<ORIGINAL>

MITSUBISHI ELECTRIC

CITY MULTI

Air-Conditioners
INDOOR UNIT
PFFY-P20,25,32,40,50,63VEM-E

INSTALLATION MANUAL
For safe and correct use, please read this installation manual thoroughly before installing the air-conditioner unit. en

INSTALLATIONSHANDBUCH
Zum sicheren und ordnungsgemäßen Gebrauch der Klimageräte das Installationshandbuch gründlich durchlesen. de

MANUEL D'INSTALLATION
Veuillez lire le manuel d'installation en entier avant d'installer ce climatiseur pour éviter tout accident et vous assurer d'une utilisation correcte. fr

INSTALLATIEHANDLEIDING
Voor een veilig en juist gebruik moet u deze installatiehandleiding grondig doorlezen voordat u de airconditioner installeert. nl

MANUAL DE INSTALACIÓN
Para un uso seguro y correcto, lea detalladamente este manual de instalación antes de montar la unidad de aire acondicionado. es

MANUALE DI INSTALLAZIONE
Per un uso sicuro e corretto, leggere attentamente questo manuale di installazione prima di installare il condizionatore d'aria. it

ΕΓΧΕΙΡΙΔΙΟ ΟΔΗΓΙΩΝ ΕΓΚΑΤΑΣΤΑΣΗΣ
Για ασφάλεια και σωστή χρήση, παρακαλείστε διαβάσετε προσεχτικά αυτό το εγχειρίδιο εγκατάστασης πριν αρχίσετε την εγκατάσταση της μονάδας κλιματισμού. el

MANUAL DE INSTALAÇÃO
Para segurança e utilização correctas, leia atentamente este manual de instalação antes de instalar a unidade de ar condicionado. pt

INSTALLATIONSMANUAL
Læs venligst denne installationsmanual grundigt, før De installerer airconditionanlægget, af hensyn til sikker og korrekt anvendelse. da

INSTALLATIONSHANDBOK
Läs den här installationshandboken noga innan luftkonditioneringsenheten installeras, för säker och korrekt användning. sv

MONTAJ ELKİTABI
Emniyetli ve doğru biçimde nasıl kullanılacağını öğrenmek için lütfen klima cihazını monte etmeden önce bu elkitabını dikkatle okuyunuz. tr

РЪКОВОДСТВО ЗА МОНТАЖ
За безопасна и правилна употреба, моля, прочетете внимателно това ръководство преди монтажа на климатизатора. bg

PODRĘCZNIK INSTALACJI
W celu bezpiecznego i poprawnego korzystania należy przed zainstalowaniem klimatyzatora dokładnie zapoznać się z niniejszym podręcznikiem instalacji. pl

INSTALLASJONSHÅNDBOK
For sikker og riktig bruk, skal du lese denne installasjonshåndboken nøye før du installerer klimaanlegget. no

РУКОВОДСТВО ПО УСТАНОВКЕ
Для осторожного и правильного использования прибора необходимо тщательно ознакомиться с данным руководством по установке до выполнения установки кондиционера. ru

PŘÍRUČKA K INSTALACI
V zájmu bezpečného a správného používání si před instalací klimatizační jednotky důkladně pročtěte tuto příručku k instalaci. cs

NÁVOD NA INŠTALÁCIU
Pre bezpečné a správne použitie si pred inštalovaním klimatizačnej jednotky, prosím, starostlivo prečítajte tento návod na inštaláciu. sk

TELEPÍTÉSI KÉZIKÖNYV
A biztonságos és helyes használathoz, kérjük, olvassa el alaposan ezt a telepítési kézikönyvet, mielőtt telepítené a légkondicionáló egységet. hu

PRIROČNIK ZA NAMESTITEV
Za varno in pravilno uporabo pred namestitvijo klimatske naprave skrbno preberite priročnik za namestitev. sl

MANUAL CU INSTRUCŢIUNI DE INSTALARE
Pentru o utilizare corectă şi sigură, vă rugăm să citiţi cu atenţie acest manual înainte de a instala unitatea de aer condiţionat. ro

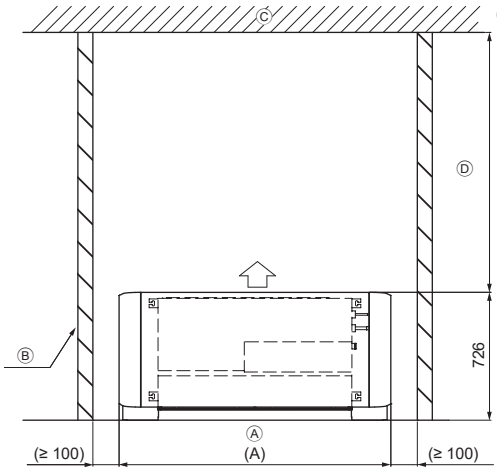
PRIRUČNIK ZA UGRADNJU
Radi sigurne i ispravne uporabe, temeljito pročitajte ovaj priručnik prije ugradnje klimatizacijskog uređaja. hr

คู่มือการติดตั้ง
เพื่อให้สามารถใช้งานได้อย่างถูกต้องและปลอดภัย กรุณาอ่านคู่มือการติดตั้งนี้อย่างละเอียดก่อนทำการติดตั้งเครื่องปรับอากาศ th

安裝手冊
安裝本空調機之前，請仔細閱讀本安裝手冊，以便安全正確地使用。 中(繁)

3 3.1

[Fig. 3.1.1]



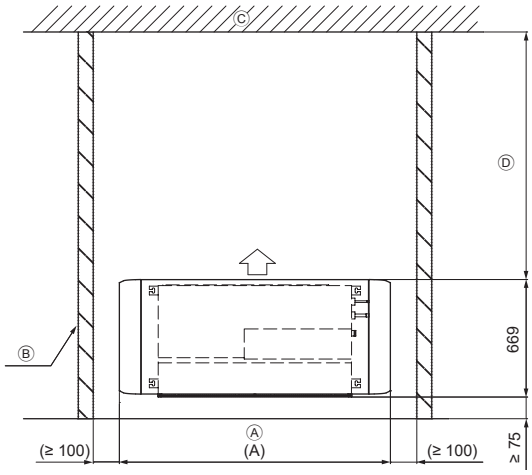
(Unit: mm)

For PFFY-P-VEM-E (mm)

Model name	(A)
20·25·32	1142
40·50	1342
63	1542

Ⓐ Floor
Ⓑ Wall
Ⓒ Ceiling
Ⓓ Secure large enough space to prevent that blowout air is blocked.

[Fig. 3.1.2]

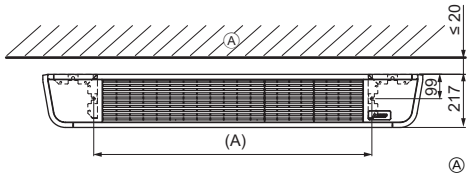


(Unit: mm)

4 4.1

[Fig. 4.1.1]

For fixing on the floor
<Viewed from top of the unit>



(Unit: mm)

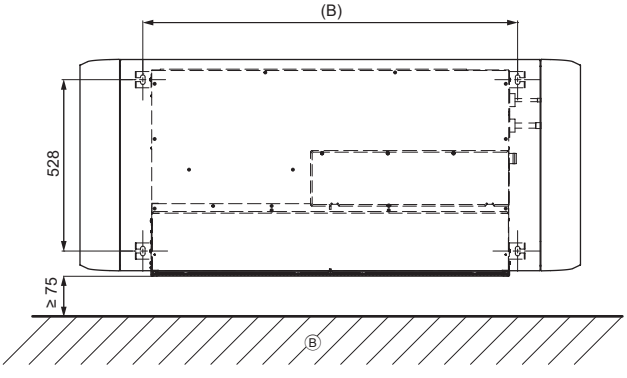
Ⓐ Wall

For PFFY-P-VEM-E (mm)

Model name	(A)
20·25·32	729
40·50	929
63	1129

[Fig. 4.1.2]

For fixing on the wall
<Viewed from front of the unit>



(Unit: mm)

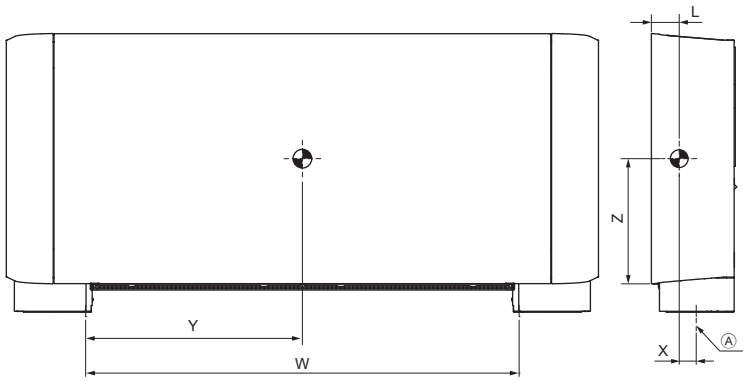
For PFFY-P-VEM-E (mm)

Model name	(B)
20·25·32	755
40·50	955
63	1155

Ⓑ Floor

4.2

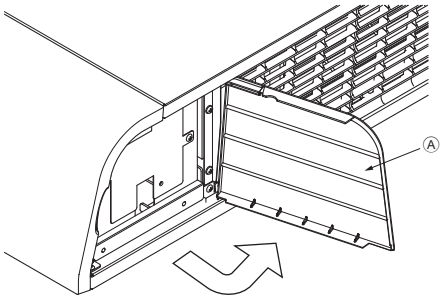
[Fig. 4.2.1]



Ⓐ Floor hole for fixing

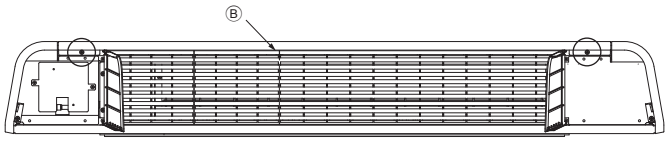
4.3

[Fig. 4.3.1]

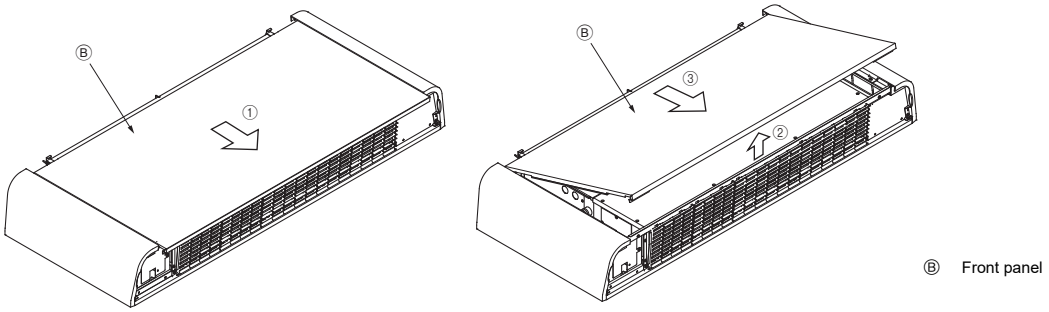


Ⓐ Cover
Ⓑ Front panel

[Fig. 4.3.2]

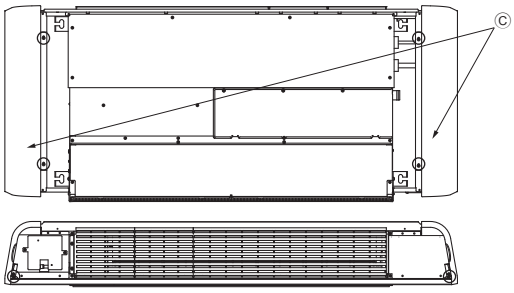


[Fig. 4.3.3]



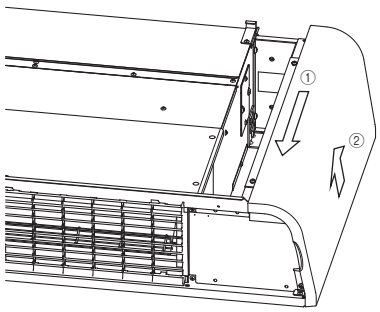
Ⓑ Front panel

[Fig. 4.3.4]

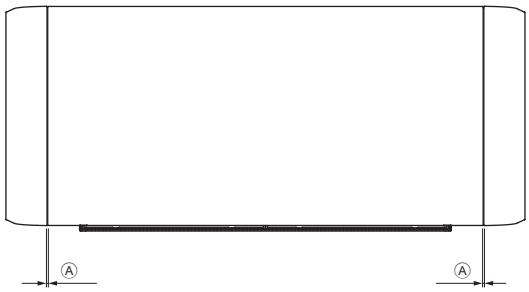


Ⓒ Side panel

[Fig. 4.3.5]



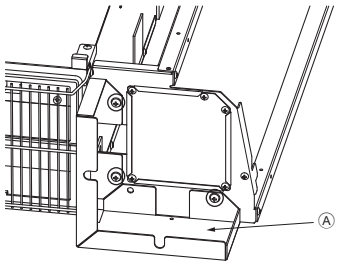
[Fig. 4.3.6]



Ⓐ Leave an equal amount of clearance on the right and left.

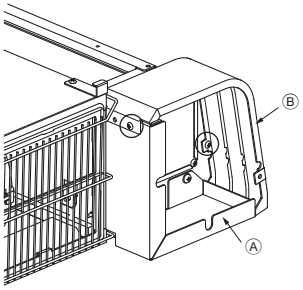
4.4

[Fig. 4.4.1]



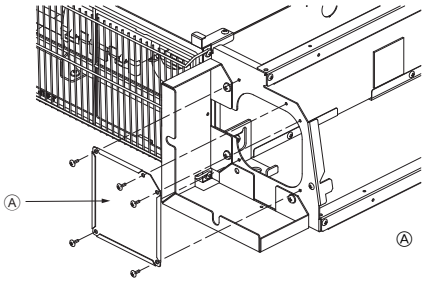
Ⓐ Leg

[Fig. 4.4.2]



Ⓐ Leg
Ⓑ Cover for leg

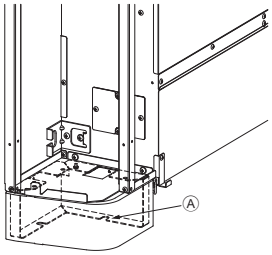
[Fig. 4.4.3]



Ⓐ Cover

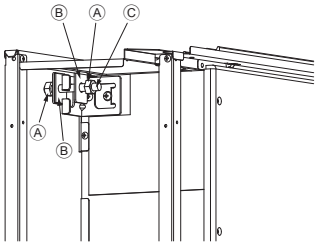
4.5

[Fig. 4.5.1]



Ⓐ Floor hole for fixing

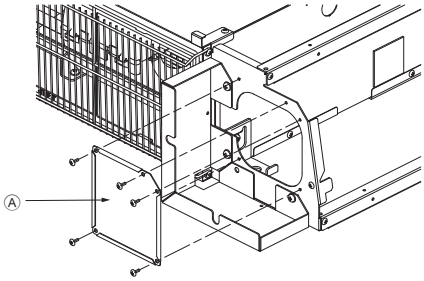
[Fig. 4.5.2]



Ⓐ Nuts (field supply)
Ⓑ Washers
Ⓒ M10 hanging bolt (field supply)

4.6

[Fig. 4.6.1]

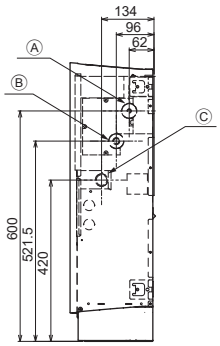


Ⓐ Cover

5 5.2

[Fig. 5.2.1]

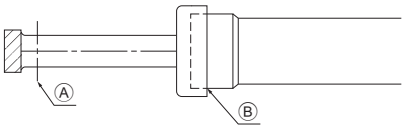
(Unit: mm)



Ⓐ Refrigerant piping (liquid)
Ⓑ Refrigerant piping (gas)
Ⓒ Drain outlet

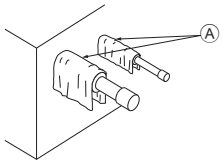
6 6.1

[Fig. 6.1.1]



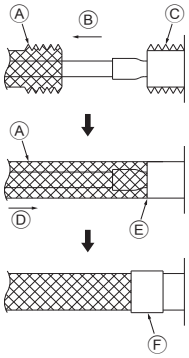
Ⓐ Cut here
Ⓑ Remove brazed cap

[Fig. 6.1.2]



Ⓐ Cool by a wet cloth

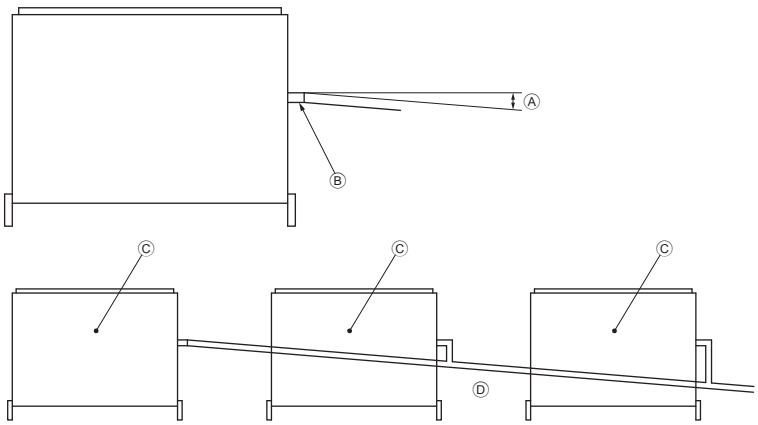
[Fig. 6.1.3]



Ⓐ Thermal insulation
Ⓑ Pull out insulation
Ⓒ Wrap with damp cloth
Ⓓ Return to original position
Ⓔ Ensure that there is no gap here
Ⓕ Wrap with insulating tape

6.2

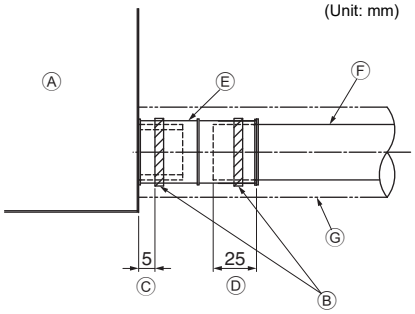
[Fig. 6.2.1]



Ⓐ Downward slope 1/100 or more
Ⓑ Drain hose (Accessory)
Ⓒ Indoor unit
Ⓓ Collective piping

[Fig. 6.2.2]

(Unit: mm)

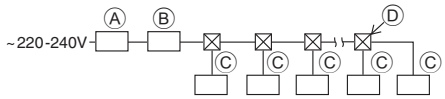


Ⓐ Indoor unit
Ⓑ Tie band (accessory)
Ⓒ Band fixing part
Ⓓ Insertion margin
Ⓔ Drain hose (accessory)
Ⓕ Drain pipe (O.D. ø32 PVC TUBE, field supply)
Ⓖ Insulating material (field supply)

7

7.1

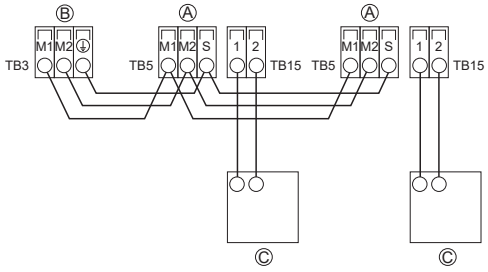
[Fig. 7.1.1]



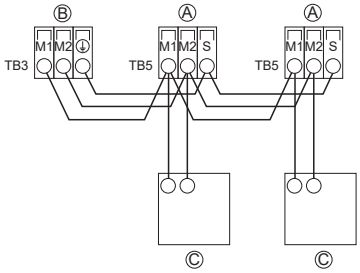
Ⓐ Ground-fault interrupter
Ⓑ Local switch/Wiring breaker
Ⓒ Indoor unit
Ⓓ Pull box

7.2

[Fig. 7.2.1]

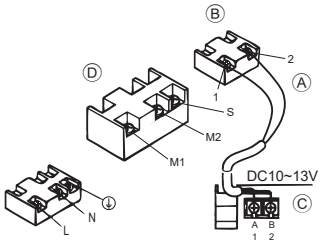


[Fig. 7.2.2]

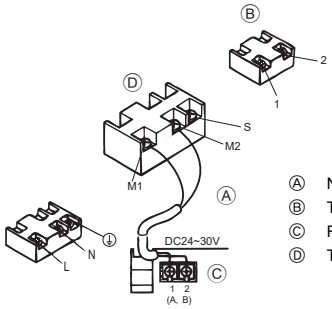


Ⓐ Terminal block for indoor transmission cable
Ⓑ Terminal block for outdoor transmission cable
Ⓒ Remote controller

[Fig. 7.2.3]



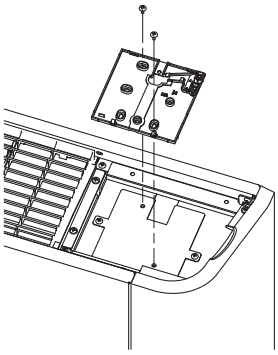
[Fig. 7.2.4]



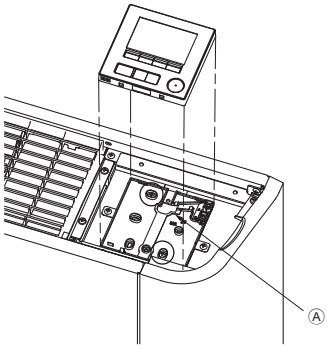
Ⓐ Non-polarized
Ⓑ TB15
Ⓒ Remote Controller
Ⓓ TB5

7.3

[Fig. 7.3.1]

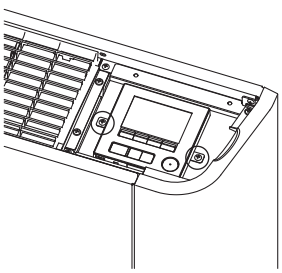


[Fig. 7.3.2]



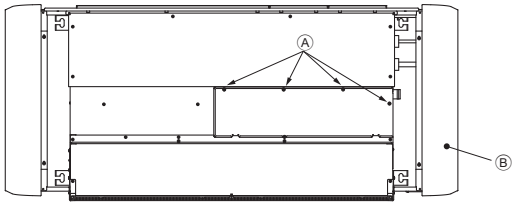
Ⓐ Notch for transmission line

[Fig. 7.3.3]



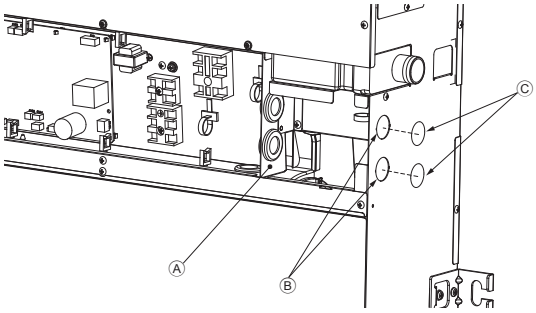
7.4

[Fig. 7.4.1]



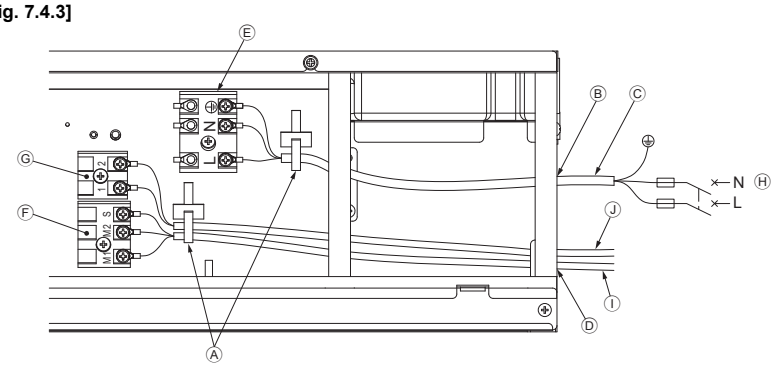
Ⓐ Screw holding cover (4pcs.)
Ⓑ Cover

[Fig. 7.4.2]



Ⓐ Terminal bed box
Ⓑ Knockout hole
Ⓒ Remove

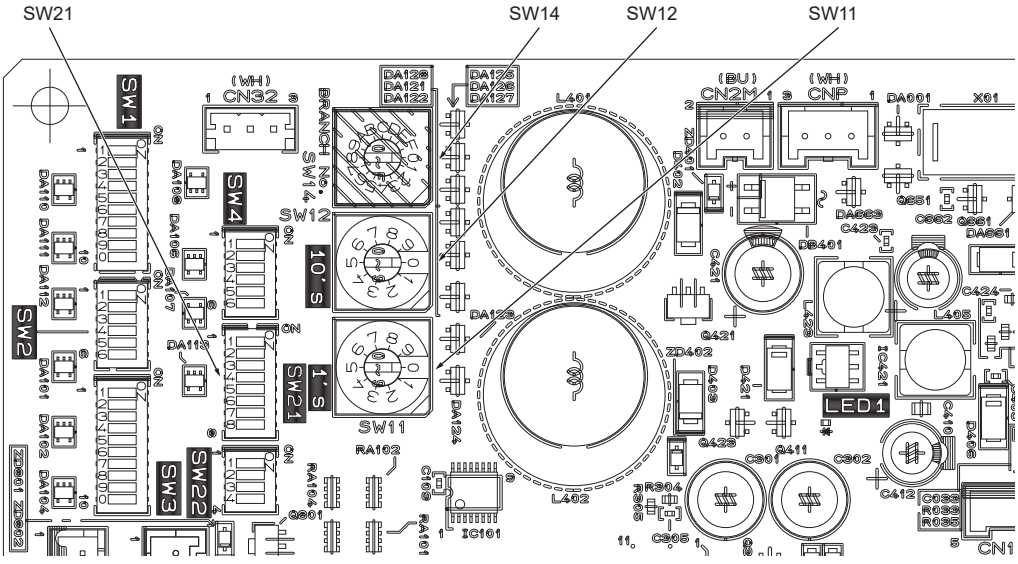
[Fig. 7.4.3]



Ⓐ Use a cable tie to secure the cable.
Ⓑ Use PG bushing to keep the weight of the cable and external force from being applied to the power supply terminal connector.
Ⓒ Power source wiring
Ⓓ Use ordinary bushing
Ⓔ Power source terminal block
Ⓕ Terminal block for indoor transmission
Ⓖ Terminal block for remote controller
Ⓗ To 1-phase power source
Ⓘ Transmission line 30 VDC
Ⓙ Transmission line to the remote controller, terminal block for indoor unit and BC controller

7.6

[Fig. 7.6.1]



<Indoor controller board>

Contents

en

1. Safety precautions

1.1. Before installation and electric work

- **Before installing the unit, make sure you read all the "Safety precautions".**
- **The "Safety precautions" provide very important points regarding safety. Make sure you follow them.**

Symbols used in the text

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

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

Symbols used in the illustrations

⃠ : Indicates an action that must be avoided.

❗ : Indicates that important instructions must be followed.

⏚ : Indicates a part which must be grounded.

: Indicates that caution should be taken with rotating parts. (This symbol is displayed on the main unit label.) <Color: yellow>

: Beware of electric shock (This symbol is displayed on the main unit label.) <Color: yellow>

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

⚠ Warning:

- **Ask the dealer or an authorized technician to install the air conditioner.**
  - Improper installation by the user may result in water leakage, electric shock, or fire.
- **Install the air unit at a place that can withstand its weight.**
  - Inadequate strength may cause the unit to fall down, resulting in injuries.
- **Use the specified cables for wiring. Make the connections securely so that the outside force of the cable is not applied to the terminals.**
  - Inadequate connection and fastening may generate heat and cause a fire.
- **Prepare for typhoons and other strong winds and earthquakes and install the unit at the specified place.**
  - Improper installation may cause the unit to topple and result in injury.
- **Always use an air cleaner, humidifier, electric heater, and other accessories specified by Mitsubishi Electric.**
  - Ask an authorized technician to install the accessories. Improper installation by the user may result in water leakage, electric shock, or fire.
- **Never repair the unit. If the air conditioner must be repaired, consult the dealer.**
  - If the unit is repaired improperly, water leakage, electric shock, or fire may result.
- **Do not touch the heat exchanger fins.**
  - Improper handling may result in injury.
- **When handling this product, always wear protective equipment. EG: Gloves, full arm protection namely boiler suit, and safety glasses.**
  - Improper handling may result in injury.
- **If refrigerant gas leaks during installation work, ventilate the room.**
  - If the refrigerant gas comes into contact with a flame, poisonous gases will be released.
- **Install the air conditioner according to this Installation Manual.**
  - If the unit is installed improperly, water leakage, electric shock, or fire may result.
- **Have all electric work done by a licensed electrician according to "Electric Facility Engineering Standard" and "Interior Wire Regulations" and the instructions given in this manual and always use a special circuit.**
  - If the power source capacity is inadequate or electric work is performed improperly, electric shock and fire may result.
- **Keep the electric parts away from water (washing water etc.).**
  - It might result in electric shock, catching fire or smoke.
- **Securely install the outdoor unit terminal cover (panel).**
  - If the terminal cover (panel) is not installed properly, dust or water may enter the outdoor unit and fire or electric shock may result.
- **Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.**
  - Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, during repair, or at the time of disposal of the unit.
  - It may also be in violation of applicable laws.
  - MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.
- **If the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration from exceeding the safety limit even if the refrigerant should leak.**
  - Consult the dealer regarding the appropriate measures to prevent the safety limit from being exceeded. Should the refrigerant leak and cause the safety limit to be exceeded, hazards due to lack of oxygen in the room could result.
- **When moving and reinstalling the air conditioner, consult the dealer or an authorized technician.**
  - If the air conditioner is installed improperly, water leakage, electric shock, or fire may result.
- **After completing installation work, make sure that refrigerant gas is not leaking.**
  - If the refrigerant gas leaks and is exposed to a fan heater, stove, oven, or other heat source, it may generate noxious gases.
- **Do not reconstruct or change the settings of the protection devices.**
  - If the pressure switch, thermal switch, or other protection device is shorted and operated forcibly, or parts other than those specified by Mitsubishi Electric are used, fire or explosion may result.
- **To dispose of this product, consult your dealer.**
- **Do not use a leak detection additive.**
- **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.**
- **This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.**
- **Children should be supervised to ensure that they do not play with the appliance.**
- **The installer and system specialist shall secure safety against leakage according to local regulation or standards.**
  - The instructions in this manual may be applicable if local regulation are not available.
- **Pay a special attention to the place, such as a basement, etc. where refrigeration gas can stay, since refrigeration is heavier than the air.**
- **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.**

1.2. Precautions for devices that use R410A refrigerant

⚠ Caution:

- **Do not use the existing refrigerant piping.**
  - The old refrigerant and refrigerator oil in the existing piping contains a large amount of chlorine which may cause the refrigerator oil of the new unit to deteriorate.

- **Use refrigerant piping made of C1220 (Cu-DHP) phosphorus deoxidized copper as specified in the JIS H3300 "Copper and copper alloy seamless pipes and tubes". In addition, be sure that the inner and outer surfaces of the pipes are clean and free of hazardous sulphur, oxides, dust/dirt, shaving particles, oils, moisture, or any other contaminant.**
  - Contaminants on the inside of the refrigerant piping may cause the refrigerant residual oil to deteriorate.
- **Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing. (Store elbows and other joints in a plastic bag.)**
  - If dust, dirt, or water enters the refrigerant cycle, deterioration of the oil and compressor trouble may result.
- **Use liquid refrigerant to fill the system.**
  - If gas refrigerant is used to seal the system, the composition of the refrigerant in the cylinder will change and performance may drop.
- **Do not use a refrigerant other than R410A.**
  - If another refrigerant (R22, etc.) is used, the chlorine in the refrigerant may cause the refrigerator oil to deteriorate.
- **Use a vacuum pump with a reverse flow check valve.**
  - The vacuum pump oil may flow back into the refrigerant cycle and cause the refrigerator oil to deteriorate.
- **Do not use the following tools that are used with conventional refrigerants.**
  (Gauge manifold, charge hose, gas leak detector, reverse flow check valve, refrigerant charge base, vacuum gauge, refrigerant recovery equipment)
  - If the conventional refrigerant and refrigerator oil are mixed in the R410A, the refrigerant may deteriorated.
  - If water is mixed in the R410A, the refrigerator oil may deteriorate.
  - Since R410A does not contain any chlorine, gas leak detectors for conventional refrigerants will not react to it.
- **Do not use a charging cylinder.**
  - Using a charging cylinder may cause the refrigerant to deteriorate.
- **Be especially careful when managing the tools.**
  - If dust, dirt, or water gets in the refrigerant cycle, the refrigerant may deteriorate.

1.3. Before getting installed

⚠ Caution:

- **Do not install the unit where combustible gas may leak.**
  - If the gas leaks and accumulates around the unit, an explosion may result.
- **Do not use the air conditioner where food, pets, plants, precision instruments, or artwork are kept.**
  - The quality of the food, etc. may deteriorate.
- **Do not use the air conditioner in special environments.**
  - Oil, steam, sulfuric smoke, etc. can significantly reduce the performance of the air conditioner or damage its parts.
- **When installing the unit in a hospital, communication station, or similar place, provide sufficient protection against noise.**
  - The inverter equipment, private power generator, high-frequency medical equipment, or radio communication equipment may cause the air conditioner to operate erroneously, or fail to operate. On the other hand, the air conditioner may affect such equipment by creating noise that disturbs medical treatment or image broadcasting.
- **Do not install the unit on a structure that may cause leakage.**
  - When the room humidity exceeds 80% or when the drain pipe is clogged, condensation may drip from the indoor unit. Perform collective drainage work together with the outdoor unit, as required.

1.4. Before getting installed (moved) - electrical work

⚠ Caution:

- **Ground the unit.**
  - Do not connect the ground wire to gas or water pipes, lightning rods, or telephone ground lines. Improper grounding may result in electric shock.
- **Install the power cable so that tension is not applied to the cable.**
  - Tension may cause the cable to break and generate heat and cause a fire.
- **Install an leak circuit breaker, as required.**
  - If an leak circuit breaker is not installed, electric shock may result.
- **Use power line cables of sufficient current carrying capacity and rating.**
  - Cables that are too small may leak, generate heat, and cause a fire.
- **Use only a circuit breaker and fuse of the specified capacity.**
  - A fuse or circuit breaker of a larger capacity or a steel or copper wire may result in a general unit failure or fire.
- **Do not wash the air conditioner units.**
  - Washing them may cause an electric shock.
- **Be careful that the installation base is not damaged by long use.**
  - If the damage is left uncorrected, the unit may fall and cause personal injury or property damage.
- **Install the drain piping according to this Installation Manual to ensure proper drainage. Wrap thermal insulation around the pipes to prevent condensation.**
  - Improper drain piping may cause water leakage and damage to furniture and other possessions.
- **Be very careful about product transportation.**
  - Only one person should not carry the product if it weighs more than 20 kg.
  - Some products use PP bands for packaging. Do not use any PP bands for a means of transportation. It is dangerous.
  - Do not touch the heat exchanger fins. Doing so may cut your fingers.
  - When transporting the outdoor unit, suspend it at the specified positions on the unit base. Also support the outdoor unit at four points so that it cannot slip sideways.
- **Safely dispose of the packing materials.**
  - Packing materials, such as nails and other metal or wooden parts, may cause stabs or other injuries.
  - Tear apart and throw away plastic packaging bags so that children will not play with them. If children play with a plastic bag which was not torn apart, they face the risk of suffocation.

1.5. Before starting the test run

⚠ Caution:

- **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.
- **Do not touch the switches with wet fingers.**
  - Touching a switch with wet fingers can cause electric shock.
- **Do not touch the refrigerant pipes during and immediately after operation.**
  - During and immediately after operation, the refrigerant pipes are may be hot and may be cold, depending on the condition of the refrigerant flowing through the refrigerant piping, compressor, and other refrigerant cycle parts. Your hands may suffer burns or frostbite if you touch the refrigerant pipes.
- **Do not operate the air conditioner with the panels and guards removed.**
  - Rotating, hot, or high-voltage parts can cause injuries.
- **Do not turn off the power immediately after stopping operation.**
  - Always wait at least five minutes before turning off the power. Otherwise, water leakage and trouble may occur.

2. Indoor unit accessories

The unit is provided with the following accessories:

Part No.	Accessories	Qty
1	Tie band	3
2	Drain hose	1
3	Washer	8
4	Leg	2

Part No.	Accessories	Qty
5	Leg cover	2
6	M5 screw	6
7	M4 screw	4

3. Selecting an installation site

- Select a site with sturdy fixed surface sufficiently durable against the weight of unit.
- Before installing unit, the routing to carry in unit to the installation site should be determined.
- Select a site where the unit is not affected by entering air.
- Select a site where the flow of supply and return air is not blocked.
- Select a site where refrigerant piping can easily be led to the outside.
- Select a site which allows the supply air to be distributed fully in room.
- Do not install unit at a site with oil splashing or steam in much quantity.
- Do not install unit at a site where combustible gas may generate, flow in, stagnate or leak.
- Do not install unit at a site where equipment generating high frequency waves (a high frequency wave welder for example) is provided.

- Do not install unit at a site where fire detector is located at the supply air side. (Fire detector may operate erroneously due to the heated air supplied during heating operation.)
- When special chemical product may scatter around such as site chemical plants and hospitals, full investigation is required before installing unit. (The plastic components may be damaged depending on the chemical product applied.)
- If the unit is run for long hours at high temperature/ high humidity (dew point above 26 °C), dew condensation may be produced in the indoor unit. When operating the units in this condition, add insulation material (10-20 mm) to the entire surface of the indoor unit to avoid dew condensation.
- Do not place things that are vulnerable to water damage under the unit. Condensation may form in a situation such as when foreign object is trapped in the LEV. Install an emergency drain pan under the unit as necessary.
- Direct the air away from the walls and windows to prevent condensation.

⚠ 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 causing injuries.

3.1. Securing installation and service space

For PFFY-P-VEM-E (mm)

Model name	(A)
20·25·32	1142
40·50	1342
63	1542

[Fig. 3.1.1] (P.2)

[Fig. 3.1.2] (P.2)

Ⓐ Floor
Ⓑ Wall
Ⓒ Ceiling
Ⓓ Secure large enough space to prevent that blowout air is blocked.

3.2. Combining indoor units with outdoor units

For combining indoor units with outdoor units, refer to the outdoor unit installation manual.

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4. Installing the unit

4.1. Selecting the installation method

Install the indoor unit on a load bearing floor or wall.
The unit can be fixed in place in the following ways to prevent it from falling over.
Screw down the unit as specified below as necessary.

For fixing on the floor
[Fig. 4.1.1] (P.2)

<Viewed from top of the unit>
Ⓐ Wall

For PFFY-P-VEM-E (mm)

Model name	(A)
20·25·32	729
40·50	929
63	1129

For fixing on the wall
[Fig. 4.1.2] (P.2)

<Viewed from front of the unit>
Ⓑ Floor

For PFFY-P-VEM-E (mm)

Model name	(B)
20·25·32	755
40·50	955
63	1155

4.2. Center of gravity and product weight

[Fig. 4.2.1] (P.3)

Ⓐ Floor hole for fixing

For PFFY-P-VEM-E

Model name	W (mm)	L (mm)	X (mm)	Y (mm)	Z (mm)	Product weight (kg)
PFFY-P20VEM-E	730	76	40	365	320	29.5
PFFY-P25VEM-E	730	76	40	365	320	29.5
PFFY-P32VEM-E	730	76	40	365	320	30
PFFY-P40VEM-E	930	76	40	475	330	35
PFFY-P50VEM-E	930	76	40	475	330	35
PFFY-P63VEM-E	1130	76	40	595	340	39.5

4.3. How to disassemble the unit

The unit needs to be disassembled before installation, piping work, and electrical work.
Perform the work with the unit being laid down sideways.

⚠ Caution:
When lifting the unit, do not hold the resign parts. Doing so may damage the resin parts.

1. Open the right and left covers.
   [Fig. 4.3.1] (P.4)
   Ⓐ Cover
2. Unscrew the two screws holding the front panel, and remove the right and left covers.
   [Fig. 4.3.2] (P.4)
   Ⓑ Front panel
3. Remove the front panel.
   Slide the front panel in the direction shown by ①, lift it in the direction shown by ②, and pull it out in the direction shown by ③.
   [Fig. 4.3.3] (P.4)
   Ⓑ Front panel
4. Unscrew the six screws holding the side panel.
   [Fig. 4.3.4] (P.4)
   Ⓒ Side panel
5. Remove the side panel.
   Slide the side panel in the direction shown by ①, and lift it up in the direction shown by ②.
   [Fig. 4.3.5] (P.4)

Note:
- **Reinstall the panel in the reverse order as shown above.**
- **Install the front panel so that the clearance between the front panel and the side panel will be even at both sides.**
  [Fig. 4.3.6] (P.4)
  Ⓐ Leave an equal amount of clearance on the right and left.

4.4. Installing the legs for floor-standing installation

The legs are not used when installing the unit on a wall.
1. Screw down (M5 screws) the legs for floor-standing installation (three places each on the right and left).
   [Fig. 4.4.1] (P.5)
   Ⓐ Leg
2. Screw down (M4 screws) the cover for the legs (two places each on the right and left).
   [Fig. 4.4.2] (P.5)
   Ⓐ Leg
   Ⓑ Cover for leg
3. Unscrew the screws from the cover to remove the cover.
   [Fig. 4.4.3] (P.5)
   Ⓐ Cover

4.5. Installing the unit on the base

For fixing on the floor
- Installing the unit on a sturdy floor horizontally straight.
- Screw down the unit to the floor with the screws (not supplied).

[Fig. 4.5.1] (P.5)
Ⓐ Floor hole for fixing

For fixing on the wall
- To fix the indoor unit on the wall, use the hanging bolts.
- When the unit is installed on the wall, vibrations may be transmitted to the wall. Take measures against vibrations as needed at the site.

[Fig. 4.5.2] (P.5)
Ⓐ Nuts (field supply)
Ⓑ Washers
Ⓒ M10 hanging bolt (field supply)

- Ensure that the hanging bolt nuts are tightened to fix the hanging bolts.
- To ensure that drain is discharged, be sure to hang the unit at level using a level.

⚠ Caution:
Install the unit in horizontal position. If the side with drain port is installed higher, water leakage may be caused.

4.6. Installing the pipes under the floor when installing the unit on the wall

Unscrew the five screws and remove the right cover to install the pipes under the floor.

[Fig. 4.6.1] (P.5)

Ⓐ Cover

Note:

- **Do not remove the cover when installing the pipes on the rear of the unit.**

4.7. Installing the back decoration panel (sold separately)

Applicable only for floor-standing installation
Install the back decoration panel (sold separately) before installing the unit on a base.
Refer to the installation manual that came with the back decoration panel (sold separately) for how to install the back decoration panel.

5. Refrigerant pipe and drain pipe specifications

To avoid dew drops, provide sufficient antisweating and insulating work to the refrigerant and drain pipes.
When using commercially available refrigerant pipes, be sure to wind commercially available insulating material (with a heat-resisting temperature of more than 100 °C and thickness given below) onto both liquid and gas pipes.
Insulate all indoor pipes with form polyethylene insulation with a minimum density of 0.03 and a thickness as specified in the table below.

① Select the thickness of insulating material by pipe size.

Pipe size	Insulating material's thickness
6.4 mm to 25.4 mm	More than 10 mm
28.6 mm to 38.1 mm	More than 15 mm

② If the unit is used on the highest story of a building and under conditions of high temperature and humidity, it is necessary to use pipe size and insulating material's thickness more than those given in the table above.
③ If there are customer's specifications, simply follow them.

5.1. Refrigerant pipe and drain pipe specifications

Item \ Model		PFFY-P-VEM-E	
		20·25·32·40·50	63
Refrigerant pipe (Brazing connection)	Liquid pipe	ø 6.35	ø 9.52
	Gas pipe	ø 12.7	ø 15.88
Drain pipe		O.D. ø 32	

5.2. Refrigerant pipe, drain pipe

[Fig. 5.2.1] (P.6)

Ⓐ Refrigerant piping (liquid)
Ⓑ Refrigerant piping (gas)
Ⓒ Drain outlet

6. Connecting refrigerant pipes and drain pipes

6.1. Refrigerant piping work

This piping work must be done in accordance with the installation manuals for both outdoor unit and BC controller (simultaneous cooling and heating series R2).

- Series R2 is designed to operate in a system that the refrigerant pipe from an outdoor unit is received by BC controller and branches at the BC controller to connect between indoor units.
- For constraints on pipe length and allowable difference of elevation, refer to the outdoor unit manual.
- The method of pipe connection is brazing connection.

⚠ Caution:

- **Install the refrigerant piping for the indoor unit in accordance with the following.**

1. Cut the tip of the indoor unit piping, remove the gas, and then remove the brazed cap.

   [Fig. 6.1.1] (P.6)

   Ⓐ Cut here
   Ⓑ Remove brazed cap

2. Pull out the thermal insulation on the site refrigerant piping, braze the unit piping, and replace the insulation in its original position.
   Wrap the piping with insulating tape.

Note:

- **When brazing the refrigerant pipes, be sure to braze, after covering a wet cloth to the pipes of the units in order to prevent it from burning and shrinking by heat.**

  [Fig. 6.1.2] (P.6)

  Ⓐ Cool by a wet cloth

- **Pay strict attention when wrapping the copper piping since wrapping the piping may cause condensation instead of preventing it.**

  [Fig. 6.1.3] (P.6)

  Ⓐ Thermal insulation
  Ⓑ Pull out insulation
  Ⓒ Wrap with damp cloth
  Ⓓ Return to original position
  Ⓔ Ensure that there is no gap here
  Ⓕ Wrap with insulating tape

Cautions On Refrigerant Piping

- **Be sure to use non-oxidative brazing for brazing to ensure that no foreign matter or moisture enter into the pipe.**
- **Be sure to apply refrigerating machine oil over the flare connection seating surface and tighten the connection using a double spanner.**
- **Provide a metal brace to support the refrigerant pipe so that no load is imparted to the indoor unit end pipe. This metal brace should be provided 50 cm away from the indoor unit's flare connection.**

⚠ Warning:
Do not use refrigerant other than the type indicated in the manuals provided with the unit and on the nameplate.

- Doing so may cause the unit or pipes to burst, or result in explosion or fire during use, during repair, or at the time of disposal of the unit.
- It may also be in violation of applicable laws.
- MITSUBISHI ELECTRIC CORPORATION cannot be held responsible for malfunctions or accidents resulting from the use of the wrong type of refrigerant.

⚠ Caution:

- **Use refrigerant piping made of C1220 (Cu-DHP) phosphorus deoxidized copper as specified in the JIS H3300 "Copper and copper alloy seamless pipes and tubes". In addition, be sure that the inner and outer surfaces of the pipes are clean and free of hazardous sulphur, oxides, dust/dirt, shaving particles, oils, moisture, or any other contaminant.**
- **Never use existing refrigerant piping.**
  - The large amount of chlorine in conventional refrigerant and refrigerator oil in the existing piping will cause the new refrigerant to deteriorate.
- **Store the piping to be used during installation indoors and keep both ends of the piping sealed until just before brazing.**
  - If dust, dirt, or water gets into the refrigerant cycle, the oil will deteriorate and the compressor may fail.
- **Use ester oil, ether oil or alkylbenzene (small amount) as the refrigerator oil to coat flares and flange connections.**
  - The refrigerant used in the unit is highly hygroscopic and mixes with water and will degrade the refrigerator oil.

6.2. Drain piping work

- Ensure that the drain piping is downward (pitch of more than 1/100) to the outdoor (discharge) side. Do not provide any trap or irregularity on the way. (①)
- Ensure that any cross-wise drain piping is less than 20 m (excluding the difference of elevation). If the drain piping is long, provide metal braces to prevent it from waving. Never provide any air vent pipe. Otherwise drain may be ejected.
- Use a hard vinyl chloride pipe VP-25 (with an external diameter of 32 mm) for drain piping.
- Do not provide any odor trap at the drain discharge port.
- Put the end of the drain piping in a position where no odor is generated.
- Do not put the end of the drain piping in any drain where ionic gases are generated.

[Fig. 6.2.1] (P.6)

Ⓐ Downward slope 1/100 or more
Ⓑ Drain hose (Accessory)
Ⓒ Indoor unit
Ⓓ Collective piping

1. Insert the drain hose (accessory) into the drain port.
   The connecting part between the indoor unit and the drain hose may be disconnected at the maintenance. Fix the part with the accessory band, not be adhered.
2. Attach the drain pipe (O.D. ø32 PVC TUBE, field supply).
   (Attach the pipe with glue for the hard vinyl chloride pipe, and fix it with the band (small, accessory).)
3. Perform insulation work on the drain pipe (O.D. ø32 PVC TUBE) and on the socket (including elbow).

[Fig. 6.2.2] (P.6)

Ⓐ Indoor unit
Ⓑ Tie band (accessory)
Ⓒ Band fixing part
Ⓓ Insertion margin
Ⓔ Drain hose (accessory)
Ⓕ Drain pipe (O.D. ø32 PVC TUBE, field supply)
Ⓖ Insulating material (field supply)

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7. Electrical wiring

Precautions on electrical wiring

⚠ Warning:

Electrical work should be done by qualified electrical engineers in accordance with "Engineering Standards For Electrical Installation" and supplied installation manuals. Special circuits should also be used. If the power circuit lacks capacity or has an installation failure, it may cause a risk of electric shock or fire.

1. Be sure to install an earth leakage breaker to the power.
2. Install the unit to prevent that any of the control circuit cables (remote controller, transmission cables) is brought in direct contact with the power cable outside the unit.
3. Ensure that there is no slack on all wire connections.
4. Some cables (power, remote controller, transmission cables) above the ceiling may be bitten by mouses. Use as many metal pipes as possible to insert the cables into them for protection.
5. Never connect the power cable to leads for the transmission cables. Otherwise the cables would be broken.
6. Be sure to connect control cables to the indoor unit, remote controller, and the outdoor unit.
7. Put the unit to the ground on the outdoor unit side.
8. Select control cables from the conditions given below.

⚠ Caution:

- **Be sure to put the unit to the ground on the outdoor unit side. Do not connect the earth cable to any gas pipe, water pipe, lightening rod, or telephone earth cable. Incomplete grounding may cause a risk of electric shock.**
- **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.**

- Transmission cable

Type	2-core shielded cable CVVS, CPEVS, or MVVS
Size	1.25 mm^2 (AWG 16), or ø1.2 mm or above
Length	Max. 200 m (656 ft)
Remarks	The maximum allowable length of transmission cables via outdoor units (both centralized control transmission cables and indoor-outdoor transmission cables) is 500 m (1640 ft)*1. The maximum allowable length of transmission cables from the power supply unit to each outdoor unit or to the system controller is 200 m (656 ft).

* Do not use a single multiple-core cable to connect indoor units that belong to different refrigerant systems. The use of a multiple-core cable may result in signal transmission errors and malfunctions.
* Ensure shield continuity when extending the transmission cable.
*1 When extending the length of the transmission cables to 1000 m (3280 ft), consult your dealer.

- Remote controller cable

	MA remote controller	ME remote controller
Type	2-core cable VCTF, VCTFK, CVV, VVR, VVF, or VCT	2-core shielded cable CVVS, CPEVS, or MVVS
Size	0.3 to 1.25 mm^2 (AWG 22 to 16) *1 *4	0.3 to 1.25 mm^2 (AWG 22 to 16) *1
Length	Max. 200 m (656 ft) *3	Max. 10 m (32 ft) *2

*1 The use of cables that are smaller than 0.75 mm^2 (AWG 18) is recommended for easy handling.
*2 The section of the cable that exceeds 10 m [32 ft] must be included in the maximum indoor-outdoor transmission cable distance.
*3 Max. 70 m (229 ft) for PAR-CT01MA series
*4 To wire PAR-CT01MA series, PAR-FS01MA series, PAR-40MA series, PAR-30MA series, or Simple MA remote controller, use a cable with a size of 0.3 mm^2 (AWG 22).

7.1. Power supply wiring

- Use dedicated power supplies for the outdoor unit and indoor unit.
- Bear in mind ambient conditions (ambient temperature, direct sunlight, rain water, etc.) when proceeding with the wiring and connections.
- The wire size is the minimum value for metal conduit wiring. If the voltage drops, use a wire that is one rank thicker in diameter. Make sure the power-supply voltage does not drop more than 10%.
- Specific wiring requirements should adhere to the wiring regulations of the region.
- Power supply cords of appliances shall not be lighter than design 60245 IEC 57 or 60227 IEC 57.
- A switch with at least 3 mm contact separation in each pole shall be provided by the Air conditioner installation.

[Fig. 7.1.1] (P.7)

Ⓐ Ground-fault interrupter
Ⓑ Local switch/Wiring breaker
Ⓒ Indoor unit
Ⓓ Pull box

Total operating current of the Indoor unit	Minimum wire thickness (mm^2)			Ground-fault interrupter *1	Local switch (A)		Breaker for wiring (A) (Non-fuse breaker)
	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.

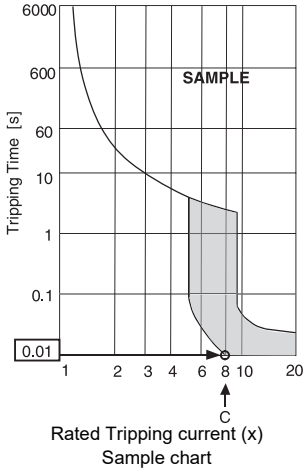
*1 The Ground-fault interrupter should support Inverter circuit.
The Ground-fault interrupter should combine using of local switch or wiring breaker.

*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 Type1)/C} + {V1 × (Quantity of Type2)/C} + {V1 × (Quantity of Type3)/C} + {V1 × (Quantity of Others)/C}

Indoor unit	V1	V2
PFFY-VEM	18.6	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 PFFY-VEM × 6, C = 8 (refer to right sample chart)
F2 = 18.6 × 6/8
= 13.95
→ 16 A breaker (Tripping current = 8 × 16 A at 0.01s)



Sample chart

*3 Current sensitivity is calculated using the following formula.
G1 = (V2 × Quantity of Type1) + (V3 × Wire length [km])

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 mm^2	48
2.5 mm^2	56
4.0 mm^2	66

⚠ Warning:
- **Be sure to use specified wires for connections and ensure no external force is imparted to terminal connections. If connections are not fixed firmly, heating or fire may result.**
- **Be sure to use the appropriate type of overcurrent protection switch. Note that generated overcurrent may include some amount of direct current.**

⚠ Caution:
- **Some installation sites may require attachment of an earth leakage breaker for the inverter. If no earth leakage breaker is installed, there is a danger of electric shock.**
- **Do not use anything other than the correct capacity breaker and fuse. Using fuse, wire or copper wire with too large capacity may cause a risk of malfunction or fire.**

Notes:
- **This device is intended for the connection to a power supply system with a maximum permissible system impedance (Refer to IEC61000-3-3.) at the interface point (power service box) of the user's supply.**
- **The user must ensure that this device is connected only to a power supply system which fulfils the requirement above.**
  If necessary, the user can ask the public power supply company for the system impedance at the interface point.

7.2. Connecting remote controller, indoor and outdoor transmission cables

- Connect indoor unit TB5 and outdoor unit TB3. (Non-polarized 2-wire)
  The "S" on indoor unit TB5 is a shielding wire connection. For specifications about the connecting cables, refer to the outdoor unit installation manual.
- Install a remote controller following the manual supplied with the remote controller.
- Connect the "1" and "2" on indoor unit TB15 to a MA remote controller. (Non-polarized 2-wire)
- Connect the "M1" and "M2" on indoor unit TB5 to a M-NET remote controller. (Non-polarized 2-wire)
- Connect the remote controller's transmission cable within 10 m using a 0.75 mm^2 core cable. If the distance is more than 10 m, use a 1.25 mm^2 junction cable.

[Fig. 7.2.1] (P.7) MA Remote controller

[Fig. 7.2.2] (P.7) M-NET Remote controller

Ⓐ Terminal block for indoor transmission cable
Ⓑ Terminal block for outdoor transmission cable
Ⓒ Remote controller

- DC 9 to 13 V between 1 and 2 (MA remote controller)
- DC 24 to 30 V between M1 and M2 (M-NET remote controller)

[Fig. 7.2.3] (P.7) MA Remote controller

[Fig. 7.2.4] (P.7) M-NET Remote controller

Ⓐ Non-polarized
Ⓑ TB15
Ⓒ Remote Controller
Ⓓ TB5

- The MA remote controller and the M-NET remote controller cannot be used at the same time or interchangeably.

⚠ Caution:
Install wiring so that it is not tight and under tension. Wiring under tension may break, or overheat and burn.

7.3. How to mount remote controller

1. Dismount the upper part of remote controller, and fasten the base of the controller at the indicated positions with screws provided. (Be careful not to cut the wiring inside the controller.)
   [Fig. 7.3.1] (P.7)
2. Connect the transmission terminal bed inside the control box and the terminal bed of the remote controller through the notch.
   [Fig. 7.3.2] (P.7)
   Ⓐ Notch for transmission line
3. After completing the work of the above items 1 and 2, insert the upper part of remote controller into its original position.

Note:
- **Unscrew the two screws holding the base of the controller to remove the remote controller.**
  [Fig. 7.3.3] (P.7)

7.4. Connecting electrical connections

Please identify the model name of the operation manual attached on the terminal box cover with that shown on the rating name plate.

1. Remove the screws holding the cover to dismount the cover.

   [Fig. 7.4.1] (P.8)

   Ⓐ Screw holding cover (4pcs.) Ⓑ Cover

2. Open knockout holes
   (Recommend to use a screwdriver or the like for this work.)
3. Fix power source wiring to terminal box by using buffer bushing for tensile force. (PG connection or the like.) Connect transmission wiring to transmission terminal block through the knockout hole of terminal box using ordinary bushing.
4. Connect the power source, Earth, transmission and remote controller wiring. The dismounting of the terminal box is not needed.

   [Fig. 7.4.2] (P.8)

   Ⓐ Terminal bed box Ⓑ Knockout hole
   Ⓒ Remove

[Shield wire connection]

[Fig. 7.4.3] (P.8)

Ⓐ Use a cable tie to secure the cable.
Ⓑ Use PG bushing to keep the weight of the cable and external force from being applied to the power supply terminal connector.
Ⓒ Power source wiring Ⓓ Use ordinary bushing
Ⓔ Power source terminal block Ⓕ Terminal block for indoor transmission
Ⓖ Terminal block for remote controller Ⓗ To 1-phase power source
Ⓘ Transmission line 30 VDC
Ⓙ Transmission line to the remote controller, terminal block for indoor unit and BC controller

5. After wiring is complete, make sure again that there is no slack on the connections, and attach the cover onto the terminal box in the reverse order of removal.

Notes:

- **Do not pinch the cables or wires when attaching the terminal box cover. Doing so may cause a risk of disconnection.**
- **When accommodating the terminal box, make sure that the connectors on the box side are not removed. If removed, it cannot operate normally.**

7.5. External I/O specifications

⚠ Caution:

1. Wiring should be covered by insulation tube with supplementary insulation.
2. Use relays or switches with IEC or equivalent standard.
3. The electric strength between accessible parts and control circuit should have 2750 V or more.

7.6. Setting addresses

(Be sure to operate with the main power turned OFF.)

[Fig. 7.6.1] (P.8)

<Indoor controller board>

- There are two types of rotary switch setting available: setting addresses 1 to 9 and over 10, and setting branch numbers.

  ① How to set addresses
  Example: If Address is “3”, remain SW12 (for over 10) at “0”, and match SW11 (for 1 to 9) with “3”.
  ② How to set branch numbers SW14 (Series R2 only)
  The branch number assigned to each indoor unit is the port number of the BC controller to which the indoor unit is connected.
  Leave it to “0” on the non-R2 series of units.

- The rotary switches are all set to “0” when shipped from the factory. These switches can be used to set unit addresses and branch numbers at will.
- The determination of indoor unit addresses varies with the system at site. Set them referring to the Data Book.

7.7. Sensing room temperature with the built-in sensor in a remote controller

If you want to sense room temperature with the built-in sensor in a remote controller, set SW1-1 on the control board to “ON”. The setting of SW1-7 and SW1-8 as necessary also makes it possible to adjust the air flow at a time when the heating thermometer is OFF.

Note:
To perform the auto cooling/heating operation, use the built-in sensor in a remote controller or the optional remote sensor.

7.8. Setting of intermittent fan control

When the unit is used in a high temperature and humidity environment, set the function setting No. 119 to “2.”
(Default setting: “1”)

⚠ Caution:

When the setting is enabled, the stopped fan may start operating.

7.9. Electrical characteristics

Symbols: MCA: Max. Circuit Amps (= 1.25 x FLA) FLA: Full Load Amps
IFM: Indoor Fan Motor Output: Fan motor rated output

Model	Power supply			IFM	
	Volts / Hz	Range +-10%	MCA (A)	Output (kW)	FLA(A)
PFFY-P20VEM-E	220-240 V / 50 Hz 220-240 V / 60 Hz	Max.: 264 V Min.: 198 V	0.42	0.096	0.33
PFFY-P25VEM-E			0.49	0.096	0.39
PFFY-P32VEM-E			0.55	0.096	0.44
PFFY-P40VEM-E			0.65	0.096	0.52
PFFY-P50VEM-E			0.85	0.096	0.68
PFFY-P63VEM-E			0.82	0.096	0.65

Refer to Data Book for other models.

MITSUBISHI ELECTRIC

AIR CONDITIONER INDOOR UNIT

MODEL _____ SERVICE REF. _____

OPERATE		<COOLING>						<HEATING>					
RATED VOLTAGE	V	220		230		240		220		230		240	
FREQUENCY	Hz	50	60	50	60	50	60	50	60	50	60	50	60
CAPACITY	kW												
RATED INPUT<INDOOR ONLY>	kW												
RATED CURRENT<INDOOR ONLY>	A												

ALLOWABLE VOLTAGE	±10%
CONTROL RATING	DC30V
FAN MOTOR	kW
REFRIGERANT	R410A
ALLOWABLE PRESSURE	4.15 MPa

WEIGHT kg

PHASE ~/N IP CODE IP20

SERIAL No. _____

YEAR OF MANUFACTURE _____

MITSUBISHI ELECTRIC CORPORATION

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

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

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

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

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