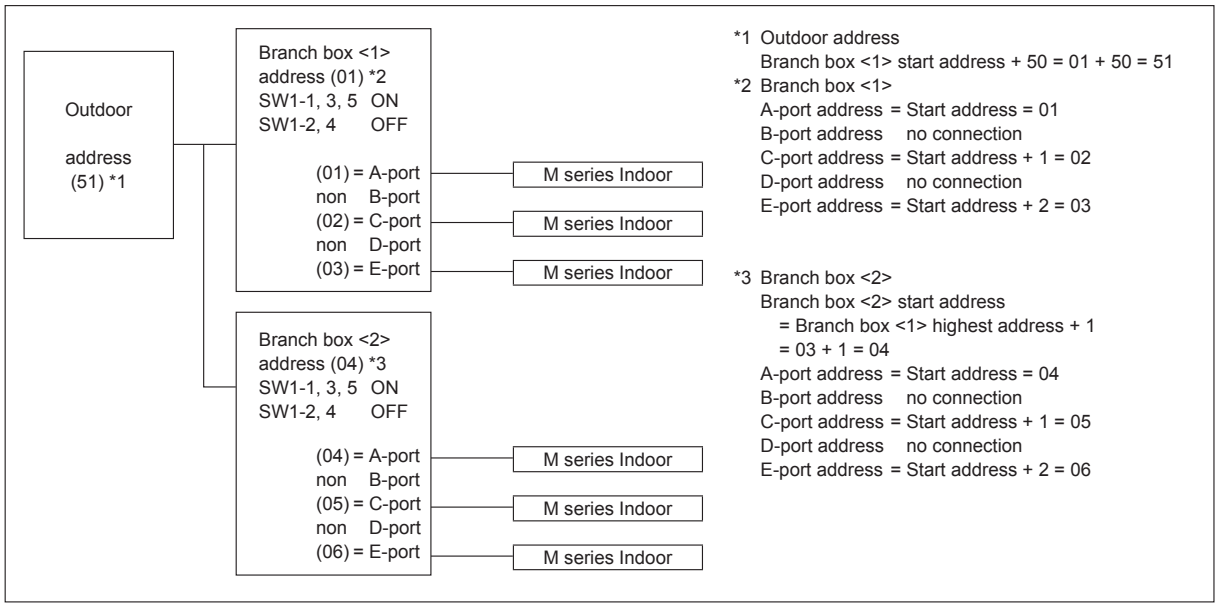
*1 Outdoor address
Branch box <1> start address + 50 = 01 + 50 = 51

*2 Branch box <1>
A-port address = Start address = 01
B-port address = Start address + 1 = 02
C-port address = Start address + 2 = 03
D-port address = Start address + 3 = 04
E-port address = Start address + 4 = 05

*3 Branch box <2>
Branch box <2> start address
= Branch box <1> highest address + 1
= 05 + 1 = 06
A-port address = Start address = 06
B-port address = Start address + 1 = 07
C-port address = Start address + 2 = 08

*4 Branch box <3>
Branch box <3> start address
= Branch box <2> highest address + 1
= 08 + 1 = 09
A-port address = Start address = 09
B-port address = Start address + 1 = 10
C-port address = Start address + 2 = 11

Ex 2. Outdoor + Branch <1> (M series Indoor A, C, E) + Branch <2> (M series Indoor A, C, E)



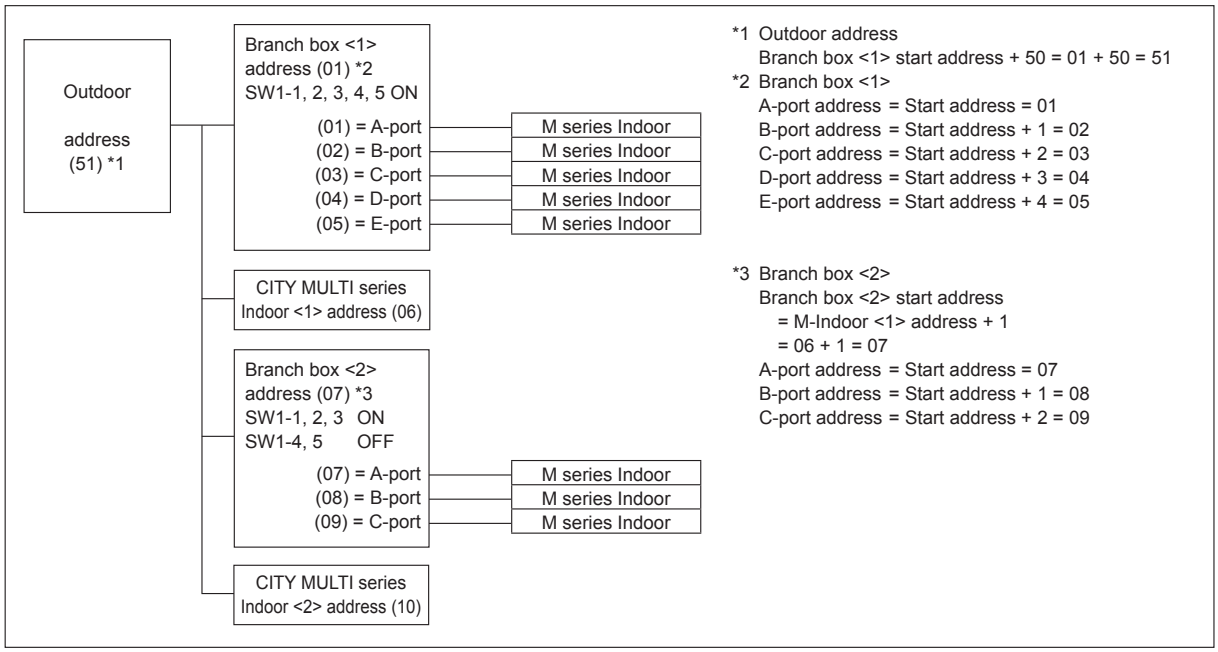
*1 Outdoor address
Branch box <1> start address + 50 = 01 + 50 = 51

*2 Branch box <1>
A-port address = Start address = 01
B-port address no connection
C-port address = Start address + 1 = 02
D-port address no connection
E-port address = Start address + 2 = 03

*3 Branch box <2>
Branch box <2> start address
= Branch box <1> highest address + 1
= 03 + 1 = 04
A-port address = Start address = 04
B-port address no connection
C-port address = Start address + 1 = 05
D-port address no connection
E-port address = Start address + 2 = 06

en

Ex 3. Outdoor + Branch <1> (M series Indoor A, B, C, D, E) + Branch <2> (M series Indoor A, B, C) + CITY MULTI series Indoor <1> + CITY MULTI series Indoor <2>



*1 Outdoor address
Branch box <1> start address + 50 = 01 + 50 = 51

*2 Branch box <1>
A-port address = Start address = 01
B-port address = Start address + 1 = 02
C-port address = Start address + 2 = 03
D-port address = Start address + 3 = 04
E-port address = Start address + 4 = 05

*3 Branch box <2>
Branch box <2> start address
= M-Indoor <1> address + 1
= 06 + 1 = 07
A-port address = Start address = 07
B-port address = Start address + 1 = 08
C-port address = Start address + 2 = 09

7. Test run

7.1. Before test run

► After completing installation and the wiring and piping of the indoor and outdoor units, check for refrigerant leakage, looseness in the power supply or control wiring, wrong polarity, and no disconnection of one phase in the supply.

► Use a 500-volt M-ohm tester to check that the resistance between the power supply terminals and ground is at least 1 MΩ.

► Do not carry out this test on the control wiring (low voltage circuit) terminals.

⚠ Warning:

Do not use the air conditioner if the insulation resistance is less than 1 MΩ.

Insulation resistance

After installation or after the power source to the unit has been cut for an extended period, the insulation resistance will drop below 1 MΩ due to refrigerant accumulating in the compressor. This is not a malfunction. Perform the following procedures.

1. Remove the wires from the compressor and measure the insulation resistance of the compressor.
2. If the insulation resistance is below 1 MΩ, the compressor is faulty or the resistance dropped due the accumulation of refrigerant in the compressor.
3. After connecting the wires to the compressor, the compressor will start to warm up after power is supplied. After supplying power for the times indicated below, measure the insulation resistance again.
   - The insulation resistance drops due to accumulation of refrigerant in the compressor. The resistance will rise above 1 MΩ after the compressor is warmed up for four hours.
     (The time necessary to warm up the compressor varies according to atmospheric conditions and refrigerant accumulation.)
   - To operate the compressor with refrigerant accumulated in the compressor, the compressor must be warmed up at least 12 hours to prevent breakdown.
4. If the insulation resistance rises above 1 MΩ, the compressor is not faulty.

⚠ Caution:

- **The compressor will not operate unless the power supply phase connection is correct.**
- **Turn on the power at least 12 hours before starting operation.**

- Starting operation immediately after turning on the main power switch can result in severe damage to internal parts. Keep the power switch turned on during the operational season.

► The followings must be checked as well.

- The outdoor unit is not faulty. LED on the control board of the outdoor unit flash when the outdoor unit is faulty.
- Both the gas and liquid stop valves are completely open.

en

7.2. Test run

7.2.1. Using remote controller

Refer to the indoor unit installation manual.

- Be sure to perform the test run for each indoor unit. Make sure each indoor unit operates properly following the installation manual attached to the unit.
- If you perform the test run for all indoor units at once, you cannot detect any erroneous connection, if any, of the refrigerant pipes and the connecting wires.

* The compressor operation is not available for 4 minutes at least after the power is supplied.

- The compressor can emit noise just after turn on the power supply or in case of low outside air temperature.
- Depending on the operating conditions, the outdoor unit fan may stop while the compressor is operating, but this is not a malfunction.

About the restart protective mechanism

Once the compressor stops, the restart preventive device operates so the compressor will not operate for 3 minutes to protect the air conditioner.

7.2.2. Using SW3 in outdoor unit

Note:

In case of the test run from outdoor unit, all indoor units operate. Therefore, you can not detect any erroneous connection of refrigerant pipes and the connecting wires. If it aims at detection of any erroneous connection, be sure to carry out the test run from remote controller with reference to "7.2.1. Using remote controller".

SW3-1	**ON**	**Cooling operation**
SW3-2	**OFF**	
SW3-1	**ON**	**Heating operation**
SW3-2	**ON**	

* After performing the test run, set SW3-1 to OFF.

- A few seconds after the compressor starts, a clanging noise may be heard from the inside of the outdoor unit. The noise is coming from the check valve due to the small difference in pressure in the pipes. The unit is not faulty.

The test run operation mode cannot be changed by DIP switch SW3-2 during the test run. (To change the test run operation mode during the test run, stop the test run by DIP switch SW3-1. After changing the test run operation mode, resume the test run by switch SW3-1.)

7.3. Refrigerant collecting (Pump down)

Perform the following procedures to collect the refrigerant when moving the indoor unit or the outdoor unit.

① Turn off the circuit breaker.
② Connect the low pressure side of the gauge manifold to the service port of the gas side stop valve.
③ Close the liquid stop valve.
④ Supply power (circuit breaker).
* Start-up of the indoor-outdoor communication takes about 3 minutes after the power (circuit breaker) is turned on. Start the pump-down operation 3 to 4 minutes after the power (circuit breaker) is turned ON.
⑤ Perform the test run for cooling operation (SW3-1: ON and SW3-2: OFF). The compressor (outdoor unit) and ventilators (indoor and outdoor units) start operating and test run for cooling operation begins. Immediately after performing the test run for cooling operation, set the outdoor service switch SW2-4 (pump down switch) from OFF to ON.
* Do not continue to operate for a long time with the switch SW2-4 set to ON. Make sure to switch it to OFF after pump down is completed.
* Only set the SW3-1 to ON if the unit is stopped. However, even if the unit is stopped and the SW3-1 is set to ON less than 3 minutes after the compressor stops, refrigerant collecting operation cannot be performed. Wait until the compressor has been stopped for 3 minutes and then set the SW3-1 to ON again.
⑥ Fully close the gas stop valve when the pressure reading on the gauge drops 0.05 - 0.00 MPa (approximately 0.5 - 0.0 kgf/cm^2)
⑦ Stop the air conditioner operation (SW3-1: OFF and SW3-2: OFF). Set the outdoor service switch SW2-4 from ON to OFF.
⑧ Turn off the power supply (circuit breaker).
* If too much refrigerant has been added to the air conditioner system, the pressure may not drop to 0.05 MPa (0.5 kgf/cm^2). If this occurs, use a refrigerant collecting device to collect all of the refrigerant in the system, and then recharge the system with the correct amount of refrigerant after the indoor and outdoor units have been relocated.

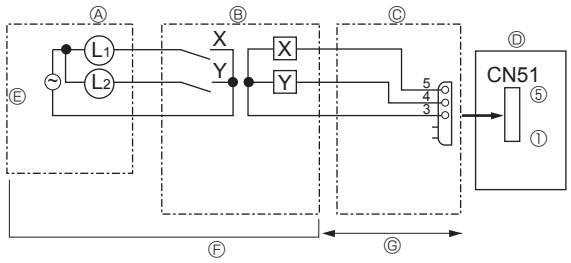
⚠ Warning:

- **When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst and cause injury if any foreign substance, such as air, enters the system.**
- **Do not perform pump down work when there is a gas leak. The intake of air or other gases causes abnormally high pressure in the refrigeration cycle, which may cause explosion or injury.**

8. Special Functions

8.1. OUTDOOR UNIT INPUT/OUTPUT CONNECTOR

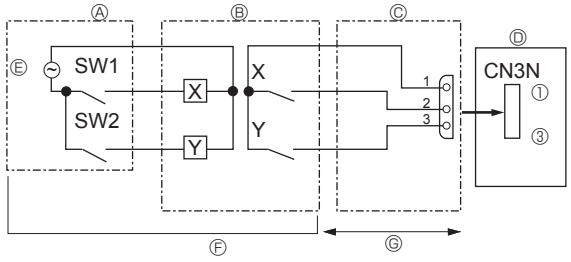
• State (CN51)



Ⓐ Distant control board
Ⓑ Relay circuit
Ⓒ External output adapter (PAC-SA88HA-E)
Ⓓ Outdoor unit control board
Ⓔ Lamp power supply
Ⓕ Procure locally
Ⓖ Max. 10 m

L1: Error display lamp
L2: Compressor operation lamp
X, Y: Relay (coil rating: ≦ 0.9 W, 12 V DC)

• Auto change over (CN3N)

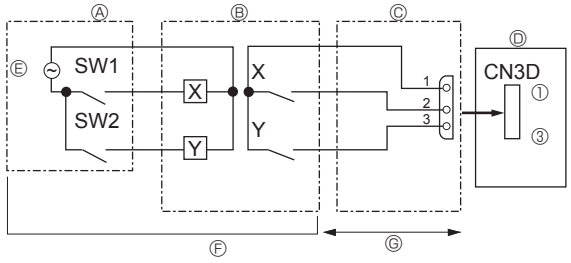


Ⓐ Remote control panel
Ⓑ Relay circuit
Ⓒ External input adapter (PAC-SC36NA-E)
Ⓓ Outdoor unit control board
Ⓔ Relay power supply
Ⓕ Procure locally
Ⓖ Max. 10 m

SW1: Switch
SW2: Switch
X, Y: Relay (contact rating : ≧ 0.1 A, 15 V DC / min. applicable load: ≦ 1 mA)

	ON	OFF
SW1	Heating	Cooling
SW2	Validity of SW1	Invalidity of SW1

• Silent Mode / Demand Control (CN3D)



Ⓐ Remote control panel
Ⓑ Relay circuit
Ⓒ External input adapter (PAC-SC36NA-E)
Ⓓ Outdoor unit control board
Ⓔ Relay power supply
Ⓕ Procure locally
Ⓖ Max. 10 m

SW1: Switch
SW2: Switch
X, Y: Relay (contact rating : ≧ 0.1 A, 15 V DC / min. applicable load: ≦ 1 mA)

The silent mode and the demand control are selected by switching the DIP switch 9-2 on outdoor controller board.
It is possible to set it to the following power consumption (compared with ratings) by setting SW1, 2.

	Outdoor controller board DIP SW9-2	SW1	SW2	Function	
				cooling	heating
Silent mode	OFF	OFF	OFF	Normal	Normal
		ON	OFF	Silent mode	Silent mode
		OFF	ON	Super silent mode 1	Silent mode
		ON	ON	Super silent mode 2	Silent mode
Demand control	ON	OFF	OFF	100 % (Normal)	
		ON	OFF	75 %	
		ON	ON	50 %	
		OFF	ON	0 % (Stop)	

• External static pressure mode (30 Pa)

The external static pressure mode (30 Pa) is enabled by switching the DIP switch SW6-5 on the outdoor controller board to ON.
However, the silent mode cannot be used when this mode is enabled.

Outdoor controller board DIP SW6-5	ON	OFF
External static pressure mode (30 Pa)	Enabled	Disabled

EC DECLARATION OF CONFORMITY
EG-KONFORMITÄTSERKLÄRUNG
DÉCLARATION DE CONFORMITÉ CE
EG-CONFORMITEITSVERKLARING
DECLARACIÓN DE CONFORMIDAD CE
DICHIARAZIONE DI CONFORMITÀ CE
ΔΗΛΩΣΗ ΠΙΣΤΟΤΗΤΑΣ ΕΚ

DECLARAÇÃO DE CONFORMIDADE CE
EU-OVERENSSTEMMELSESERKLÆRING
EG-DEKLARATION OM ÖVERENSSTÄMMELSE
EC UYGUNLUK BEYANI
ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ НОРМАМ ЕС
ДЕКЛАРАЦІЯ ВІДПОВІДНОСТІ НОРМАМ ЄС
ЕС ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ

DEKLARACJA ZGODNOŚCI WE
CE-ERKLÆRING OM SAMSVAR
EY-VAATIMUSTENMUKAISUUSVAKUUTUS
ES PROHLÁŠENÍ O SHODĚ
VYHLÁSENIE O ZHODE ES
EK MEGFELELŐSÉGI NYILATKOZAT
IZJAVA O SKLADNOSTI ES

DECLARAŢIE DE CONFORMITATE CE
EÜ VASTAVUSDEKLARATSIOON
EK ATBILSTĪBAS DEKLARĀCIJA
EB ATITIKTIES DEKLARACIJA
EC IZJAVA O SUKLADNOSTI
EZ IZJAVA O USAGLAŠENOSTI

MITSUBISHI ELECTRIC CONSUMER PRODUCTS (THAILAND) CO., LTD
700/406 MOO 7, TAMBON DON HUA ROH, AMPHUR MUANG, CHONBURI 20000, THAILAND

hereby declares under its sole responsibility that the air conditioners and heat pumps described below for use in residential, commercial and light-industrial environments:
erklärt hiermit auf seine alleinige Verantwortung, dass die Klimaanlagen und Wärmepumpen für das häusliche, kommerzielle und leicht-industrielle Umfeld wie unten beschrieben:
déclare par la présente et sous sa propre responsabilité que les climatiseurs et les pompes à chaleur décrits ci-dessous, destinés à un usage dans des environnements résidentiels, commerciaux et d'industrie légère :
verklaart hierbij onder eigen verantwoordelijkheid dat de voor residentiële, commerciële en licht-industriële omgevingen bestemde airconditioners en warmtepompen zoals onderstaand beschreven:
por la presente declara bajo su única responsabilidad que los acondicionadores de aire y bombas de calor descritas a continuación para su uso en entornos residenciales, comerciales y de industria ligera:
conferma con la presente, sotto la sua esclusiva responsabilità, che i condizionatori d'aria e le pompe di calore descritti di seguito e destinati all'utilizzo in ambienti residenziali, commerciali e semi-industriali:
με το παρόν πιστοποιεί με αποκλειστική της ευθύνη ότι οι τα κλιματιστικά και οι αντλίες θέρμανσης που περιγράφονται παρακάτω για χρήση σε οικιακό, επαγγελματικό και ελαφριάς βιομηχανίας περιβάλλοντα:
através da presente declara sob sua única responsabilidade que os aparelhos de ar condicionado e bombas de calor abaixo descritos para uso residencial, comercial e de indústria ligeira:
erklærer hermed under eneansvar, at de herunder beskrevne airconditionanlæg og varmepumper til brug i privat boligbyggeri, erhvervsområder og inden for let industri:
intygar härmed att luftkonditioneringarna och värmepumparna som beskrivs nedan för användning i bostäder, kommersiella miljöer och lätta industriella miljöer:
ev, ticaret ve hafif sanayi ortamlarında kullanım amaçlı üretilen ve aşağıda açıklanan klima ve ısıtma pompalarıyla ilgili aşağıdaki hususları yalnızca kendi sorumluluğunda beyan eder:
настоящим заявляет и берет на себя исключительную ответственность за то, что кондиционеры и тепловые насосы, описанные ниже и предназначенные для эксплуатации в жилых помещениях, торговых залах и на предприятиях легкой промышленности:
цим заявляє, беручи на себе повну відповідальність за це, що кондиціонери й теплові насоси, описані нижче й призначені для використання в житлових приміщеннях, торговельних залах і на підприємствах легкої промисловості:
декларира на своя собствена отговорност, че климатиците и термопомпите, описани по-долу, за употреба в жилищни, търговски и леки промишлени условия:
niniejszym oświadcza na swoją wyłączną odpowiedzialność, że klimatyzatory i pompy ciepła opisane poniżej, są przeznaczone do zastosowań w środowisku mieszkalnym, handlowym i lekko uprzemysłowionym:
erklærer et fullstendig ansvar for undernevnte klimaanlegg og varmepumper ved bruk i boliger, samt kommersielle og lettindustrielle miljøer:
vakuuttaa täten yksinomaisella vastuullaan, että jäljempänä kuvatut asuinrakennuksiin, pienteollisuuskäyttöön ja kaupalliseen käyttöön tarkoitetut ilmastointilaitteet ja lämpöpumput:
tímto na vlastní odpovědnost prohlašuje, že níže popsané klimatizační jednotky a tepelná čerpadla pro použití v obytných prostředích, komerčních prostředích a prostředích lehkého průmyslu:
týmto na svoju výlučnú zodpovednosť vyhlasuje, že nasledovné klimatizačné jednotky a tepelné čerpadlá určené na používanie v obytných a obchodných priestoroch a v prostredí ľahkého priemyslu:
alulírott kizárólagos felelősségére nyilatkozik, hogy az alábbi lakossági, kereskedelmi és kisipari környezetben való használatra szánt klímaberendezések és hőszivattyúk:
izjavlja pod izključno lastno odgovornostjo, da so spodaj navedene klimatske naprave in toplotne črpalke, namenjene uporabi v stanovanjskih, komercialnih in lahkoindustrijskih okoljih:
declară, prin prezenta, pe proprie răspundere, faptul că aparatele de climatizare şi pompele de căldură descrise mai jos şi destinate utilizării în medii rezidenţiale, comerciale şi din industria uşoară:
kinnitab käesolevaga oma ainuvastutusel, et allpool toodud kliimaseadmed ja soojuspumbad on mõeldud kasutamiseks elu-, äri- ja kergtööstuskeskkondades:
ar šo, vienpersoniski uzņemoties atbildību, paziņo, ka tālāk aprakstītie gaisa kondicionētāji un siltumsūkņi ir paredzēti lietošanai dzīvojamajās, komercdarbības un vieglās rūpniecības telpās.
šiuo vien tik savo atsakomybe pareiškia, kad toliau apibūdinti oro kondicionieriai ir šilumos siurbliai skirti naudoti gyvenamosiose, komercinėse ir lengvosios pramonės aplinkose:
ovime izjavljuje pod isključivom odgovornošću da su klimatizacijski uređaji i toplinske dizalice opisane u nastavku namijenjeni za upotrebu u stambenim i poslovnim okruženjima te okruženjima lake industrije:
ovim izjavljuje na svoju isključivu odgovornost da su klima-uređaji i toplotne pumpe opisane u daljem tekstu za upotrebu u stambenim, komercijalnim okruženjima i okruženjima sa lakom industrijom:

MITSUBISHI ELECTRIC, PUMY-P250YBM
PUMY-P300YBM

Note: Its serial number is on the nameplate of the product.
Hinweis: Die Seriennummer befindet sich auf dem Kennschild des Produkts.
Remarque : Le numéro de série de l'appareil se trouve sur la plaque du produit.
Opmerking: het serienummer staat op het naamplaatje van het product.
Nota: El número de serie se encuentra en la placa que contiene el nombre del producto.
Nota: il numero di serie si trova sulla targhetta del prodotto.
Σημείωση: Ο σειριακός του αριθμός βρίσκεται στην πινακίδα ονόματος του προϊόντος.
Nota: o número de série encontra-se na placa que contém o nome do produto.
Bemærk: Serienummeret står på produktets fabriksskilt.
Obs: Serienumret finns på produktens namnplåt.
Not: Seri numarası ürünün isim plakasında yer alır.
Примечание: серийный номер указан на паспортное табличке изделия.
Примітка. Серійний номер вказано на паспортній табличці виробу.
Забележка: Серийният му номер е на табелката на продукта.

Uwaga: Numer seryjny znajduje się na tabliczce znamionowej produktu.
Merk: Serienummeret befinner seg på navneplaten til produktet.
Huomautus: Sarjanumero on merkitty laitteen arvokilpeen.
Poznámka: Příslušné sériové číslo se nachází na štítku produktu.
Poznámka: Výrobné číslo sa nachádza na typovom štítku výrobku.
Megjegyzés: A sorozatszám a termék adattábláján található.
Opomba: serijska številka je zapisana na tipski ploščici enote.
Notă: Numărul de serie este specificat pe plăcuţa indicatoare a produsului.
Märkus. Seerianumber asub toote andmesildil.
Piezīme. Sērijas numurs ir norādīts uz ierīces datu plāksnītes.
Pastaba. Serijos numeris nurodytas gaminio vardinių duomenų lentelėje.
Napomena: serijski broj nalazi se na natpisnoj pločici proizvoda.
Napomena: Serijski broj nalazi se na nazivnoj pločici proizvoda.

Directives	Directivas	Dyrektywy	Directive
Richtlinien	Direktiver	Direktiver	Direktiivid
Directives	Direktiv	Direktiivit	Direktīvas
Richtlijnen	Direktifler	Směrnice	Direktyvos
Directivas	Директивы	Smernice	Direktive
Direttive	Директиви	Irányelvek	Direktive
Οδηγίες	Директиви	Direktive	

2014/35/EU: Low Voltage
2006/42/EC: Machinery
2014/30/EU: Electromagnetic Compatibility
2011/65/EU, (EU) 2015/863 and (EU) 2017/2102: RoHS Directive
2014/68/EU: Pressure Equipment Directive

Issued: **1 February 2021**
THAILAND:

Tadashi Saito
Manager, Quality Assurance Department

<ENGLISH>
English is original. The other languages versions are translation of the original.

⚠ CAUTION

- Refrigerant leakage may cause suffocation. Provide ventilation in accordance with EN378-1.
- Be sure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
- Never put batteries in your mouth for any reason to avoid accidental ingestion.
- Battery ingestion may cause choking and/or poisoning.
- Install the unit on a rigid structure to prevent excessive operation sound or vibration.
- The A-weighted sound pressure level is below 70dB.
- This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons.

<DEUTSCH>
Das Original ist in Englisch. Die anderen Sprachversionen sind vom Original übersetzt.

⚠ VORSICHT

- Wenn Kältemittel austritt, kann dies zu Ersticken führen. Sorgen Sie in Übereinstimmung mit EN378-1 für Durchlüftung.
- Die Leitungen müssen isoliert werden. Direkter Kontakt mit nicht isolierten Leitungen kann zu Verbrennungen oder Erfrierungen führen.
- Nehmen Sie niemals Batterien in den Mund, um ein versehentliches Verschlucken zu vermeiden.
- Durch das Verschlucken von Batterien kann es zu Erstickungen und/oder Vergiftungen kommen.
- Installieren Sie das Gerät auf einem stabilen Untergrund, um übermäßige Betriebsgeräusche oder -schwingungen zu vermeiden.
- Der A-gewichtete Schalldruckpegel ist niedriger als 70dB.
- Dieses Gerät ist vorgesehen für die Nutzung durch Fachleute oder geschultes Personal in Werkstätten, in der Leichtindustrie und in landwirtschaftlichen Betrieben oder für die kommerzielle Nutzung durch Laien.

<FRANÇAIS>
L'anglais est l'original. Les versions fournies dans d'autres langues sont des traductions de l'original.

⚠ PRECAUTION

- Une fuite de réfrigérant peut entraîner une asphyxie. Fournissez une ventilation adéquate en accord avec la norme EN378-1.
- Assurez-vous que la tuyauterie est enveloppée d'isolant. Un contact direct avec la tuyauterie nue peut entraîner des brûlures ou des engelures.
- Ne mettez jamais des piles dans la bouche pour quelque raison que ce soit pour éviter de les avaler par accident.
- Le fait d'ingérer des piles peut entraîner un étouffement et/ou un empoisonnement.
- Installez l'appareil sur une structure rigide pour prévenir un bruit de fonctionnement et une vibration excessifs.
- Le niveau de pression acoustique pondéré est en dessous de 70 dB.
- Cet appareil est conçu pour un utilisateur expert ou les utilisateurs formés en magasin, dans l'industrie légère et dans l'agriculture ou dans le commerce par le profane.

<NEDERLANDS>
Het Engels is het origineel. De andere taalversies zijn vertalingen van het origineel.

⚠ VOORZICHTIG

- Het lekken van koelvloeistof kan verstikking veroorzaken. Zorg voor ventilatie in overeenstemming met EN378-1.
- Isoleer de leidingen met isolatiemateriaal. Direct contact met de onbedekte leidingen kan leiden tot brandwonden of bevriezing.
- Stop nooit batterijen in uw mond om inslikking te voorkomen.
- Het inslikken van batterijen kan verstikking of vergiftiging veroorzaken.
- Installeer het apparaat op een stabiele structuur om overmatig lawaai of trillingen te voorkomen.
- Het niveau van de geluidsdruk ligt onder 70 dB(A).
- Dit apparaat is bedoeld voor gebruik door ervaren of opgeleide gebruikers in werkplaatsen, in de lichte industrie en op boerderijen, of voor commercieel gebruik door leken.

<ESPAÑOL>
El idioma original del documento es el inglés. Las versiones en los demás idiomas son traducciones del original.

⚠ CUIDADO

- Las pérdidas de refrigerante pueden causar asfixia. Se debe proporcionar la ventilación determinada en EN378-1.
- Asegúrese de colocar el aislante alrededor de las tuberías. El contacto directo con la tubería puede ocasionar quemaduras o congelación.
- Para evitar una ingestión accidental, no coloque las pilas en su boca bajo ningún concepto.
- La ingestión de las pilas puede causar asfixia y/o envenenamiento.
- Coloque la unidad en una estructura rígida para evitar que se produzcan sonidos o vibraciones excesivos debidos a su funcionamiento.
- El nivel de presión acústica ponderado A es inferior a 70 dB.
- Este aparato está destinado a su uso por parte de usuarios expertos o capacitados en talleres, industrias ligeras y granjas, o a su uso comercial por parte de personas no expertas.

<ITALIANO>
Il testo originale è redatto in lingua Inglese. Le altre versioni linguistiche rappresentano traduzioni dell'originale.

⚠ ATTENZIONE

- Le perdite di refrigerante possono causare asfissia. Prevedere una ventilazione adeguata in conformità con la norma EN378-1.
- Accertarsi di applicare materiale isolante intorno alle tubature. Il contatto diretto con le tubature non schermate può provocare ustioni o congelamento.
- Non introdurre in nessun caso le batterie in bocca onde evitare ingestioni accidentali.
- L'ingestione delle batterie può provocare soffocamento e/o avvelenamento.
- Installare l'unità su una struttura rigida in modo da evitare rumore o vibrazioni eccessivi durante il funzionamento.
- Il livello di pressione del suono ponderato A è inferiore a 70dB.
- Questa apparecchiatura è destinata all'utilizzo da parte di utenti esperti o addestrati in negozi, industria leggera o fattorie oppure a un uso commerciale da parte di persone non esperte.

<ΕΛΛΗΝΙΚΑ>
Η γλώσσα του πρωτοτύπου είναι η αγγλική. Οι εκδόσεις άλλων γλωσσών είναι μεταφράσεις του πρωτοτύπου.

⚠ ΠΡΟΣΟΧΗ

- Η διαρροή του ψυκτικού ενδέχεται να προκαλέσει ασφυξία. Φροντίστε για τον εξαερισμό σύμφωνα με το πρότυπο EN378-1.
- Φροντίστε να τυλίξετε με μονωτικό υλικό τη σωλήνωση. Η απευθείας επαφή με τη γυμνή σωλήνωση ενδέχεται να προκαλέσει εγκαύματα ή κρυοπαγήματα.
- Μη βάζετε ποτέ τις μπαταρίες στο στόμα σας για κανένα λόγο ώστε να αποφύγετε την κατά λάθος κατάποσή τους.
- Η κατάποση μπαταριών μπορεί να προκαλέσει πνιγμό ή/και δηλητηρίαση.
- Εγκαταστήστε τη μονάδα σε σταθερή κατασκευή ώστε να αποφύγετε τον έντονο ήχο λειτουργίας ή τους κραδασμούς.
- Η Α-σταθμισμένη στάθμη ηχητικής πίεση είναι κάτω των 70dB.
- Η συσκευή αυτή προορίζεται για χρήση από έμπειρους ή εκπαιδευμένους χρήστες σε καταστήματα, στην ελαφριά βιομηχανία και σε αγροκτήματα, ή για εμπορική χρήση από άτομα τα οποία δεν είναι ειδήμονες.

<PORTUGUÊS>
O idioma original é o inglês. As versões em outros idiomas são traduções do idioma original.

⚠ CUIDADO

- A fuga de refrigerante pode causar asfixia. Garanta a ventilação em conformidade com a norma EN378-1.
- Certifique-se de que envolve as tubagens com material de isolamento. O contacto directo com tubagens não isoladas pode resultar em queimaduras ou ulcerações provocadas pelo frio.
- Nunca coloque pilhas na boca, por nenhum motivo, para evitar a ingestão acidental.
- A ingestão de uma pilha pode causar obstrução das vias respiratórias e/ou envenenamento.
- Instale a unidade numa estrutura robusta, de forma a evitar ruídos ou vibrações excessivos durante o funcionamento.
- O nível de pressão sonora ponderado A é inferior a 70 dB.
- Este equipamento destina-se a ser utilizado por especialistas ou utilizadores com formação em lojas, na indústria ligeira e em quintas, ou para utilização comercial por leigos.

<DANSK>
Engelsk er originalen. De andre sprogversioner er oversættelser af originalen.

⚠ FORSIGTIG

- Lækage af kølemiddel kan forårsage kvælning. Sørg for udluftning i overensstemmelse med EN378-1.
- Sørg for at pakke rørene ind i isolering. Direkte kontakt med ubeklædte rør kan forårsage forbrændinger eller forfrysninger.
- Batterier må under ingen omstændigheder tages i munden for at forhindre utilsigtet indtagelse.
- Indtagelse af batterier kan forårsage kvælning og/eller forgiftning.
- Installér enheden på en fast struktur for at forhindre for høje driftslyde eller vibrationer.
- Det A-vægtede lydtrykniveau er under 70dB.
- Dette apparat er beregnet til at blive brugt af eksperter eller udlærte brugere i butikker, inden for let industri og på gårde eller til kommerciel anvendelse af lægmænd.

<SVENSKA>
Engelska är originalspråket. De övriga språkversionerna är översättningar av originalet.

⚠ FÖRSIKTIGHET

- Köldmedelsläckage kan leda till kvävning. Tillhandahåll ventilation i enlighet med EN378-1.
- Kom ihåg att linda isolering runt rören. Direktkontakt med bara rör kan leda till brännskador eller köldskador.
- Stoppa aldrig batterier i munnen, de kan sväljas av misstag.
- Om ett batteri sväljs kan det leda till kvävning och/eller förgiftning.
- Montera enheten på ett stadigt underlag för att förhindra höga driftljud och vibrationer.
- Den A-vägda ljudtrycksnivån är under 70dB.
- Denna apparat är ämnad för användning av experter eller utbildade användare i affärer, inom lätt industri och på lantbruk, eller för kommersiell användning av lekmän.

<TÜRKÇE>
Aslı İngilizce'dir. Diğer dillerdeki sürümler aslının çevirisidir.

⚠ DİKKAT

- Soğutucu kaçağı boğulmaya neden olabilir. EN378-1 uyarınca uygun havalandırma sağlayın.
- Borular etrafına yalıtım yapıldığından emin olun. Borulara doğrudan çıplak elle dokunulması yanıklara veya soğuk ısırıklarına neden olabilir.
- Kazara yutmamak için, pilleri kesinlikle hiçbir amaçla ağzınızda tutmayın.
- Pillerin yutulması boğulmaya ve/veya zehirlenmeye yol açabilir.
- Aşırı çalışma seslerini veya titreşimi önlemek için, üniteyi sağlam bir yapı üzerine monte edin.
- A ağırlıklı ses gücü seviyesi 70dB'nin altındadır.
- Bu cihaz atölyelerde, hafif endüstriyel tesislerde ve çiftliklerde uzman veya eğitimli kullanıcılar tarafından kullanılmak üzere veya normal kullanıcılar tarafından ticari kullanım için tasarlanmıştır.

<РУССКИЙ>
Языком оригинала является английский. Версии на других языках являются переводом оригинала.

⚠ ОСТОРОЖНО

- Утечка хладагента может стать причиной удушья. Обеспечьте вентиляцию в соответствии с EN378-1.
- Обязательно оберните трубы изоляционной обмоткой. Непосредственный контакт с неизолированным трубопроводом может привести к ожогам или обморожению.
- Запрещается класть элементы питания в рот по каким бы то ни было причинам во избежание случайного проглатывания.
- Попадание элемента питания в пищеварительную систему может стать причиной удушья и/или отравления.
- Устанавливайте устройство на жесткую структуру во избежание чрезмерного шума или чрезмерной вибрации во время работы.
- Уровень звукового давления по шкале A не превышает 70 дБ.
- Данное устройство предназначено для использования специалистами или обученным персоналом в магазинах, на предприятиях легкой промышленности и фермах или для коммерческого применения непрофессионалами.

<УКРАЇНСЬКА>
Переклад оригіналу. Текст іншими мовами є перекладом оригіналу.

⚠ ОБЕРЕЖНО

- Виток холодоагенту може призвести до удушення. Необхідно забезпечити вентиляцію відповідно до стандарту EN 378-1.
- Труби необхідно обмотати ізоляційним матеріалом. Прямий контакт із непокритою трубою може призвести до опіку або обмороження.
- Забороняється класти елементи живлення в рот із будь-яких причин, оскільки є ризик випадково їх проковтнути.
- Попадання елемента живлення в травну систему може стати причиною задухи та/або отруєння.
- Встановлюйте блок на міцній конструкції, щоб уникнути надмірного рівня звуку роботи або вібрації.
- Рівень амплітудно зваженого акустичного тиску становить нижче 70 дБ.
- Цей прилад призначається для використання спеціалістами або особами, що пройшли відповідне навчання, у крамницях, легкій промисловості та сільськогосподарських підприємствах, а також для комерційного використання неспеціалістами.

<БЪЛГАРСКИ>
Оригиналът е текстът на английски език. Версиите на други езици са преводи на оригинала.

⚠ ВНИМАНИЕ

- Изтичането на хладилен агент може да причини задушаване. Осигурете вентилация съобразно с EN378-1.
- Не забравяйте да увиете изолация около тръбите. Директният контакт с оголени тръби може да причини изгаряне или измръзване.
- При никакви обстоятелства не поставяйте батериите в устата си, за да не ги погълнете по невнимание.
- Това може да доведе до задушаване и/или натравяне.
- Монтирайте тялото върху твърда конструкция, за да предотвратите прекомерен шум или вибрации по време на работа.
- А-претегленото ниво на звуково налягане е под 70 dB.
- Този уред е предназначен за използване от експерти или обучени потребители в магазини, в леката промишленост и във ферми, или за търговска употреба от неспециалисти.

<POLSKI>
Językiem oryginału jest język angielski. Inne wersje językowe stanowią tłumaczenie oryginału.

⚠ UWAGA

- Wyciek czynnika chłodniczego może spowodować uduszenie. Należy zapewnić wentylację zgodnie z normą EN378-1.
- Należy pamiętać, aby owinąć izolację wokół przewodów rurowych. Bezpośredni kontakt z niezabezpieczonymi przewodami rurowymi może doprowadzić do poparzeń lub odmrożeń.
- Nie wolno wkładać baterii do ust z jakiegokolwiek powodu, aby uniknąć przypadkowego połknięcia.
- Połknięcie baterii może spowodować zadławienie i/lub zatrucie.
- Zainstalować urządzenie na sztywnej konstrukcji, aby zapobiec nadmiernemu hałasowi i wibracjom.
- Poziom dźwięku A nie przekracza 70 dB.
- W sklepach, w przemyśle lekkim i w gospodarstwach rolnych urządzenie powinni obsługiwać profesjonalni lub przeszkoleni użytkownicy, a w środowisku handlowym mogą to być osoby nieposiadające fachowej wiedzy.

<NORSK>
Originalspråket er engelsk. De andre språkversjonene er oversettelser av originalen.

⚠ FORSIKTIG

- Kjølemiddellekkasje kan forårsake kvelning. Sørg for ventilering i samsvar med EN378-1.
- Pass på at isoleringen pakkes godt rundt røret. Direkte kontakt med ukledte rør kan forårsake brannskader eller forfrysninger.
- Aldri plasser batteri i munnen, da dette kan medføre en risiko for at du svelger batteriet ved et uhell.
- Hvis du svelger et batteri, kan du risikere kvelning og/eller forgiftning.
- Installer enheten på en stabil struktur for å forhindre unødvendig mye driftsstøy eller vibrering.
- Det A-vektede lydtrykknivået er under 70 dB.
- Dette apparatet er ment for bruk av eksperter eller faglært personell i butikker, lettindustri og på gårder, eller for kommersielt bruk av ikke-fagmenn.

<SUOMI>
Englanti on alkuperäinen. Muut kieliversiot ovat alkuperäiskappaleen käännöksiä.

⚠ HUOMIO

- Vuotava kylmäaine voi aiheuttaa tukehtumisen. Ilmanvaihdon on oltava EN378-1-standardin mukainen.
- Kääri putken ympärille eristysmateriaalia. Paljaan putken koskettamisesta voi seurata palotai paleltumavammoja.
- Älä koskaan laita paristoja suuhun, jotta et vahingossa nielaisisi niitä.
- Paristojen nieleminen voi aiheuttaa tukehtumisen ja/tai myrkytyksen.
- Asenna yksikkö tukeviin rakenteisiin, jotta sen käytöstä ei syntyisi ylimääräistä ääntä tai tärinää.
- A-painotettu äänenpainetaso on alle 70 dB.
- Laite on tarkoitettu asiantuntijoiden tai laitteelle koulutuksen saaneiden käyttöön kaupoissa, pienteollisuudessa ja maatiloilla tai maallikoille kaupalliseen käyttöön.

<ČEŠTINA>
Originál je v angličtině. Ostatní jazykové verze jsou překladem originálu.

⚠ POZOR

- Únik chladicího média může způsobit udušení. Zajistěte větrání v souladu s normou EN 378-1.
- Okolo potrubí vždy omotejte izolaci. Přímý kontakt s obnaženým potrubím může způsobit popálení nebo omrzliny.
- Nikdy nevkládejte baterie do úst, aby nedošlo k jejich polknutí.
- Polknutí baterie může způsobit zadušení a/nebo otravu.
- Jednotku nainstalujte na pevnou konstrukci, aby nedocházelo ke vzniku nadměrného provozního hluku a vibrací.
- Hladina akustického tlaku A je nižší než 70 dB.
- Toto zařízení je určeno pro prodejny, lehký průmysl a farmy, kde je musí obsluhovat odborníci a školení uživatelé, a pro komerční použití, kde je mohou obsluhovat laici.

<SLOVENČINA>
Preklad anglického originálu. Všetky jazykové verzie sú preložené z angličtiny.

⚠ UPOZORNENIE

- Únik chladiva môže spôsobiť udusenie. Zabezpečte vetranie podľa normy EN 378-1.
- Nezabudnite potrubie obaliť izoláciou. Priamy kontakt s nezabaleným potrubím môže spôsobiť popáleniny alebo omrzliny.
- Batérie si nikdy z akéhokoľvek dôvodu neklaďte do úst, aby nedošlo k ich náhodnému požitiu.
- Požitie batérií môže vyvolať dusenie a/alebo otravu.
- Nainštalujte jednotku na pevný konštrukčný prvok, aby ste obmedzili nadmerný prevádzkový hluk a vibrácie.
- Hladina akustického tlaku vážená podľa krivky A je nižšia ako 70 dB.
- Toto zariadenie je určené na používanie odborníkmi alebo zaškolenými používateľmi v komerčných priestoroch, v prostredí ľahkého priemyslu, na farmách, alebo na komerčné použitie bežnými používateľmi.

<MAGYAR>
Az angol változat az eredeti. A többi nyelvi változat az eredeti fordítása.

⚠ VIGYÁZAT

- A hűtőközeg szivárgása fulladást okozhat. Gondoskodjon az EN378-1 szabvány előírásai szerinti szellőzésről.
- Feltétlenül szigetelje körbe a csöveket. A csupasz cső megérintése égési vagy fagyási sérülést okozhat.
- Ne vegyen a szájába elemet semmilyen célból, mert véletlenül lenyelheti!
- A lenyelt elem fulladást és/vagy mérgezést okozhat.
- A készüléket merev szerkezetre szerelje fel, hogy megakadályozza a túlzott üzemi zajt és vibrációt.
- Az A-súlyozott hangnyomásszint 70 dB alatt van.
- A készülék üzletek, a könnyűipar és gazdaságok szakértő vagy képzett felhasználói, valamint laikus felhasználók általi kereskedelmi használatra készült.

<SLOVENŠČINA>
Izvirnik je v angleščini. Druge jezikovne različice so prevodi izvirnika.

⚠ POZOR

- Puščanje hladiva lahko povzroči zadušitev. Zagotovite prezračevanje po standardu EN378-1.
- Cevi ovijte z izolacijo. Neposredni stik z golimi cevmi lahko povzroči opekline ali ozebline.
- Nikoli in iz nobenega razloga ne vstavljajte baterij v usta, da jih po nesreči ne pogoltnete.
- Če baterije pogoltnete, se lahko zadušite in/ali zastrupite.
- Enoto namestite na togo konstrukcijo, da preprečite pretiran zvok ali tresljaje med delovanjem.
- A-utežena raven zvočnega tlaka je pod 70 dB.
- Naprava je namenjena za uporabo s strani strokovnih ali ustrezno usposobljenih uporabnikov v trgovinah, lahki industriji in na kmetijah ter za komercialno uporabo s strani nestrokovnih uporabnikov.

<ROMÂNĂ>
Textul original este în limba engleză. Versiunile pentru celelalte limbi sunt traduceri ale originalului.

⚠ ATENŢIE

- Scurgerea de agent frigorific poate cauza asfixierea. Asiguraţi o ventilaţie corespunzătoare, conform standardului EN378-1.
- Asiguraţi-vă că înfăşuraţi materialul izolator în jurul conductelor. Contactul direct cu conductele neizolate se poate solda cu arsuri sau degerături.
- Nu introduceţi niciodată şi pentru niciun motiv bateriile în gură, pentru a evita ingerarea accidentală a acestora.
- Ingerarea bateriilor poate cauza sufocarea şi/sau intoxicarea.
- Instalaţi unitatea pe o structură rigidă pentru a preveni producerea unui nivel excesiv de sunete sau vibraţii.
- Nivelul de presiune acustică ponderat în A este mai mic de 70 dB.
- Acest aparat este destinat utilizării de către utilizatori specializaţi sau instruiţi în cadrul spaţiilor comerciale, spaţiilor din cadrul industriei uşoare şi al fermelor sau în scopuri comerciale de către nespecialişti.

<EESTI>
Originaaljuhend on ingliskeelne. Muudes keeltes versioonid on originaali tõlked.

⚠ ETTEVAATUST!

- Külmaaine leke võib põhjustada lämbumist. Tuulutamine standardi EN378-1 kohaselt.
- Mähkige torude ümber kindlasti isolatsiooni. Vahetu kontakt paljaste torudega võib põhjustada põletusi või külmakahjustusi.
- Hoiduge patareide tahtmatust allaneelamisest, ärge kunagi pange ühelgi põhjusel patareisid suhu.
- Patarei allaneelamine võib põhjustada lämbumist ja/või mürgitust.
- Paigaldage seade jäigale struktuurile, et vältida ülemäärast tööheli ja vibreerimist.
- A-filtriga helirõhu tase on madalam kui 70 dB.
- Seade on mõeldud kasutamiseks asjatundjatele ja väljaõppe läbinud kasutajatele poodides, kergtööstuses ja taludes ning kommertskasutuseks tavaisikute poolt.

<LATVISKI>
Oriģināls ir angļu valodā. Versijas citās valodās ir oriģināla tulkojums.

⚠ UZMANĪBU

- Aukstumaģenta noplūdes gadījumā pastāv nosmakšanas risks. Ir jānodrošina standartam EN378-1 atbilstoša ventilēšana.
- Aptiniet caurules ar izolējošu materiālu. Pieskaroties neaptītām caurulēm, var gūt apdegumus vai apsaldējumus.
- Aizliegts ievietot baterijas mutē; pastāv norīšanas risks.
- Bateriju norīšana var izraisīt aizrīšanos un/vai saindēšanos.
- Uzstādiet iekārtu uz izturīgas struktūras, lai izvairītos no pārlieku liela darbības trokšņa vai vibrācijas.
- A — izsvarotais skaņas spiediena līmenis ir mazāks par 70 dB.
- Šo iekārtu paredzēts lietot speciālistiem vai apmācītiem lietotājiem veikalos, vieglās rūpniecības telpās un lauksaimniecības fermās, kā arī to var lietot nespeciālisti komerciālām vajadzībām.

<LIETUVIŠKAI>
Originalas yra anglų k. Versijos kitomis kalbomis yra originalo vertimas.

⚠ ATSARGIAI

- Dėl šaltnešio nuotėkio galima uždusti. Išvėdinkite patalpas pagal EN378-1.
- Būtinai vamzdelius apvyniokite izoliacija. Prisilietus prie plikų vamzdelių galima nusideginti arba nušalti.
- Siekdami išvengti atsitiktinio prarijimo, niekada nedėkite baterijų į burną.
- Prarijus bateriją galima užspringti ir / arba apsinuodyti.
- Įrenginį sumontuokite ant tvirtos struktūros, kad nesigirdėtų pernelyg didelio veikimo triukšmo ar vibracijos.
- A svertinis garso slėgio lygis nesiekia 70 dB;
- šis prietaisas skirtas naudoti specialistui ar išmokytiems naudotojams dirbtuvėse, lengvojoje pramonėje ar ūkiuose arba komerciniam naudojimui nespecialistams.

<HRVATSKI>
Tekst je izvorno napisan na engleskom jeziku. Tekst na ostalim jezicima predstavlja prijevod izvorno napisanog teksta.

⚠ OPREZ

- Curenje rashladnog sredstva može uzrokovati gušenje. Osigurajte ventilaciju u skladu s normom HR EN378-1.
- Obvezno stavite izolaciju oko položenih cijevi. Izravni doticaj s golim cijevima može dovesti do opeklina ili smrzavanja.
- Nikada ne stavljajte baterije u usta ni zbog kojeg razloga kako biste izbjegli slučajno gutanje.
- Gutanje baterija može prouzročiti gušenje i/ili trovanje.
- Postavite jedinicu na čvrstu površinu kako biste izbjegli prebučan zvuk tijekom rada ili pojavu vibracija.
- Razina zvučnog tlaka A niža je od 70dB.
- Ovaj uređaj mogu upotrebljavati stručnjaci ili osposobljeni korisnici u trgovinama, lakoj industriji i na poljoprivrednim gospodarstvima ili laici u komercijalne svrhe.

<SRPSKI>
Prevod originala. Verzije na drugim jezicima su prevodi originala.

⚠ OPREZ

- Curenje rashladne tečnosti može da dovede do gušenja. Obezbedite ventilaciju u skladu sa EN378-1.
- Obavezno obmotajte izolaciju oko cevi. Direktan kontakt sa golom cevi može izazvati opekotine ili promrzline.
- Nikada nemojte stavljati baterije u usta iz bilo kog razloga, kako bi se sprečilo slučajno gutanje.
- Gutanje baterija može da izazove gušenje i/ili trovanje.
- Ugradite jedinicu na čvrstu strukturu kako biste sprečili previše jak zvuk rada ili vibracije.
- A-ponderisani nivo jačine pritiska zvuka je ispod 70 dB.
- Ovaj uređaj je namenjen za upotrebu od strane stručnih ili obučenih korisnika u prodavnicama, u lakoj industriji i na farmama ili za komercijalnu upotrebu od strane nekvalifikovanih lica.

This product is designed and intended for use in the residential, commercial and light-industrial environment.

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Please be sure to put the contact address/telephone number on this manual before handing it to the customer.

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