MITSUBISHI ELECTRIC

*Changes for the Better*

AIR CONDITIONERS

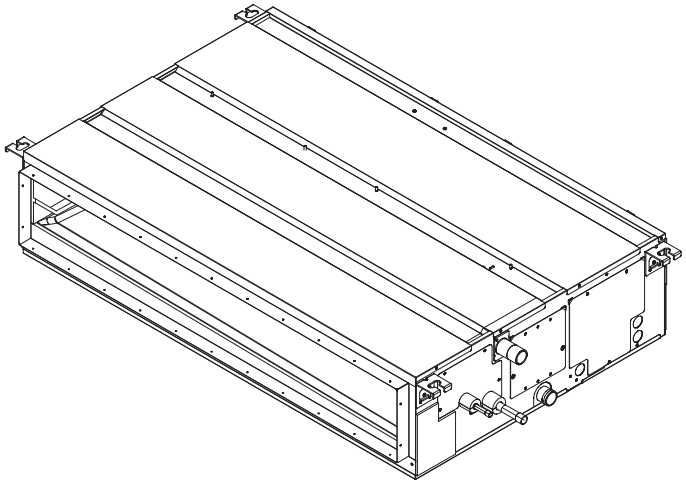
**2026**

**R32/R410A**

# TECHNICAL & SERVICE MANUAL

Models

**PEFY-MS20VMA(L)-A1**
**PEFY-MS25VMA(L)-A1**
**PEFY-MS32VMA(L)-A1**
**PEFY-MS40VMA(L)-A1**
**PEFY-MS50VMA(L)-A1**
**PEFY-MS63VMA(L)-A1**
**PEFY-MS71VMA(L)-A1**
**PEFY-MS80VMA(L)-A1**
**PEFY-MS100VMA(L)-A1**
**PEFY-MS125VMA(L)-A1**
**PEFY-MS140VMA(L)-A1**



CITY MULTI

# Safety Precautions

## Read before installation and performing electrical work

- Thoroughly read the following safety precautions prior to installation.
- Observe these safety precautions for your safety.
- This equipment may have adverse effects on the equipment on the same power supply system.
- Contact the local power authority before connecting to the system.

### MEANINGS OF SYMBOLS DISPLAYED ON THE UNIT

| | | |
|---|---|---|
|  | **WARNING** (Risk of fire) | This symbol is only for R32 refrigerant. The type of the refrigerant used is written on the nameplate on the outdoor unit. R32 refrigerant is flammable. If the refrigerant leaks, or comes in contact with fire or parts that generate heat, it may create harmful gas and pose a risk of fire. |
|  | Read the OPERATION MANUAL carefully before operation. | |
|  | Service personnel are required to carefully read the OPERATION MANUAL and INSTALLATION MANUAL before operation. | |
|  | Further information is available in the OPERATION MANUAL, INSTALLATION MANUAL, and the like. | |

### 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.
- **For indoor units not accessible to the general public, install them more than 2.5 m above the floor or ground level.**
- **This unit should be installed in rooms which exceed the floor space specified in outdoor unit installation manual. Refer to outdoor unit installation manual.**
- **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.
- **This unit is equipped with a leak detection system for safety. To enable the leak detection, the unit must be turned on all the time after installation, except during servicing. Aerosol spray may lead to a false detection of the refrigerant sensor.**
- **When using aerosol sprays for interior construction, finishing work, or sealing piping penetrations, turn off the breaker and ensure proper ventilation.**
- **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.
- **Maintenance, service and repair operations shall be performed by authorized technician with required qualification.**
- **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.**

## Precautions for devices that use R32/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 R32/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 R32/R410A, the refrigerant may deteriorated.
- If water is mixed in the R32/R410A, the refrigerator oil may deteriorate.
- Since R32/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.

## Cautions for unit using R32 refrigerant

**Basic work procedures are the same as those for conventional units using refrigerant R410A. However, pay careful attention to the following points.**

(1) Information on servicing

(1-1) Checks on the Area
Prior to beginning work on systems containing flammable refrigerants, safety checks are necessary to ensure that the risk of ignition is minimized.
For repair to the refrigerating systems, (1-3) to (1-7) shall be completed prior to conducting work on the systems.

(1-2) Work Procedure
Work shall be undertaken under a controlled procedure so as to minimize the risk of a flammable gas or vapor being present while the work is being performed.

(1-3) General Work Area
All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out.
Work in confined spaces shall be avoided. The area around the workspace shall be sectioned off. Ensure that the conditions within the area have been made safe by control of flammable material.

(1-4) Checking for Presence of Refrigerant
The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e. non-sparking, adequately sealed or intrinsically safe.

(1-5) Presence of Fire Extinguisher
If any hot work is to be conducted on the refrigeration equipment or any associated parts, appropriate fire extinguishing equipment shall be available to hand.
Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

(1-6) No Ignition Sources
No person carrying out work in relation to a refrigeration system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. "No Smoking" signs shall be displayed.

(1-7) Ventilated Area
Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the atmosphere.

(1-8) Checks on the Refrigeration Equipment
Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance.
The following checks shall be applied to installations using flammable refrigerants:
- The charge size is in accordance with the room size within which the refrigerant containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.
- Marking to the equipment continues to be visible and legible. Markings and signs that are illegible shall be corrected.
- Refrigeration pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being corroded.

(1-9) Checks on Electrical Devices
Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures.
If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.
Initial safety checks shall include that:
- capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- no live electrical components and wiring are exposed while charging, recovering or purging the system;
- there is continuity of earth bonding

(2) Sealed electrical components
Sealed electrical components shall not be repaired.

(3) Repair to intrinsically Safe Components
Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.
Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating.
Replace components only with parts specified by the manufacturer. Other parts may result in the ignition of refrigerant in the atmosphere from a leak.

(4) Cabling
Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

(5) Detection of Flammable Refrigerants
Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks.
A halide torch (or any other detector using a naked flame) shall not be used.

(6) Leak Detection Methods

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.)

Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.

Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. For appliances containing flammable refrigerants, oxygen free nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

(7) Refrigerant removal and circuit evacuation

When breaking into the refrigerant circuit to make repairs – or for any other purpose conventional procedures shall be used. However, for flammable refrigerants it is important that best practice is followed since flammability is a consideration. The following procedure shall be adhered to:

- safely remove refrigerant following local and national regulations
- evacuate
- purge the circuit with inert gas
- evacuate
- continuously flush with inert gas when using flame to open circuit
- open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders.

For appliances containing flammable refrigerants, the system shall be "flushed" with OFN to render the unit safe. This process may need to be repeated several times.

Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipe-work are to take place.

Ensure that the outlet for the vacuum pump is not close to any ignition sources and that ventilation is available.

(8) Charging Procedures

In addition to conventional charging procedures, the following requirements shall be followed:

- Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept upright.
- Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the refrigeration system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

(9) Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

a) Become familiar with the equipment and its operation.
b) Isolate system electrically.
c) Before attempting the procedure, ensure that:
   - mechanical handling equipment is available, if required, for handling refrigerant cylinders;
   - all personal protective equipment is available and being used correctly;
   - the recovery process is supervised at all times by a competent person;
   - recovery equipment and cylinders conform to the appropriate standards.
d) Pump down refrigerant system, if possible.
e) If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
f) Make sure that cylinder is situated on the scales before recovery takes place.
g) Start the recovery machine and operate in accordance with manufacturer's instructions.
h) Do not overfill cylinders. (No more than 80 % volume liquid charge).
i) Do not exceed the maximum working pressure of the cylinder, even temporarily.
j) When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
k) Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

(10) Labelling

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing flammable refrigerants, ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

(11) Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. Draining of oil from a system shall be carried out safely.

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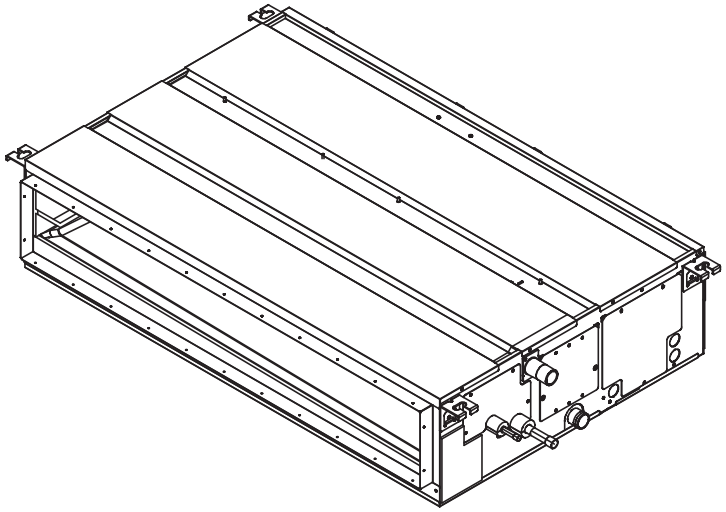
## [1] Features

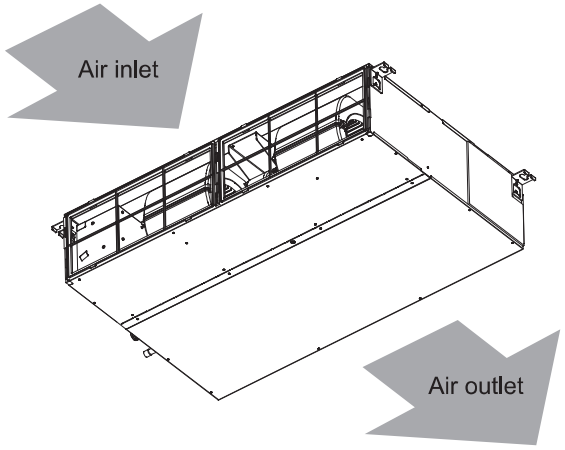


| Model | Cooling capacity/Heating capacity |
|---|---|
| | kW |
| PEFY-MS20VMA(L)-A1 | 2.2/2.5 |
| PEFY-MS25VMA(L)-A1 | 2.8/3.2 |
| PEFY-MS32VMA(L)-A1 | 3.6/4.0 |
| PEFY-MS40VMA(L)-A1 | 4.5/5.0 |
| PEFY-MS50VMA(L)-A1 | 5.6/6.3 |
| PEFY-MS63VMA(L)-A1 | 7.1/8.0 |
| PEFY-MS71VMA(L)-A1 | 8.0/9.0 |
| PEFY-MS80VMA(L)-A1 | 9.0/10.0 |
| PEFY-MS100VMA(L)-A1 | 11.2/12.5 |
| PEFY-MS125VMA(L)-A1 | 14.0/16.0 |
| PEFY-MS140VMA(L)-A1 | 16.0/18.0 |

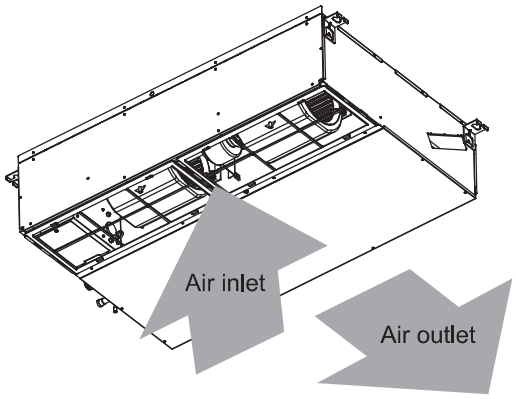
## [1] Components and Functions

1. Indoor (Main) Unit

(1) In case of rear inlet

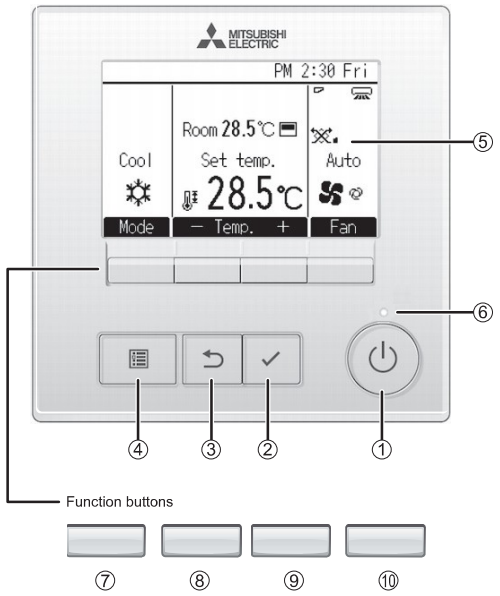



(2) In case of bottom inlet



2. Remote Controller <PAR-42MAAB>
Once the operation mode is selected, the unit will remain in the selected mode until changed.

(1) Remote Controller Buttons




**① [ON/OFF] button**

Press to turn ON/OFF the indoor unit.

**② [SELECT] button**

Press to save the setting.

**③ [RETURN] button**

Press to return to the previous screen.

**④ [MENU] button**

Press to bring up the Main menu.

**⑤ Backlit LCD**

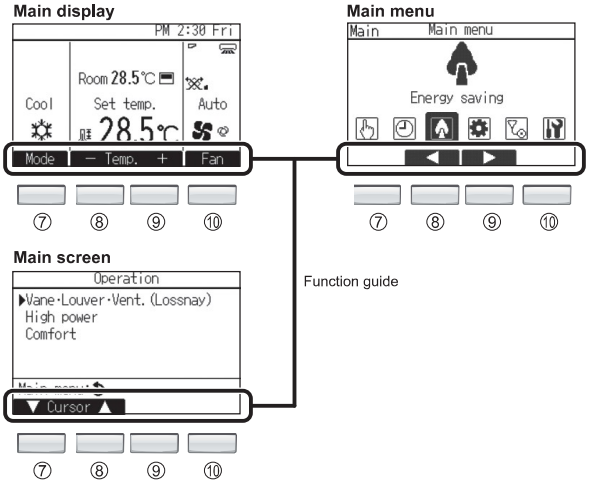
Operation settings will appear.
When the backlight is off, pressing any button turns the backlight on and it will stay lit for a certain period of time depending on the screen.

When the backlight is off, pressing any button turns the backlight on and does not perform its function. (except for the [ON/OFF] button)

**⑥ ON/OFF lamp**

This lamp lights up in green while the unit is in operation. It blinks while the remote controller is starting up or when there is an error.

**The functions of the function buttons change depending on the screen. Refer to the button function guide that appears at the bottom of the LCD for the functions they serve on a given screen.**
**When the system is centrally controlled, the button function guide that corresponds to the locked button will not appear.**




**⑦ Function button [F1]**

Main display: Press to change the operation mode.
Menu screen: The button function varies with the screen.

**⑧ Function button [F2]**

Main display: Press to decrease temperature.
Main menu: Press to move the cursor left.
Menu screen: The button function varies with the screen.

**⑨ Function button [F3]**

Main display: Press to increase temperature.
Main menu: Press to move the cursor right.
Menu screen: The button function varies with the screen.

**⑩ Function button [F4]**

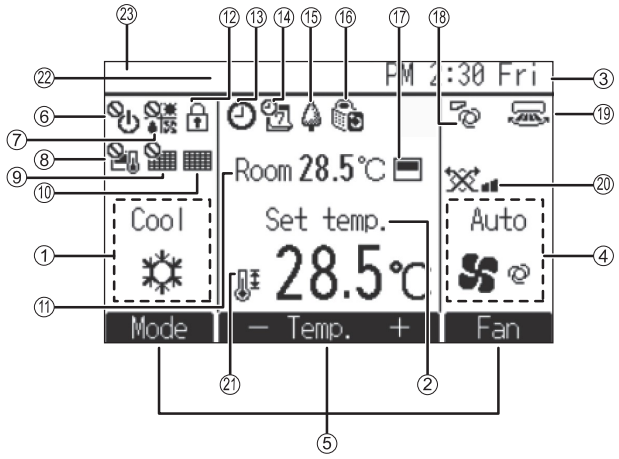
Main display: Press to change the fan speed.
Menu screen: The button function varies with the screen.

## (2) Remote Controller Display

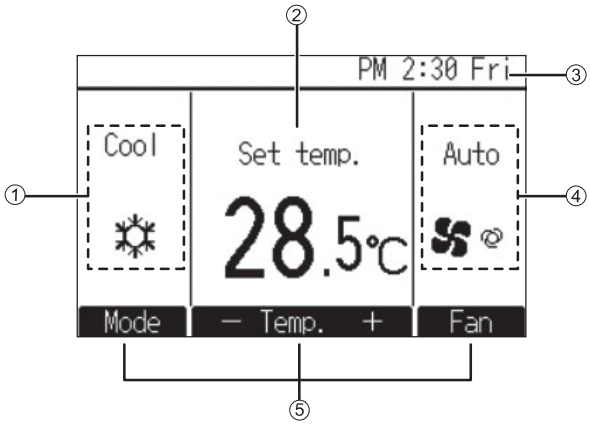
The main display can be displayed in two different modes: “Full” and “Basic.” The factory setting is “Full.” To switch to the “Basic” mode, change the setting on the Main display setting.

### Full mode

* All icons are displayed for explanation.




### Basic mode




**① Operation mode**

Indoor unit operation mode appears here.

**② Set temperature**

Set temperature appears here.

**③ Clock**

Current time appears here.

**④ Fan speed**

Fan speed setting appears here.

**⑤ Button function guide**

Functions of the corresponding buttons appear here.

⑥

Appears when the ON/OFF operation is centrally controlled.

⑦

Appears when the operation mode is centrally controlled.

⑧

Appears when the set temperature is centrally controlled.

⑨

Appears when the filter reset function is centrally controlled.

⑩

Indicates when filter needs maintenance.

**⑪ Room temperature**

Current room temperature appears here.

⑫

Appears when the buttons are locked.

⑬

Appears when the On/Off timer, Night setback, or Auto-off timer function is enabled.

appears when the timer is disabled by the centralized control system.

⑭

Appears when the Weekly timer is enabled.

⑮

Appears while the units are operated in the energy-save mode. (Will not appear on some models of indoor units)

⑯

Appears while the outdoor units are operated in the silent mode.

⑰

Appears when the built-in thermistor on the remote controller is activated to monitor the room temperature (⑪).

appears when the thermistor on the indoor unit is activated to monitor the room temperature.

⑱

Indicates the vane setting.

⑲

Indicates the louver setting.

⑳

Indicates the ventilation setting.

㉑

Appears when the set temperature range is restricted.

**㉒ Centrally controlled**

Appears for a certain period of time when a centrally-controlled item is operated.

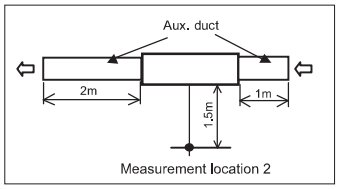
**㉓ Preliminary error display**

An error code appears during the preliminary error.

Most settings (except ON/OFF, mode, fan speed, temperature) can be made from the Main menu.

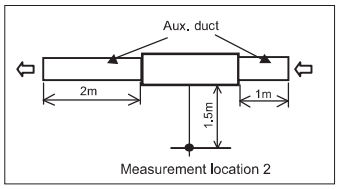
## [1] Specifications

### 1. Specifications

| Model | | | | PEFY-MS20VMA(L)-A1 | PEFY-MS25VMA(L)-A1 | PEFY-MS32VMA(L)-A1 | PEFY-MS40VMA(L)-A1 |
|---|---|---|---|---|---|---|---|
| Power supply | Voltage | | V | 1-phase 220-230-240 | | | |
| | Frequency | | Hz | 50 | | | |
| Cooling capacity *1 | | | kW | 2.2 | 2.8 | 3.6 | 4.5 |
| Heating capacity *1 | | | kW | 2.5 | 3.2 | 4.0 | 5.0 |
| Power consumption *2 | Cooling | | kW | 0.039(0.037) | | 0.060(0.058) | 0.087(0.085) |
| | Heating | | kW | 0.037 | | 0.058 | 0.085 |
| Current consumption | Cooling | | A | 0.34 | | 0.50 | 0.70 |
| | Heating | | A | 0.34 | | 0.50 | 0.70 |
| External finish | | | | Galvanized | | | |
| Dimensions | Height | | mm | 250 | | | |
| | Width | | mm | 700 | | | 900 |
| | Depth | | mm | 732 | | | |
| Net weight *2 | | | kg | 21.0(20.0) | | 21.0(20.5) | 25.0(24.5) |
| Heat exchanger | | | | Cross fin (Aluminium fin and copper tube) | | | |
| Fan | Type | | | Sirocco fan x 1 | | | Sirocco fan x 2 |
| | Airflow rate | | | (Low-Mid2-Mid1-High) | | | |
| | | Cooling | $m^3$/min | 6.0-7.0-8.5-10.0 | | 7.4-9.0-10.5-12.5 | 10.0-11.5-13.5-19.0 |
| | | Heating | $m^3$/min | 6.0-7.0-8.5-10.0 | | 7.4-9.0-10.5-12.5 | 10.0-11.5-13.5-19.0 |
| | External static pressure | | Pa | 35/50/70/100/150 | | | |
| Motor | Output | | kW | 0.085 | | | 0.121 |
| Air filter | | | | PP Honeycomb fabric (washable) | | | |
| Refrigerant pipe dimensions | Gas (Brazed connection) | | mm[in.] | ø12.7[ø1/2] | | | |
| | Liquid (Brazed connection) | | mm[in.] | ø6.35[ø1/4] | | | |
| Drain pipe dimensions | | | mm[in.] | O.D. 32[1-1/4] | | | |
| Operating noise (Low-Mid2-Mid1-High)   * Measured in anechoic room. | 35Pa | Cooling | dB (A) | 21.5-23.0-26.5-30.0 | | 24.0-28.0-31.5-35.5 | 23.5-25.5-28.5-37.0 |
| | | Heating | | 21.5-23.0-26.5-30.0 | | 24.0-28.0-31.5-35.5 | 23.5-25.5-28.5-37.0 |
| | 50Pa | Cooling | | 21.5-24.5-27.5-30.5 | | 26.5-29.0-32.5-36.5 | 23.0-26.0-29.0-37.5 |
| | | Heating | | 21.5-24.5-27.5-30.5 | | 26.5-29.0-32.5-36.5 | 23.0-26.0-29.0-37.5 |
| | 70Pa | Cooling | | 23.5-25.5-29.0-31.0 | | 25.5-30.0-33.5-37.5 | 24.0-27.0-32.0-39.0 |
| | | Heating | | 23.5-25.5-29.0-31.0 | | 25.5-30.0-33.5-37.5 | 24.0-27.0-32.0-39.0 |
| | 100Pa | Cooling | | 23.0-26.0-30.0-34.0 | | 27.0-31.5-34.5-38.5 | 26.0-30.5-33.5-39.5 |
| | | Heating | | 23.0-26.0-30.0-34.0 | | 27.0-31.5-34.5-38.5 | 26.0-30.5-33.5-39.5 |
| | 150Pa | Cooling | | 28.5-32.5-35.5-38.5 | | 32.0-34.5-37.0-39.0 | 33.0-36.5-38.5-41.0 |
| | | Heating | | 28.5-32.5-35.5-38.5 | | 32.0-34.5-37.0-39.0 | 33.0-36.5-38.5-41.0 |

*1 <Cooling> Indoor temperature: 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor temperature: 35°CDB (95°FDB)
<Heating> Indoor temperature: 20°CDB (68°FWB) Outdoor temperature: 7°CDB/6°CWB (45°FDB/43°FWB)
*2 Figures in the parentheses indicate drainpump-less Model (L).

| Model | | | | PEFY-MS50VMA(L)-A1 | PEFY-MS63VMA(L)-A1 | PEFY-MS71VMA(L)-A1 | PEFY-MS80VMA(L)-A1 |
|---|---|---|---|---|---|---|---|
| Power supply | Voltage | | V | 1-phase 220-230-240 | | | |
| | Frequency | | Hz | 50 | | | |
| Cooling capacity *1 | | | kW | 5.6 | 7.1 | 8.0 | 9.0 |
| Heating capacity *1 | | | kW | 6.3 | 8.0 | 9.0 | 10.0 |
| Power consumption *2 | Cooling | | kW | 0.131(0.129) | 0.139(0.137) | 0.165(0.163) | |
| | Heating | | kW | 0.129 | 0.231 | 0.216 | |
| Current consumption | Cooling | | A | 0.94 | 0.99 | 1.16 | |
| | Heating | | A | 0.94 | 1.55 | 1.47 | |
| External finish | | | | Galvanized | | | |
| Dimensions | Height | | mm | 250 | | | |
| | Width | | mm | 1100 | | 1400 | |
| | Depth | | mm | 732 | | | |
| Net weight *2 | | | kg | 30.0(29.0) | | 37(36) | |
| Heat exchanger | | | | Cross fin (Aluminium fin and copper tube) | | | |
| Fan | Type | | | Sirocco fan x 2 | | Sirocco fan x 3 | |
| | Airflow rate | | | (Low-Mid2-Mid1-High) | | | |
| | | Cooling | $m^3$/min | 12.0-14.5-16.5-25.6 | 13.5-16.0-19.2-26.2 | 14.5-18.0-21.0-33.1 | |
| | | Heating | $m^3$/min | 12.0-14.5-16.5-25.6 | 13.5-16.0-19.2-31.0 | 14.5-18.0-21.0-36.6 | |
| | External static pressure | | Pa | 35/50/70/100/150 | | 40/50/70/100/150 | |
| Motor | Output | | kW | 0.121 | | 0.300 | |
| Air filter | | | | PP Honeycomb fabric (washable) | | | |
| Refrigerant pipe dimensions | Gas (Brazed connection) | | mm[in.] | ø12.7[ø1/2] | ø15.88[ø5/8] | | |
| | Liquid (Brazed connection) | | mm[in.] | ø6.35[ø1/4] | ø6.35[ø1/4]*3 or ø9.52[ø3/8] | | |
| Drain pipe dimensions | | | mm[in.] | O.D. 32[1-1/4] | | | |
| Operating noise (Low-Mid2-Mid1-High) | 35Pa | Cooling | dB (A) | 22.0-24.0-26.5-37.0 | 23.0-26.0-30.0-37.5 | 22.0-25.0-27.5-38.5 | |
| | | Heating | | 22.0-24.0-26.5-37.0 | 23.0-26.0-30.0-41.5 | 22.0-25.0-27.5-40.5 | |
| | 50Pa | Cooling | | 22.5-24.5-27.5-37.5 | 23.0-26.5-31.0-38.0 | 21.5-25.0-28.5-39.0 | |
| | | Heating | | 22.5-24.5-27.5-37.5 | 23.0-26.5-31.0-41.0 | 21.5-25.0-28.5-41.5 | |
| | 70Pa | Cooling | | 22.5-25.5-28.0-38.5 | 24.0-28.5-31.5-39.0 | 22.5-26.0-29.5-40.5 | |
| | | Heating | | 22.5-25.5-28.0-38.5 | 24.0-28.5-31.5-40.5 | 22.5-26.0-29.5-42.5 | |
| | 100Pa | Cooling | | 22.5-26.5-29.5-40.0 | 24.5-28.5-32.5-40.0 | 23.0-27.5-31.0-42.5 | |
| | | Heating | | 22.5-26.5-29.5-40.0 | 24.5-28.5-32.5-41.0 | 23.0-27.5-31.0-43.0 | |
| | 150Pa | Cooling | | 31.5-34.5-37.5-40.5 | 31.5-35.0-38.0-41.0 | 33.0-36.5-40.0-42.0 | |
| | | Heating | | 31.5-34.5-37.5-40.5 | 31.5-35.0-38.0-41.0 | 33.0-36.5-40.0-42.0 | |



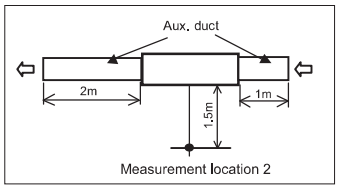

* Measured in anechoic room.

*1 <Cooling> Indoor temperature: 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor temperature: 35°CDB (95°FDB)
<Heating> Indoor temperature: 20°CDB (68°FWB) Outdoor temperature: 7°CDB/6°CWB (45°FDB/43°FWB)

*2 Figures in the parentheses indicate drainpump-less Model (L).

*3 It is possible to reduce the pipe size to ø6.35 using a "Reducer" included in the accessory bag.
The pipe size required depends on the connected outdoor unit, so check the Outdoor Unit Installation Manual to confirm whether the Reducer can be used.

| Model | | | | PEFY-MS100VMA(L)-A1 | PEFY-MS125VMA(L)-A1 | PEFY-MS140VMA(L)-A1 |
|---|---|---|---|---|---|---|
| Power supply | Voltage | | V | 1-phase 220-230-240 | | |
| | Frequency | | Hz | 50 | | |
| Cooling capacity *1 | | | kW | 11.2 | 14.0 | 16.0 |
| Heating capacity *1 | | | kW | 12.5 | 16.0 | 18.0 |
| Power consumption *2 | Cooling | | kW | 0.211(0.209) | 0.218(0.216) | 0.282(0.280) |
| | Heating | | kW | 0.209 | 0.216 | 0.280 |
| Current consumption | Cooling | | A | 1.44 | 1.40 | 1.84 |
| | Heating | | A | 1.44 | 1.40 | 1.84 |
| External finish | | | | Galvanized | | |
| Dimensions | Height | | mm | 250 | | |
| | Width | | mm | 1400 | | 1600 |
| | Depth | | mm | 732 | | |
| Net weight *2 | | | kg | 37(36) | 38(37) | 42(41) |
| Heat exchanger | | | | Cross fin (Aluminium fin and copper tube) | | |
| Fan | Type | | | Sirocco fan x 3 | | |
| | Airflow rate | | | (Low-Mid2-Mid1-High) | | |
| | | Cooling | $m^3$/min | 23.0-28.0-32.0-37.0 | 25.5-31.0-34.0-37.0 | 29.5-35.5-40.0-44.0 |
| | | Heating | $m^3$/min | 23.0-28.0-32.0-37.0 | 25.5-31.0-34.0-37.0 | 29.5-35.5-40.0-44.0 |
| | External static pressure | | Pa | 40/50/70/100/150 | | |
| Motor | Output | | kW | 0.300 | | |
| Air filter | | | | PP Honeycomb fabric (washable) | | |
| Refrigerant pipe dimensions | Gas (Brazed connection) | | mm[in.] | ø15.88[ø5/8] | | |
| | Liquid (Brazed connection) | | mm[in.] | ø9.52[ø3/8] | | |
| Drain pipe dimensions | | | mm[in.] | O.D. 32[1-1/4] | | |
| Operating noise (Low-Mid2-Mid1-High) | 35Pa | Cooling | dB (A) | 29.5-34.0-37.5-40.0 | 31.0-36.0-38.5-40.5 | 33.5-37.5-40.5-42.5 |
| | | Heating | | 29.5-34.0-37.5-40.0 | 31.0-36.0-38.5-40.5 | 33.5-37.5-40.5-42.5 |
| | 50Pa | Cooling | | 29.5-34.5-37.5-41.0 | 31.5-36.5-38.5-40.5 | 34.0-38.0-40.5-43.0 |
| | | Heating | | 29.5-34.5-37.5-41.0 | 31.5-36.5-38.5-40.5 | 34.0-38.0-40.5-43.0 |
| | 70Pa | Cooling | | 31.0-35.5-38.5-42.0 | 34.0-37.5-39.5-42.0 | 34.5-39.0-41.0-43.5 |
| | | Heating | | 31.0-35.5-38.5-42.0 | 34.0-37.5-39.5-42.0 | 34.5-39.0-41.0-43.5 |
| | 100Pa | Cooling | | 32.5-37.0-40.0-43.0 | 34.5-39.0-41.5-43.0 | 35.5-39.5-42.5-45.0 |
| | | Heating | | 32.5-37.0-40.0-43.0 | 34.5-39.0-41.5-43.0 | 35.5-39.5-42.5-45.0 |
| | 150Pa | Cooling | | 36.5-39.5-43.0-45.5 | 37.0-40.5-44.0-46.5 | 39.5-42.0-45.0-47.0 |
| | | Heating | | 36.5-39.5-43.0-45.5 | 37.0-40.5-44.0-46.5 | 39.5-42.0-45.0-47.0 |




* Measured in anechoic room.

*1 <Cooling> Indoor temperature: 27°CDB/19°CWB (81°FDB/66°FWB) Outdoor temperature: 35°CDB (95°FDB)
<Heating> Indoor temperature: 20°CDB (68°FWB) Outdoor temperature: 7°CDB/6°CWB (45°FDB/43°FWB)

*2 Figures in the parentheses indicate drainpump-less Model (L).

## 2. Electrical component specifications

| Component | Sym-bol | PEFY-MS20VMA(L)-A1 | PEFY-MS25VMA(L)-A1 | PEFY-MS32VMA(L)-A1 |
|---|---|---|---|---|
| Room temperature thermistor | TH21 | Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ | | |
| Liquid pipe thermistor | TH22 | Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ | | |
| Gas pipe thermistor | TH23 | Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ | | |
| Fuse | F1 | AC250V 6.3A | | |
| | F2 | DC400V 3A | | |
| Fan motor | | 8-pole, Output 85W ZWB278D51A | | |
| Linear expansion valve | LEV | 12VDC Stepping motor (0~2000 pulse) | | |
| Power supply terminal block | TB2 | (L, N, ⏚ ) 250V 20A | | |
| Transmission terminal block | TB5 TB15 | (1, 2) 250V 15A, (M1, M2, S) 250V 20A | | |
| Drain pump | | PMD-12D13ME<br>INPUT 3W(DC 13V)24L/Hr | | |
| Drain float switch | FS | Open/short detection<br>Initial contact resistance 500 mΩ or less | | |
| R32 sensor | CNSA | DC5V | | |

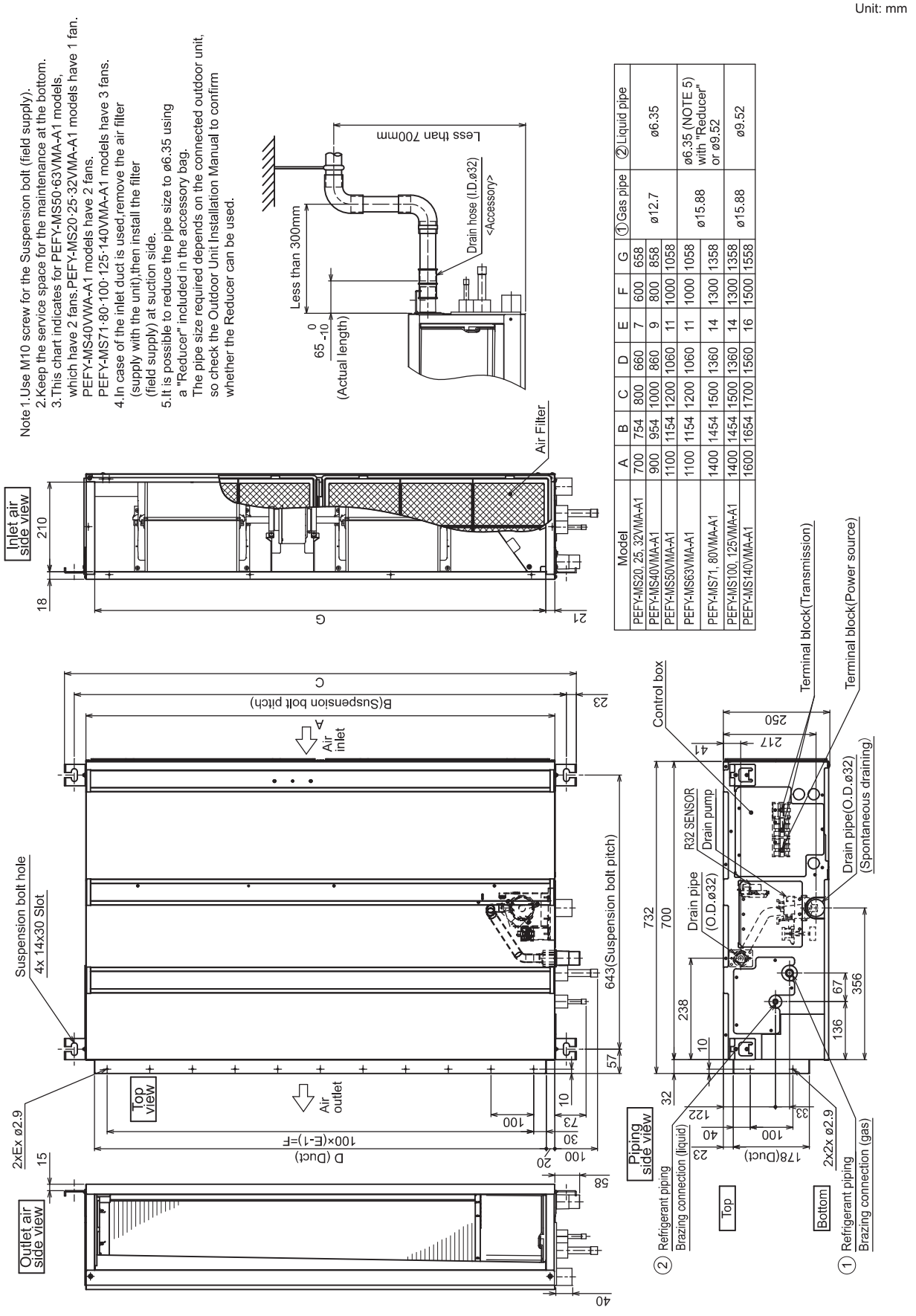
| Component | Sym-bol | PEFY-MS40VMA(L)-A1 | PEFY-MS50VMA(L)-A1 | PEFY-MS63VMA(L)-A1 | PEFY-MS71VMA(L)-A1 | PEFY-MS80VMA(L)-A1 |
|---|---|---|---|---|---|---|
| Room temperature thermistor | TH21 | Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ | | | | |
| Liquid pipe thermistor | TH22 | Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ | | | | |
| Gas pipe thermistor | TH23 | Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ | | | | |
| Fuse | F1 | AC250V 6.3A | | | | |
| | F2 | DC400V 3A | | | | |
| Fan motor | | 8-pole, Output 121W ZWB278D54A | | | 10-pole, Output 300W ZWB3710D01A | |
| Linear expansion valve | LEV | 12VDC Stepping motor (0~2000 pulse) | | | | |
| Power supply terminal block | TB2 | (L, N, ⏚ ) 250V 20A | | | | |
| Transmission terminal block | TB5 TB15 | (1, 2) 250V 15A, (M1, M2, S) 250V 20A | | | | |
| Drain pump | | PMD-12D13ME<br>INPUT 3W(DC 13V)24L/Hr | | | | |
| Drain float switch | FS | Open/short detection<br>Initial contact resistance 500 mΩ or less | | | | |
| R32 sensor | CNSA | DC5V | | | | |

| Component | Sym-bol | PEFY-MS100VMA(L)-A1 | PEFY-MS125VMA(L)-A1 | PEFY-MS140VMA(L)-A1 |
|---|---|---|---|---|
| Room temperature thermistor | TH21 | Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ | | |
| Liquid pipe thermistor | TH22 | Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ | | |
| Gas pipe thermistor | TH23 | Resistance 0°C/15kΩ, 10°C/9.6kΩ, 20°C/6.3kΩ, 25°C/5.4kΩ, 30°C/4.3kΩ, 40°C/3.0kΩ | | |
| Fuse | F1 | AC250V 6.3A | | |
| | F2 | DC400V 3A | | |
| Fan motor | | 10-pole, Output 300W ZWB3710D01A | | |
| Linear expansion valve | LEV | 12VDC Stepping motor (0~2000 pulse) | | |
| Power supply terminal block | TB2 | (L, N, ⏚ ) 250V 20A | | |
| Transmission terminal block | TB5 TB15 | (1, 2) 250V 15A, (M1, M2, S) 250V 20A | | |
| Drain pump | | PMD-12D13ME<br>INPUT 3W(DC 13V)24L/Hr | | |
| Drain float switch | FS | Open/short detection<br>Initial contact resistance 500 mΩ or less | | |
| R32 sensor | CNSA | DC5V | | |

## [1] Outlines and Dimensions

1. PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-A1

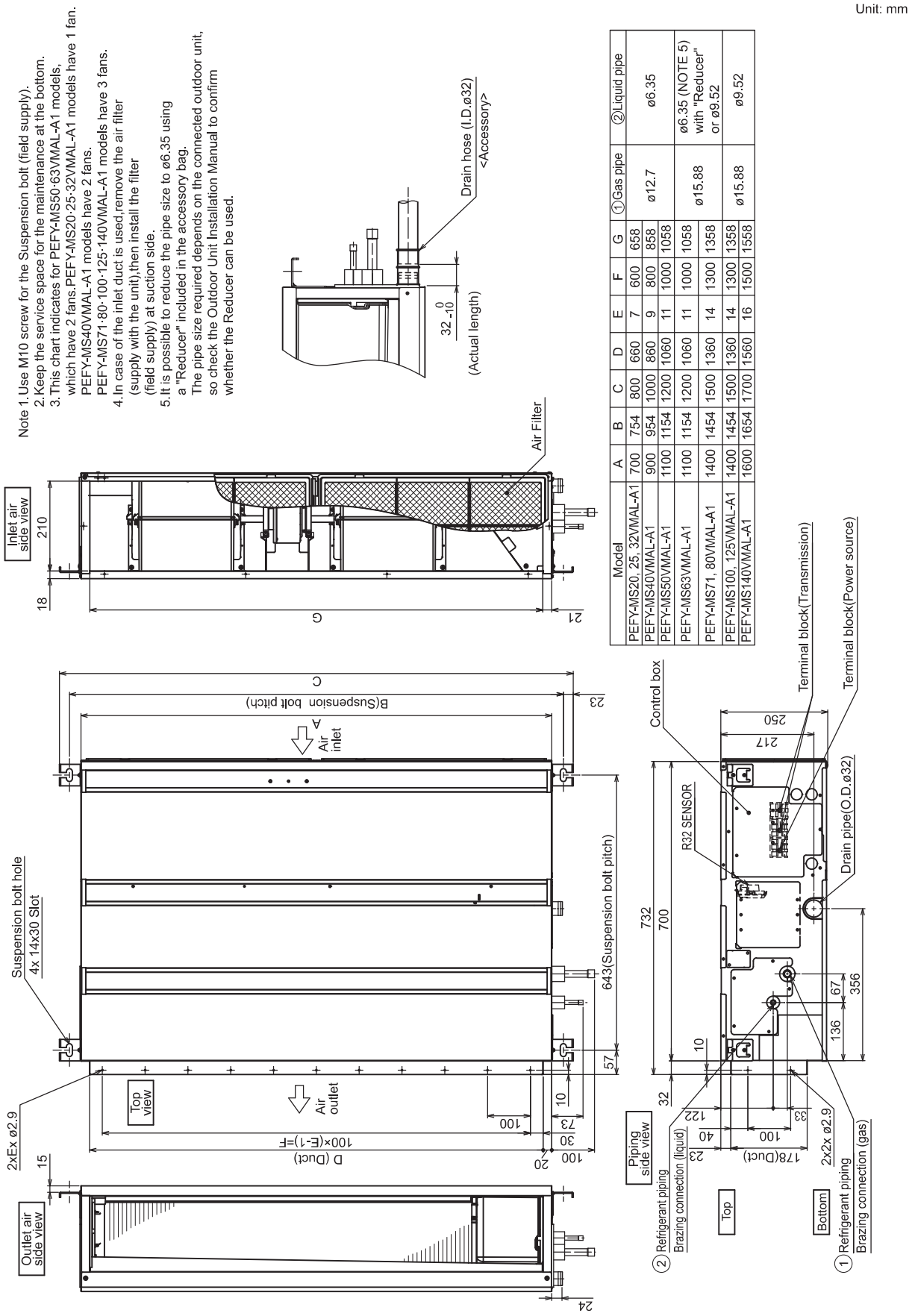
Unit: mm




| Model | A | B | C | D | E | F | G | ①Gas pipe | ②Liquid pipe |
|---|---|---|---|---|---|---|---|---|---|
| PEFY-MS20, 25, 32VMA-A1 | 700 | 754 | 800 | 660 | 7 | 600 | 658 | ø12.7 | ø6.35 |
| PEFY-MS40VMA-A1 | 900 | 954 | 1000 | 860 | 9 | 800 | 858 | | |
| PEFY-MS50VMA-A1 | 1100 | 1154 | 1200 | 1060 | 11 | 1000 | 1058 | ø15.88 | ø6.35 (NOTE 5) with "Reducer" or ø9.52 |
| PEFY-MS63VMA-A1 | 1100 | 1154 | 1200 | 1060 | 11 | 1000 | 1058 | | |
| PEFY-MS71, 80VMA-A1 | 1400 | 1454 | 1500 | 1360 | 14 | 1300 | 1358 | | |
| PEFY-MS100, 125VMA-A1 | 1400 | 1454 | 1500 | 1360 | 14 | 1300 | 1358 | ø15.88 | ø9.52 |
| PEFY-MS140VMA-A1 | 1600 | 1654 | 1700 | 1560 | 16 | 1500 | 1558 | | |

## 2. PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-A1

Unit: mm




| Model | A | B | C | D | E | F | G | ①Gas pipe | ②Liquid pipe |
|---|---|---|---|---|---|---|---|---|---|
| PEFY-MS20, 25, 32VMAL-A1 | 700 | 754 | 800 | 660 | 7 | 600 | 658 | ø12.7 | ø6.35 |
| PEFY-MS40VMAL-A1 | 900 | 954 | 1000 | 860 | 9 | 800 | 858 | | |
| PEFY-MS50VMAL-A1 | 1100 | 1154 | 1200 | 1060 | 11 | 1000 | 1058 | | |
| PEFY-MS63VMAL-A1 | 1100 | 1154 | 1200 | 1060 | 11 | 1000 | 1058 | ø15.88 | ø6.35 (NOTE 5) with "Reducer" or ø9.52 |
| PEFY-MS71, 80VMAL-A1 | 1400 | 1454 | 1500 | 1360 | 14 | 1300 | 1358 | | |
| PEFY-MS100, 125VMAL-A1 | 1400 | 1454 | 1500 | 1360 | 14 | 1300 | 1358 | ø15.88 | ø9.52 |
| PEFY-MS140VMAL-A1 | 1600 | 1654 | 1700 | 1560 | 16 | 1500 | 1558 | | |

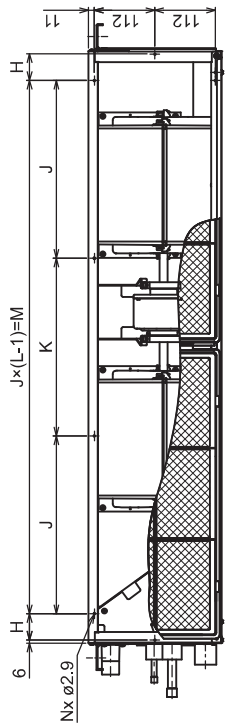
## [2] Service Space

1. PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA-A1

Unit: mm

[Maintenance access space]
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, drain pump, heat exchanger, and control box in one of the following ways.
Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.
(1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig.1)
· Create access door 1 and 2 (450×450mm each) as shown in Fig.2.
(Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)

(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
(At least 20mm of space should be left below the unit as shown in Fig.3.)
· Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig.4.
or
· Create access door 4 below the control box and the unit as shown in Fig.5.



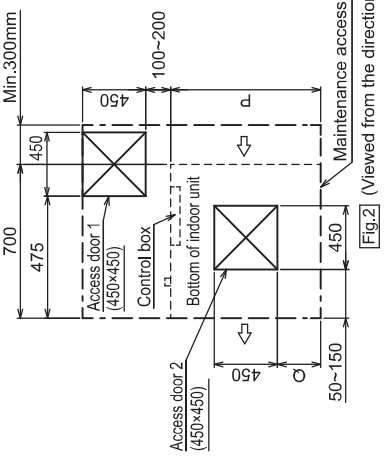




Fig.2 (Viewed from the direction of the arrow A)

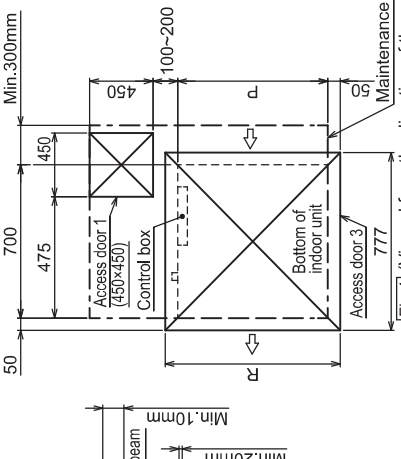



Fig.4 (Viewed from the direction of the arrow B)

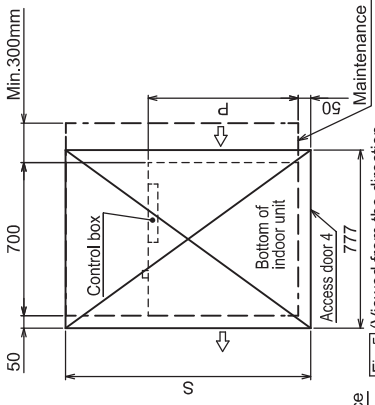



Fig.5 (Viewed from the direction of the arrow B)

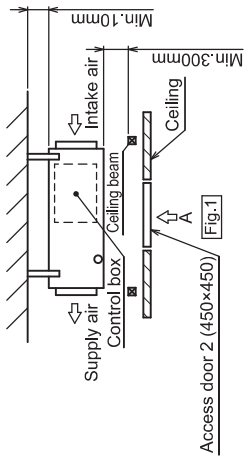



Fig.1

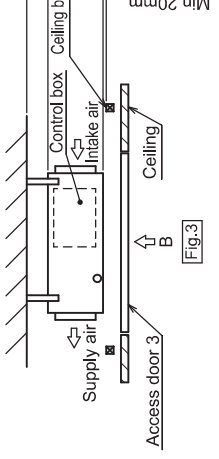
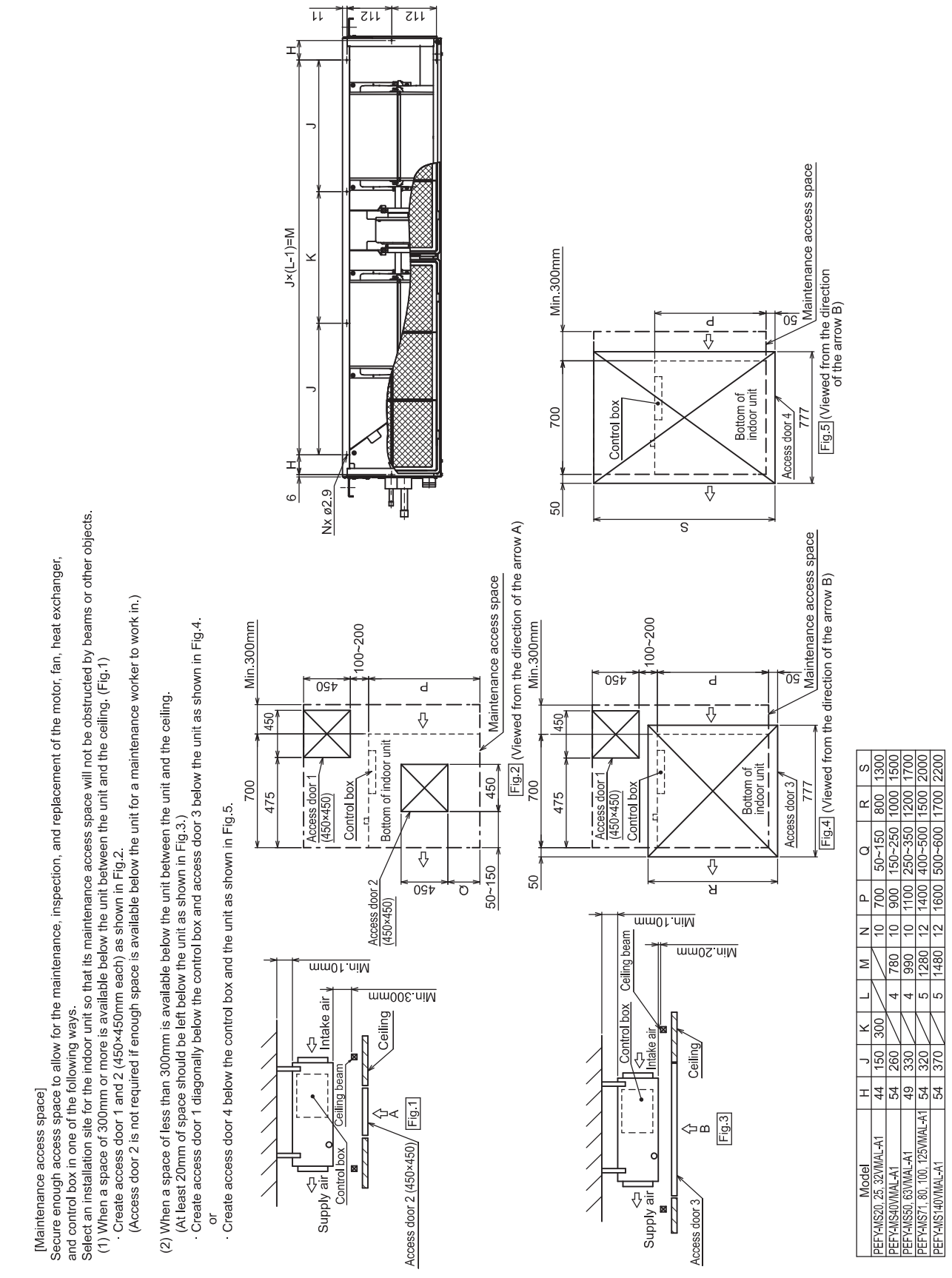



Fig.3

| Model | H | J | K | L | M | N | P | Q | R | S |
|---|---|---|---|---|---|---|---|---|---|---|
| PEFY-MS20, 25, 32VMA-A1 | 44 | 150 | 300 | | | 10 | 700 | 50~150 | 800 | 1300 |
| PEFY-MS40VMA-A1 | 54 | 260 | | 4 | 780 | 10 | 900 | 150~250 | 1000 | 1500 |
| PEFY-MS50, 63VMA-A1 | 49 | 330 | | 4 | 990 | 10 | 1100 | 250~350 | 1200 | 1700 |
| PEFY-MS71, 80, 100, 125VMA-A1 | 54 | 320 | | 5 | 1280 | 12 | 1400 | 400~500 | 1500 | 2000 |
| PEFY-MS140VMA-A1 | 54 | 370 | | 5 | 1480 | 12 | 1600 | 500~600 | 1700 | 2200 |

## 2. PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMAL-A1

Unit: mm




[Maintenance access space]
Secure enough access space to allow for the maintenance, inspection, and replacement of the motor, fan, heat exchanger, and control box in one of the following ways.
Select an installation site for the indoor unit so that its maintenance access space will not be obstructed by beams or other objects.

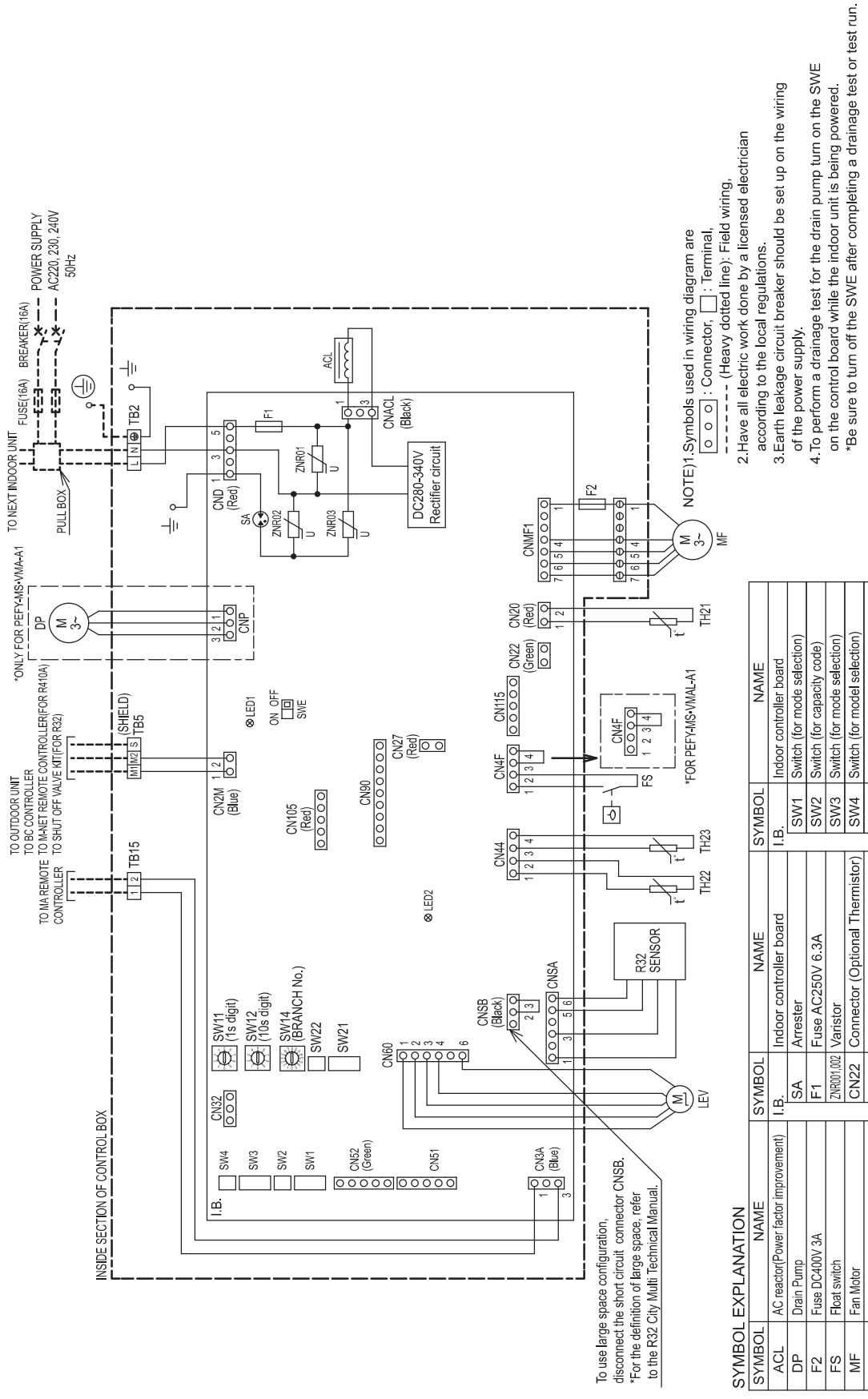
(1) When a space of 300mm or more is available below the unit between the unit and the ceiling. (Fig.1)
- Create access door 1 and 2 (450×450mm each) as shown in Fig.2.
  (Access door 2 is not required if enough space is available below the unit for a maintenance worker to work in.)

(2) When a space of less than 300mm is available below the unit between the unit and the ceiling.
(At least 20mm of space should be left below the unit as shown in Fig.3.)
- Create access door 1 diagonally below the control box and access door 3 below the unit as shown in Fig.4.
  or
- Create access door 4 below the control box and the unit as shown in Fig.5.

| Model | H | J | K | L | M | N | P | Q | R | S |
|---|---|---|---|---|---|---|---|---|---|---|
| PEFY-MS20, 25, 32VMAL-A1 | 44 | 150 | 300 | | | 10 | 700 | 50~150 | 800 | 1300 |
| PEFY-MS40VMAL-A1 | 54 | 260 | | 4 | 780 | 10 | 900 | 150~250 | 1000 | 1500 |
| PEFY-MS50, 63VMAL-A1 | 49 | 330 | | 4 | 990 | 10 | 1100 | 250~350 | 1200 | 1700 |
| PEFY-MS71, 80, 100, 125VMAL-A1 | 54 | 320 | | 5 | 1280 | 12 | 1400 | 400~500 | 1500 | 2000 |
| PEFY-MS140VMAL-A1 | 54 | 370 | | 5 | 1480 | 12 | 1600 | 500~600 | 1700 | 2200 |

## [1] Wiring Diagram

1. PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A1



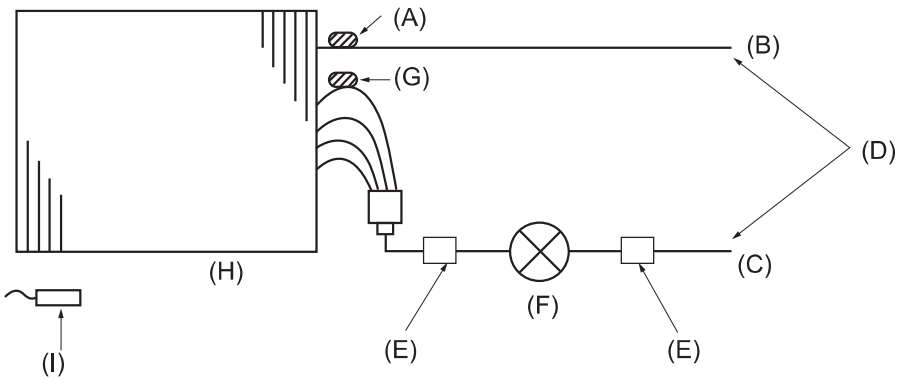

SYMBOL EXPLANATION

| SYMBOL | NAME |
|---|---|
| ACL | AC reactor(Power factor improvement) |
| DP | Drain Pump |
| F2 | Fuse DC400V 3A |
| FS | Float switch |
| MF | Fan Motor |
| LEV | Linear expansion valve |
| TB2 | Power source terminal block |
| TB5 | Transmission terminal block |
| TB15 | Transmission terminal block |
| TH21 | Thermistor (inlet air temp. detection) |
| TH22 | Thermistor (piping temp.detection/liquid) |
| TH23 | Thermistor (piping temp.detection/gas) |

| SYMBOL | NAME |
|---|---|
| I.B. | Indoor controller board |
| SA | Arrester |
| F1 | Fuse AC250V 6.3A |
| ZNR01,002 | Varistor |
| CN22 | Connector (Optional Thermistor) |
| CN27 | Connector (Damper) |
| CN32 | Connector (Remote switch) |
| CN51 | Connector (Centrally control) |
| CN52 | Connector (Remote indication) |
| CN90 | Connector (Wireless) |
| CN105 | Connector (IT terminal) |
| CN115 | Connector (IT terminal) |

| SYMBOL | NAME |
|---|---|
| I.B. | Indoor controller board |
| SW1 | Switch (for mode selection) |
| SW2 | Switch (for capacity code) |
| SW3 | Switch (for mode selection) |
| SW4 | Switch (for model selection) |
| SW11 | Switch (1s digit address set) |
| SW12 | Switch (10s digit address set) |
| SW14 | Switch (BRANCH No.) |
| SW21 | Switch (for static pressure selection) |
| SW22 | Switch (Wireless pair No.) |
| SWE | Connector (emergency operation) |
| LED1 | LED(Power supply) |
| LED2 | LED(Remote controller supply) |

## [1] Refrigerant system diagram



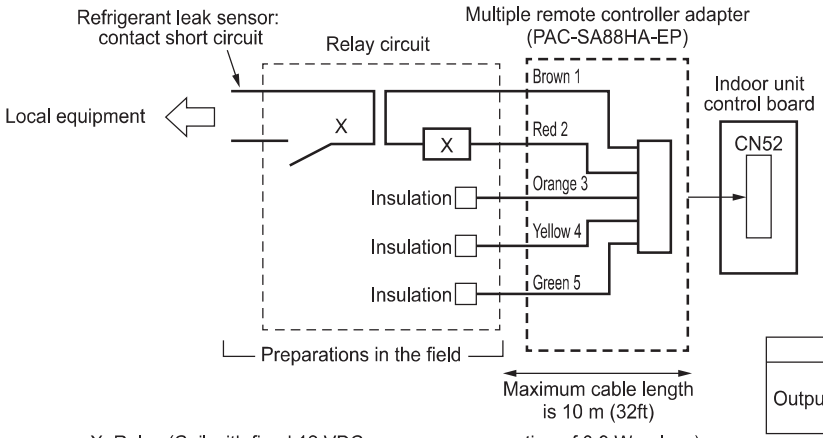

(A) Gas pipe thermistor TH23
(B) Gas pipe
(C) Liquid pipe
(D) Brazed connections
(E) Strainer (#100 mesh)
(F) Linear expansion valve
(G) Liquid pipe thermistor TH22
(H) Heat exchanger
(I) Room temperature thermistor TH21

| Capacity | PEFY-<br>MS20, 25, 32, 40, 50VMA(L)-A1 | PEFY-<br>MS63, 71, 80, 100, 125, 140VMA(L)-A1 |
|---|---|---|
| Gas pipe | ø12.7 [1/2] | ø15.88 [5/8] |
| Liquid pipe | ø6.35 [1/4] | ø6.35 [1/4]*1 or ø9.52 [3/8] |

*1 It is possible to reduce the pipe size to ø6.35 using a "Reducer" included in the accessory bag.
The pipe size required depends on the connected outdoor unit, so check the Outdoor Unit Installation Manual to confirm whether the Reducer can be used.

## [1] Wiring for interlock between the refrigerant leak sensor output and local equipment

Using the external output of the air conditioning system allows the refrigerant leak output function to interlock with local equipment such as dampers.
For the interlock with local equipment, consider the wiring referring to the following.




| Signal | | Polarity | Color |
|---|---|---|---|
| Output | COM | + | Brown |
| | Leakage | – | Red |

X: Relay (Coil with fixed 12 VDC, a power consumption of 0.9 W or less)
Maximum total of all signal outputs is 80 mA.

When using the leak output function of CN52, set function setting No. 168 to "5."

| Function setting No. 168 | Remote display switch | Initial setting |
|---|---|---|
| 1 | Disabled | ○ |
| 5 | A signal will be output when a refrigerant leak is detected or the leak sensor fails. | |

* When the function setting is set to "5," the Thermo-ON signal and the fan output signal that are set by SW1-5 will not be output from CN52.
* Before setting No.168 to "5", check that No.169 is set to "1".

## [1] Troubleshooting

### 1. Countermeasures for error during test run

If a problem occurs during test run, a code number will appear on the controller (or LED on the outdoor unit), and the air conditioning system will automatically cease operating.
Refer to the connected outdoor unit service manual in order to determine the nature of the abnormality and apply corrective measure.

| Error code | Trouble | Detected Unit | | | Remarks |
|---|---|---|---|---|---|
| | | Indoor | Shut off valve kit / Power Supply Interface for Alarm Kit | Remote Controller | |
| 0910 | Circuit inspection (Own unit) | ○ | | | |
| 0911 | Circuit inspection (Other unit) | ○ | ○ | | |
| 0912 | Circuit inspection (Alarm kit) | | ○ | | |
| 1521 | Refrigerant leakage (Own unit) | ○ | | | |
| 1522 | Refrigerant leakage (Other unit) | ○ | ○ | | |
| 1524 | Refrigerant leakage (Sensor and Alarm Kit) | | ○ | | |
| 2500 | Water leakage | ○ | | | |
| 2502 | Drain overflow protection | ○ | | | |
| 2503 | Drain sensor abnormality | ○ | | | |
| 4114 | Fan motor error | ○ | | | |
| 5101 | Air inlet thermistor (TH21) open/short | ○ | | | |
| 5102 | Liquid pipe temperature thermistor (TH22) open/short | ○ | | | |
| 5103 | Gas pipe temperature thermistor (TH23) open/short | ○ | | | |
| 5558 | Refrigerant sensor error | ○ | | | |
| 5701 | Contact failure of drain float switch | ○ | | | |
| 6600 | Duplex address error | ○ | | ○ | Only M-NET Remote controller is detected. |
| 6602 | Transmission processor hardware error | ○ | | ○ | Only M-NET Remote controller is detected. |
| 6603 | Transmission bus BUSY error | ○ | | ○ | Only M-NET Remote controller is detected. |
| 6606 | Signal communication error with transmission processor | ○ | | ○ | Only M-NET Remote controller is detected. |
| 6607 | No ACK error | ○ | | ○ | Only M-NET Remote controller is detected. * |
| 6608 | No response frame error | ○ | | ○ | Only M-NET Remote controller is detected. * |
| 6815 | MA sub remote controller communication error | ○ | | | |
| 6831 | MA communication receive error (no receive signal) | ○ | | ○ | Only MA Remote controller is detected. |
| 6832 | MA communication send error | ○ | | ○ | Only MA Remote controller is detected. |
| 6833 | MA communication send error | ○ | | ○ | Only MA Remote controller is detected. |
| 6834 | MA communication receive error | ○ | | ○ | Only MA Remote controller is detected. |
| 7101 | Capacity code error | ○ | | | |
| 7111 | Remote controller sensor fault | ○ | | | |
| 7119 | Connection error of M-NET line (origin) | ○ | | | |
| 7120 | Connection error of M-NET line (not origin) | ○ | ○ | | |
| 7121 | Power supply failure | ○ | ○ | | |
| 7124 | Installation error with refrigerant sensor | ○ | | | |

Note:
When the outdoor unit detects No ACK error/No response error, an object indoor unit is treated as a stop, and not assumed to be abnormal.
* Abnormality for PWFY series

## 2. Check methods

1. Component and check points

(1) Thermistor

- Room temperature thermistor (TH21)
- Liquid pipe thermistor (TH22)
- Gas pipe thermistor (TH23)

Disconnect the connector and measure the resistance between terminals with a tester.
(Ambient temperature 10°C - 30°C)

| Normal | Abnormal |
|---|---|
| 4.3kΩ - 9.6kΩ | Open or short |

(Refer to the thermistor characteristic graph below.)

1) Thermistor characteristic graph

**Low-temperature thermistor**

- Room temperature thermistor (TH21)
- Liquid pipe thermistor (TH22)
- Gas pipe thermistor (TH23)
- Drain sensor (DS)

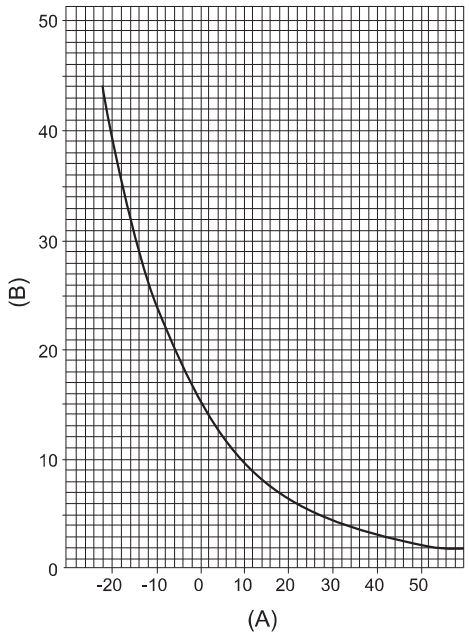
- Thermistor $R_0$ = 15 kΩ±3%
- Multiplier of B = 3480 kΩ±2%

$$Rt = 15 \exp \{ 3480( \frac{1}{273+t} - \frac{1}{273} ) \}$$

0°C 15kΩ
10°C 9.6kΩ
20°C 6.3kΩ
25°C 5.2kΩ
30°C 4.3kΩ
40°C 3.0kΩ

(A) Temperature (°C)

(B) Resistance (kΩ)

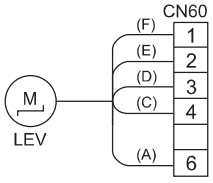



(2) Fan motor (CNMF)

Refer to the page on "DC fan motor (fan motor/indoor control board)."

(3) Linear expansion valve

Disconnect the connector, and measure the resistance between terminals with a tester.
Refer to the next page for details.



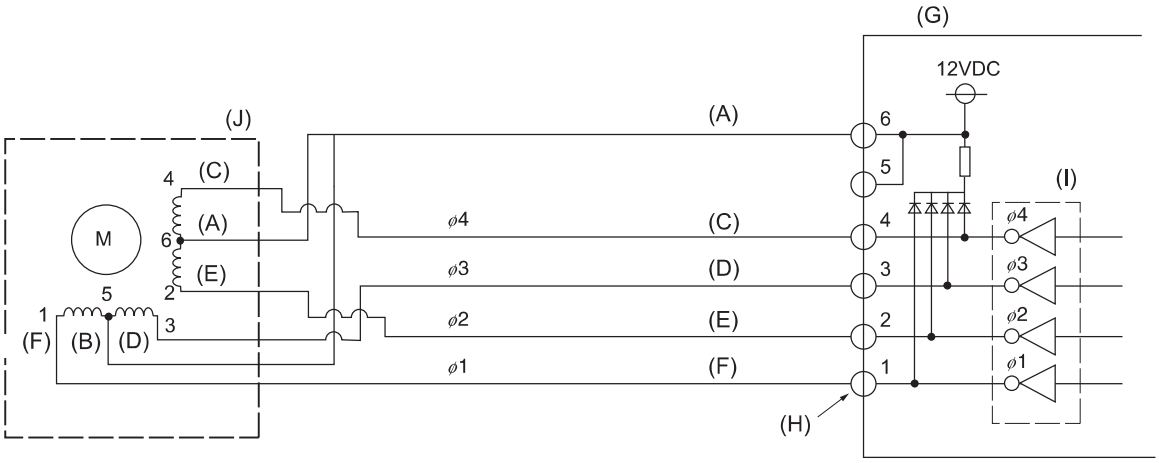

| Normal | | | | Abnormal |
|---|---|---|---|---|
| 1-6 White-Red | 2-6 Yellow-Red | 3-6 Orange-Red | 4-6 Blue-Red | Open or short |
| (150Ω) ±10% | | | | |

(A) Red
(C) Blue
(D) Orange
(E) Yellow
(F) White

1) Summary of linear expansion valve (LEV) operation

- The LEV is operated by a stepping motor, which operates by receiving a pulse signal from the indoor control board.
- The LEV position changes in response to the pulse signal.

**Indoor control board and LEV connection**




| | | | |
|---|---|---|---|
| (A) | Red | (G) | Control board |
| (C) | Blue | (H) | Connection (CN60) |
| (D) | Orange | (I) | Drive circuit |
| (E) | Yellow | (J) | Linear expansion valve |
| (F) | White | | |

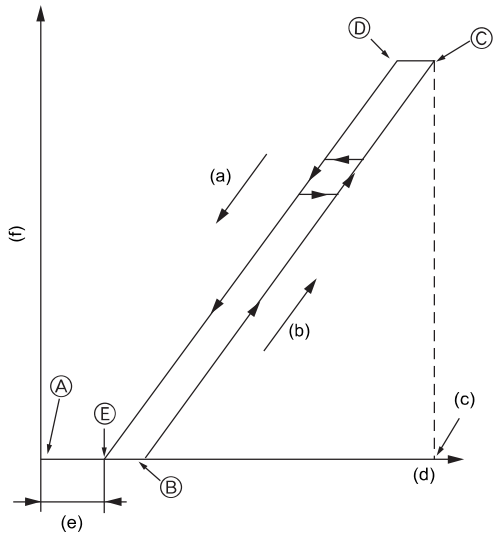
**Pulse signal output and valve operation**

| Phase number | Output pulse | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| ø1 | ON | OFF | OFF | ON |
| ø2 | ON | ON | OFF | OFF |
| ø3 | OFF | ON | ON | OFF |
| ø4 | OFF | OFF | ON | ON |

The output pulse changes in the following order:
When the valve closes 1 -> 2 -> 3 -> 4 -> 1
When the valve opens 4 -> 3 -> 2 -> 1 -> 4

- When the valve position remains the same, all output signals will be OFF.
- If any output signal is missing or if the signal remains ON, the motor vibrates and makes clicking noise.

2) LEV operation




(a) Close

(b) Open

(c) Fully open valve (2000 pulses)

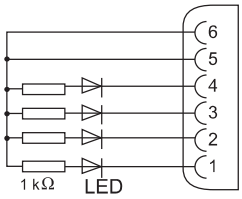
(d) No. of pulses

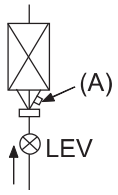
(e) Extra tightening (200 pulses)

(f) Valve opening degree

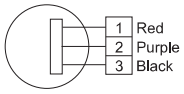
- When the power is turned on, a pulse signal of fully open pulse + 10% pulse is output (valve closure signal), to bring the valve to position A.
- When the valve is operating normally, it is free of vibration noise. If the valve locks or when it goes from point E to A in the figure, it makes louder noise than would be heard when there is an open phase.
- Check for abnormal sound/vibration by placing the metal tip of a screwdriver against the valve and the handle side against your ear.

3) Troubleshooting

| Symptom | Checking Criteria | Remedy |
|---|---|---|
| Circuit failure on the microcomputer | Disconnect the connectors on the control board, and connect LEDs to test the circuit as shown below.<br>  <br><br>Pulse signals are output for 10 seconds when the main power is turned on. If there are LEDs that do not light up at all or remain lit after the pulses are turned off, there is a problem with the driving circuit. | Replace the indoor control board if driving circuit failure is detected. |
| Locked LEV | The motor will idle and make small clicking noise if it is run while the LEV is locked. If this clicking noise is heard both when the valve is fully closed and while it is being opened, it indicates a problem. | Replace the LEV. |
| Disconnected or shorted LEV motor coils | Measure the resistance between the coils with a tester (red-white, red-orange, Red-yellow, Red-blue). The normal range of resistance is 150Ω±10% | Replace the LEV. |

| | | |
|---|---|---|
| Valve closure failure (leaky valve) | To check the LEV on the indoor unit, check the indoor unit liquid pipe temperature that appears on the operation monitor on the outdoor unit's multi control board while operating the indoor unit in question in the FAN mode and the other indoor units in the cooling mode.<br>(A) Thermistor (TH22)<br>  <br> | Replace the LEV if the amount of leakage is great. |
| | Normally, the LEV is fully closed while the unit is in the FAN mode. If the valve is leaky, liquid pipe thermistor reading will be lower than normal. If it is significantly lower than the inlet temperature on the remote controller, valve closure failure is suspected. If the amount of leakage is insignificant, replacement of LEV is unnecessary unless it is causing a problem. | |
| Misconnections of connectors or contact failure | Perform a visual check for disconnected connectors.<br>Perform a visual check of lead wire color. | Disconnect the connectors on the control board and perform a continuity test. |

(4) Drain pump



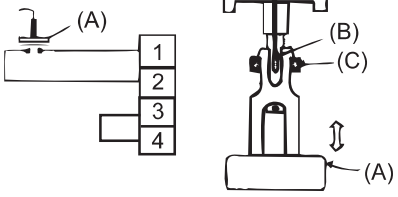

1. Check if the drain float switch works properly.
2. Check if the drain pump works and drains water properly in cooling operation.
3. If no water drains, confirm that the check code 2502 will not be displayed 10 minutes after the operation starts.

Note: The drain pump for this model is driven by the internal DC motor of controller board, so it is not possible to measure the resistance between the terminals.

Normal
Red–Black: Input 13V DC → The fan starts to rotate.
Purple–Black: Abnormal (check code 2502) if it outputs 0–13 V square wave (5 pulses/rotation), and the number of rotation is not normal.

(5) Drain float switch (CN4F)

Disconnect the connector, and measure the resistance between terminals with a tester.




(A) Moving part
(B) Switch
(C) Magnet

| Position of the moving part | Normal | Abnormal |
|---|---|---|
| Up | Short | (any position but short) |
| Down | Open | (any position but open) |

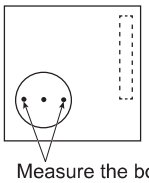
(6) Refrigerant sensor

Measure the resistance between the terminals with a multimeter.

| Normal | Abnormal |
|---|---|
| Below 10 Ω | Open (10 Ω or more) |

After turning off the indoor unit breaker and leaving it for 5 minutes, measure the resistance value between the sensor terminals.

< Back side of the sensor >



Measure the both sides of the sensor pin.

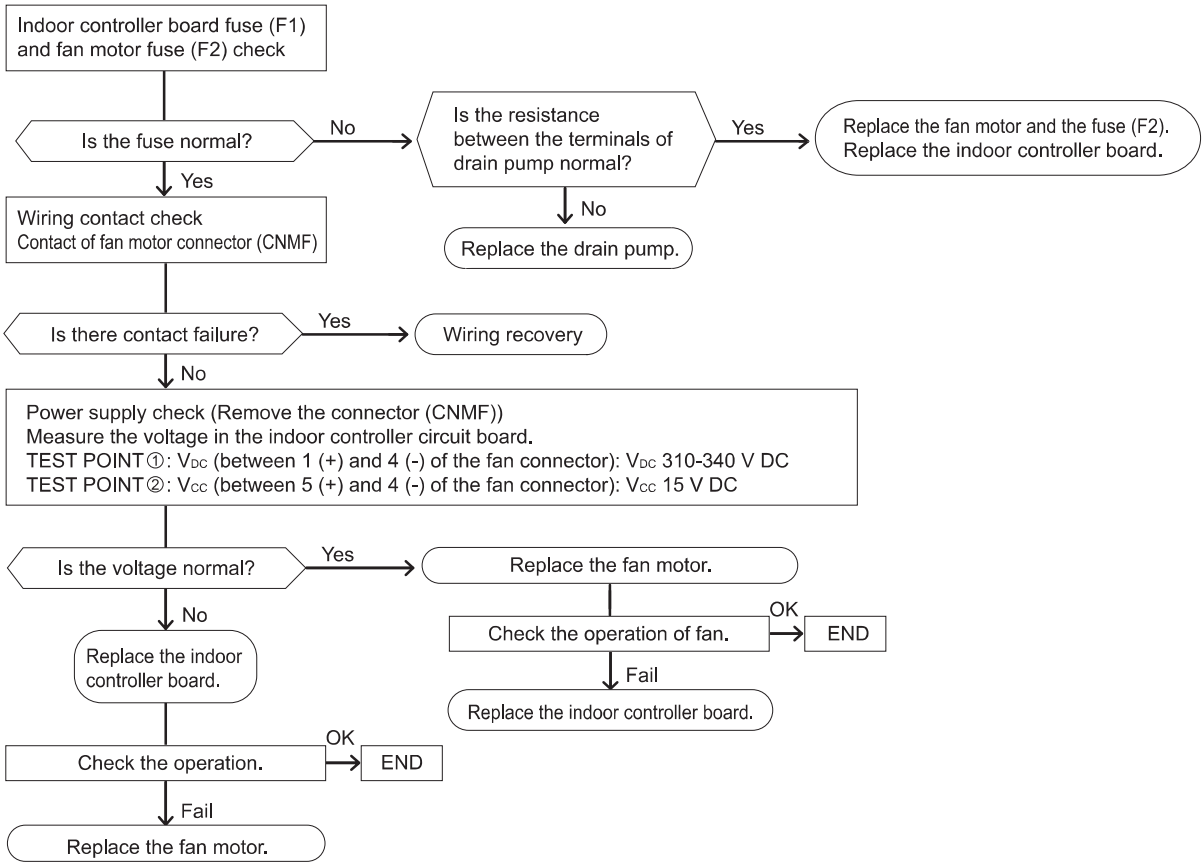
1) Troubleshooting

| Error Code | Abnormal point and detection method | Cause | Countermeasure |
|---|---|---|---|
| 5558 | **Refrigerant sensor error**<br>Abnormal if refrigerant sensor cannot detect errors normally. | 1. The refrigerant sensor mounted on the indoor unit does not work.<br>2. The refrigerant sensor is not connected properly or the wire is broken. | Refer to the outdoor unit manual.<br>♦While the error is being displayed, the indoor unit fan continues operating.<br>* The circulation operation is performed when the EN 378-compliant setting is enabled and error code 5558 is displayed.<br>♦Ventilate the room well, make sure that there is no ignition source, and then turn off the power. |
| 1521 | **Refrigerant leakage**<br>Abnormal if refrigerant leakage is detected by a refrigerant sensor. | 1. Refrigerant leaks from the piping or the heat exchanger in the indoor unit.<br>2. The following items are used around the indoor unit.<br>♦Spray (LP gas including Freon, and whose main ingredient is propane and butane)<br>♦Aerosol insecticide (including ethanol)<br>♦Air spray painting (including dichloromethane)<br>♦Charcoal (charcoal fire)<br>♦Chemicals (such as ethanol) | |
| 1522 | **Refrigerant leakage / Communication error** | ♦Refrigerant leak from the air conditioner or the piping<br>♦False detection (The refrigerant sensor reacted to other gas.)<br>♦There is an abnormality in the communication line or communication system. | Refer to the outdoor unit manual.<br>♦Ventilate the room well, make sure that there is no ignition source, and then turn off the power. |

## 3. DC fan motor (fan motor/indoor control board)

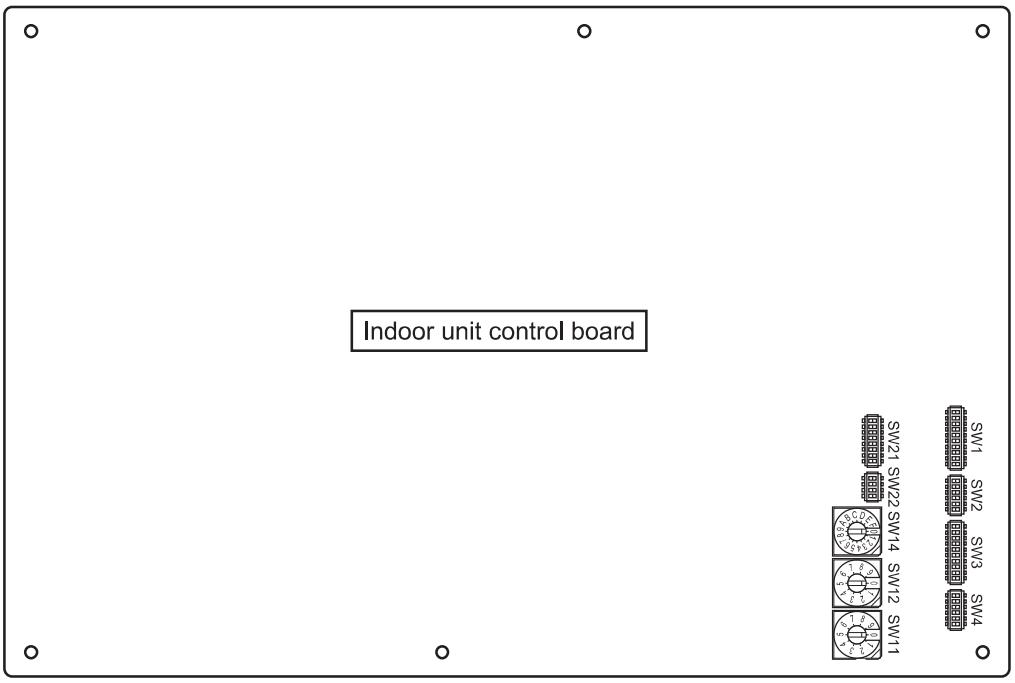
1. CAUTION
   - A high voltage is applied to the connector for connection to the fan motor (CNMF).
   - Do not unplug the connector CNMF with the unit energized to avoid damage to the indoor control board and fan motor.

2. Troubleshooting
   - Symptom: Indoor unit fan does not run.



## 4. Address switch setting

**Make sure that power to the unit is turned off.**



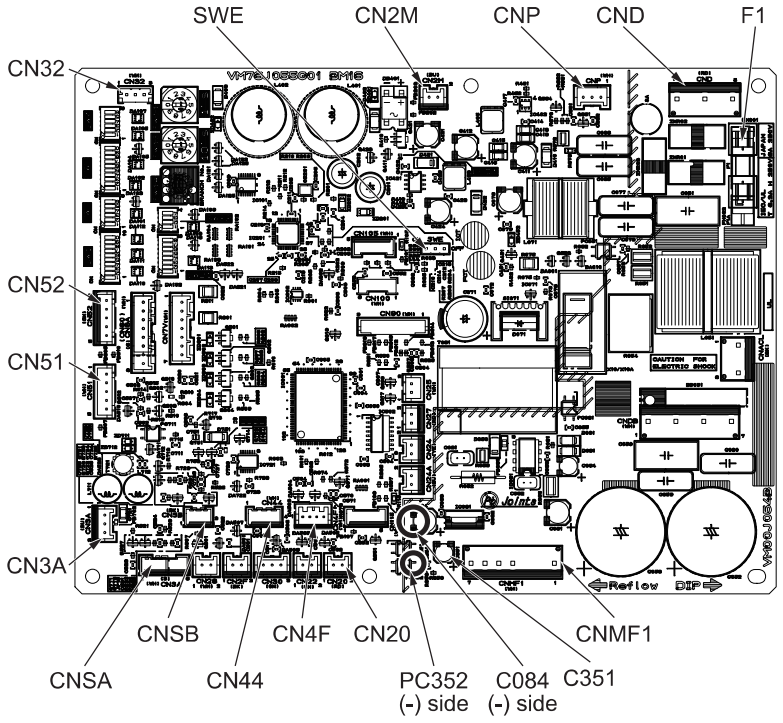

1. When using an ME remote controller, set the address with the rotary switches (SW11, SW12).
   ♦Address setting is not required when the unit remote controller is used.
   **On-site address setting is required for the indoor units to run.**
   * ME remote controllers cannot be connected to R32 refrigerant systems.

2. Address settings vary in different systems.
   Refer to the section on address setting in the outdoor unit installation manual.

3. Address is set with a combination of SW12 (10's digit) and SW11 (1's digit).
   To set the address to "3," set SW12 to "0" and SW11 to "3."
   To set the address to "25," set SW 12 to "2" and SW 11 to "5."

## 5. Voltage test points on the control board

1. PEFY-MS20, 25, 32, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A1




| | |
|---|---|
| F1 | Fuse (AC 250V 6.3A) |
| CND | Power supply voltage (220 - 240VAC) |
| CN2M | For M-NET transmission cable connection (24 - 30VDC) |
| SWE | Emergency operation |
| SW2 | Capacity setting |
| SW4 | Function setting |
| SW3 | Function setting |
| CN32 | Remote start/stop adapter |
| CN3A | For MA remote controller cable connection<br>(10 - 13 VDC (Between 1 and 3.)) |
| CNSA | Refrigerant sensor |
| CNSB | Refrigerant sensor enable/disable switch |
| CN52 | Remote display |
| CN51 | Centralized control |
| CN44 | Thermistor<br>(liquid/gas temperature) |
| CN4F | Float switch |
| CN20 | Thermistor (Inlet temperature) |
| CNMF | Fan motor output<br>1 - 4: 310 - 340 VDC<br>5 - 4: 15 VDC<br>6 - 4: 0 - 6.5 VDC<br>7 - 4: Stop 0 or 15 VDC<br>Run 7.5 VDC<br>(0 - 15 pulse) |

(*1)

| | |
|---|---|
| $V_{FG}$ | Voltage on the (-) side of PC352 and C084<br>(Same with the voltage between 7 (+) and 4 (-) of CNMF) |
| $V_{CC}$ | Voltage between the C084 pins 15 VDC<br>(Same with the voltage between 5 (+) and 4 (-) of CNMF) |
| Vsp | Voltage between the C351 pins 0VDC (with the fan stopped)<br>1 - 6.5VDC (with the fan in operation)<br>(Same with the voltage between 6 (+) and 4 (-) of CNMF) |

## 6. Setting (Factory setting)

1. Function setting

(1) SW1

| Switch position | Function | Switch setting | |
|---|---|---|---|
| | | ON | OFF |
| 1 | Active Thermistor (Intake air thermistor) | Built-in thermistor on the remote controller | Indoor unit |
| 2 | Filter clogging detection | Available | Unavailable |
| 3 | Filter life | 2500 h | 100 h |
| 4 | Outdoor air intake | Enabled | Disabled |
| 5 | Remote display | Thermo-ON signal | Fan output |
| 6 | - | - | - |
| 7, 8 | Fan speed at heating Thermo-OFF | See table below | |
| 9 | Auto restart after power failure | Enabled | Disabled |
| 10 | Power start/stop | Enabled | Disabled |

| 7 | 8 | Fan speed notch in heating thermo off |
|---|---|---|
| OFF | OFF | Very low |
| ON | OFF | Low |
| OFF | ON | Preset fan speed |
| ON | ON | Stop |

Factory setting


(2) SW3

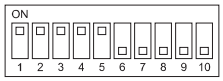
| Switch position | Function | Switch setting | |
|---|---|---|---|
| | | ON | OFF |
| 1 | Unit type | Cooling only | Heat pump |
| 2 | - | - | - |
| 3 | - | - | - |
| 4 | - | - | - |
| 5 | - | - | - |
| 6 | - | - | - |
| 7 | - | - | - |
| 8 | Heating 4-deg up | Disabled | Enabled |
| 9 | - | - | - |
| 10 | - | - | - |

Dipswitch settings must be made while the unit is stopped.

Factory setting

PEFY-MS20VMA(L)-A1 PEFY-MS25, 40, 50, 63, 71, 80, 100, 125, 140VMA(L)-A1 PEFY-MS32VMA(L)-A1



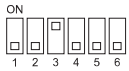

The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

2. Capacity code setting

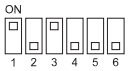
(1) SW2

Dipswitch settings must be made while the unit is stopped.
Factory setting
The switches are set to correspond to the unit capacity.

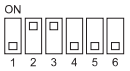
PEFY-MS20VMA(L)-A1



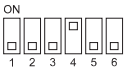

PEFY-MS25VMA(L)-A1



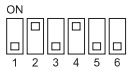

PEFY-MS32VMA(L)-A1



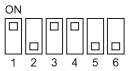

PEFY-MS40VMA(L)-A1



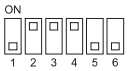

PEFY-MS50VMA(L)-A1




PEFY-MS63VMA(L)-A1

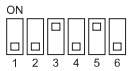



PEFY-MS71VMA(L)-A1



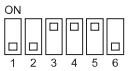

PEFY-MS80VMA(L)-A1

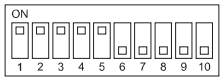

PEFY-MS100VMA(L)-A1




PEFY-MS125VMA(L)-A1


PEFY-MS140VMA(L)-A1




The figure at left shows that the switches 1 through 5 are set to ON and 6 through 10 are set to OFF.

3. Model setting

(1) SW4

Dipswitch settings must be made while the unit is stopped.

Factory setting
Please see the WIRING LABEL on the control box.

Note:
Changes made to the dipswitches SW1, SW2, and SW3 will become effective when the unit comes to a stop (remote controller off). There is no need to power cycle the unit.

4. Power voltage setting

(1) SW21-6

Dipswitch settings must be operated with the main power turned OFF.

Factory setting
Please see the WIRING LABEL on the control box.

Set SW21-6 to OFF side when the power supply is 240 volts.
When the power supply is 220 and 230 volts, set SW21-6 to ON side.

5. External static pressure

Five levels of external static pressure are available for selection.
Set the setting either by using the switches on the control board (SW21-1, SW21-2, and SW21-5) or from the function selection screen on the remote controller.

**Note:**

- **When the static pressure setting was set from the remote controller, the actual setting and the switch setting on the control board may not match because the latest setting from the remote controller overrides the previous setting. To check the latest static pressure setting, check it on the remote controller, not on the switch.**
- **If the static pressure setting for the duct is lower than that for the unit, the fan of the unit may repeat start/stop, and the outdoor unit may remain in a stopped state. Match the static pressure settings for the unit to that for the duct.**

**To set the external static pressure with the switches on the control board**

| External static pressure | SW21-1 | SW21-2 | SW21-5 | Initial setting |
|---|---|---|---|---|
| MS20–MS63VMA-A1: 35 Pa<br>MS71–MS140VMA-A1: 40 Pa | OFF | OFF | OFF | ○<br>only MS20–MS100VMA-A1 |
| 50 Pa | ON | OFF | OFF | ○<br>only MS125,MS140VMA-A1 |
| 70 Pa | OFF | ON | ON | |
| 100 Pa | OFF | OFF | ON | |
| 150 Pa | ON | OFF | ON | |

**To set the external static pressure from the function selection screen on the remote controller (PAR-42MAAB)**

Follow the instructions below and the instructions detailed in the remote controller manual for how to set the switches.

1. Set the function setting No. 32 (Switch setting/Function selection) to “2”.
2. Set the function setting No. 8 and No. 10 to appropriate values, according to the external static pressure.

* Even if the setting value for function setting No. 32 is changed to "2" on the remote controller after selecting the external static pressure with control board switch, the setting made with the control board switch will remain in effect until function setting No. 8,10 is configured.
* If the setting value for function setting No. 32 is changed to "1", the setting made with the control board switch will apply.

| Selection | Function setting No. | Current setting |
|---|---|---|
| | No. 32 | |
| Switch setting | 1 | |
| Function selection | 2 | |

| External static pressure | Function setting No. | | Initial setting | Current setting |
|---|---|---|---|---|
| | No. 8 | No. 10 | | |
| MS20–MS63VMA-A1: 35 Pa<br>MS71–MS140VMA-A1: 40 Pa | 2 | 1 | ○<br>only MS20–MS100VMA-A1 | |
| 50 Pa | 3 | 1 | ○<br>only MS125,MS140VMA-A1 | |
| 70 Pa | 1 | 2 | | |
| 100 Pa | 2 | 2 | | |
| 150 Pa | 3 | 2 | | |

**[Important]**
Be sure to write down the settings for all functions in the “Current setting” row if any of the initial settings has been changed.

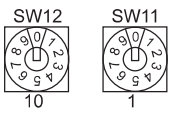
6. 1s and 10ths digits

(1) SW11, SW12 (Rotary switch)

The use of an ME remote controller requires address setting.

Address settings must be made while the unit is stopped.

Factory setting




7. Connection No. setting

(1) SW14 (Rotary switch)

This switch is used when the unit connected to an R2 series of outdoor unit.

Factory setting


Note:
Changes to the dipswitches SW11, SW12, SW14, and SW15 must be made while the unit is stopped and the remote controller is OFF.

8. CNSB

**•CNSB short circuit connector (enables/disables settings for the refrigerant sensor)**

It is to enable/disable the refrigerant sensor mounted to the indoor unit. If the indoor unit is installed in a large space or the sensor and alarm kit is used, remove the short-circuit connector. For details, refer to the R32 City Multi Technical Manual (R32 Outdoor unit).

| Short circuit connector | Built-in refrigerant sensor on the indoor unit | Initial setting |
|---|---|---|
| Connected | Enabled | ○ |
| Disconnected | Disabled | |

## [1] Disassembly Procedure

### 1. Control box

**Exercise caution when removing heavy parts.**

1. Removing the control box cover

(1) Remove the three fixing screws on the cover (A) to remove it.

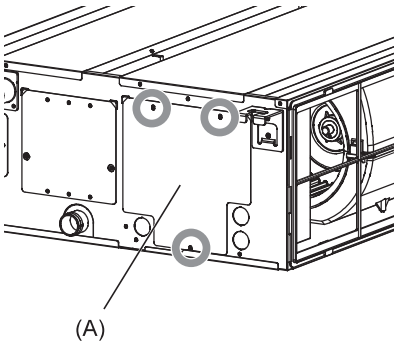



Fig.1

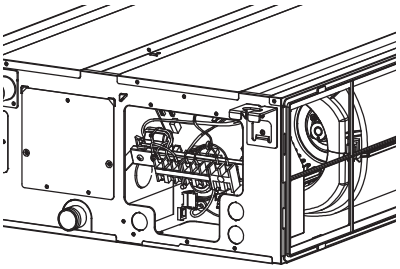


Fig.2

## 2. Thermistor (Intake air)

**Exercise caution when removing heavy parts.**

1. Remove the control box cover according to the procedure in section **[1]-1**.
2. Remove the thermistor.

(1) Pull out the thermistor holder (B) and thermistor (C) on the control box.

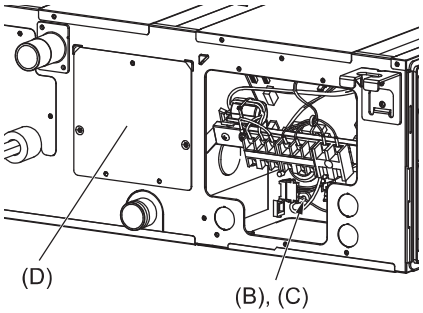



Fig.3

## 3. Drain pump

**Exercise caution when removing heavy parts.**

1. Remove the control box cover according to the procedure in section **[1]-1**.
2. Remove the drain pump.

(1) Remove the drain pump from connector (E) in control box.
(2) Remove the cover (D) and the drain pump.

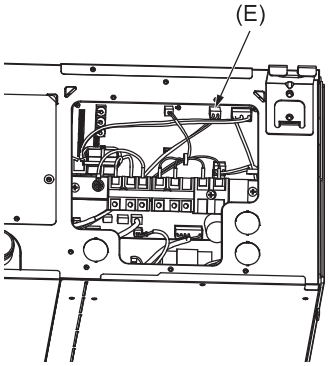



Fig.4

## 4. R32 sensor

**Exercise caution when removing heavy parts.**

1. Remove the control box cover according to the procedure in section **[1]-1**.
2. Remove the R32 sensor.

(1) Remove the R32 sensor connector (CNSA) in control box.
(2) Remove the cover (D) and the fixing screw (F) to remove R32 sensor.

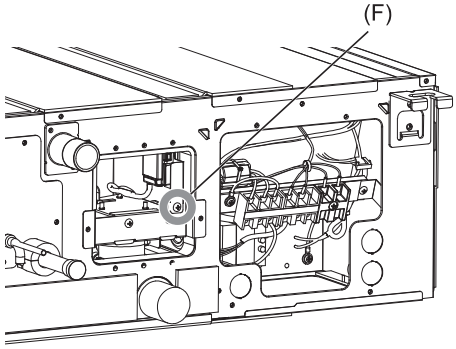



Fig.5

## 5. Drainpan

**Exercise caution when removing heavy parts.**

1. Removing the filter and the bottom plate

(1) Push down the tab on the filter, and pull out the filter in the direction of the arrow 1.

(2) Remove the fixing screws on the bottom plate (F), (G) to remove it.

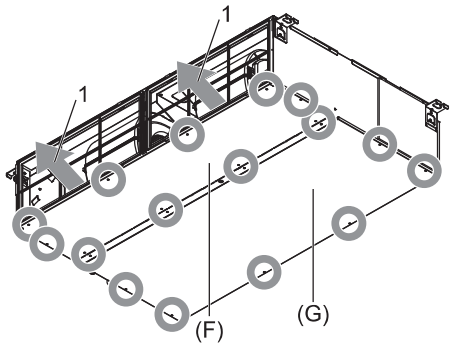



Fig.6

2. Removing the drainpan

(1) Pull out the drain pan in the direction of the arrow 2.

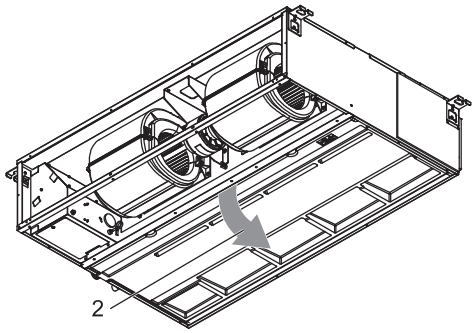



Fig.7

**Note**

**•Drain the water out of the drain pan before removing it.**

## 6. Thermistor (Gas pipe) (Liquid pipe)

**Exercise caution when removing heavy parts.**

1. Remove the drain pan according to the procedure in section **[1]-5.**
2. Removing the Heat exchanger cover

(1) Remove the three fixing screws on the heat exchanger cover (H) to remove it.

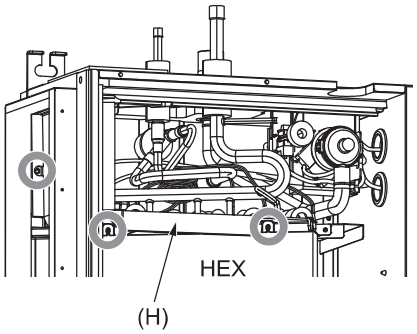



Fig.8

3. Removing the thermistor

(1) Remove the thermistor (J) from the thermistor holder (K) on the copper tube.

Thermistor size
Liquid pipe: ø8mm
Gas pipe: ø6mm

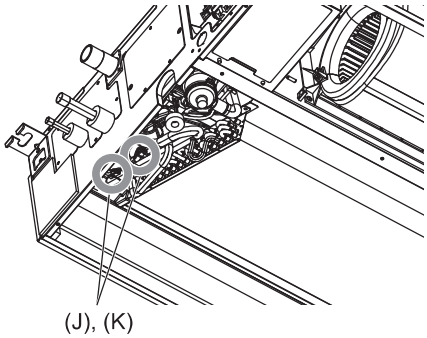



Fig.9

## 7. Fan and fan motor

**Exercise caution when removing heavy parts.**

1. Removing the filter and the bottom plate

(1) Push down the tab on the filter, and pull out the filter in the direction of the arrow 1.

(2) Remove the fixing screws on the bottom plate (M) to remove it.

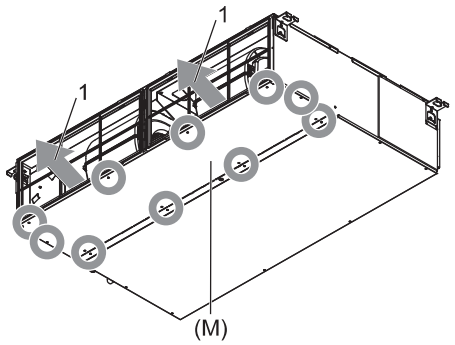



Fig.10

2. Removing the fan casing (bottom half)

(1) Squeeze the tabs on the fan casing to remove it in the direction of arrow 2.

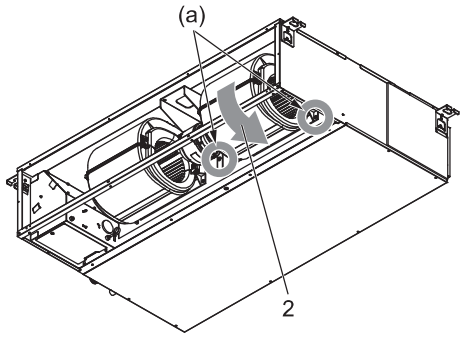



Fig.11

(a) Tab

3. Removing the motor cable

(1) Remove the motor cable threw the rubber bush.

4. Removing the fan motor and the Sirocco fan

(1) Loosen either of the two rubber joint (N) fixing screws.

(2) To remove the Sirocco fans (b) and (c) of PEFY-MS71, 80, 100, 125, 140VMA(L)-A1, loosen only the screw (d) on the bearing support (P), and remove the other screws on it.

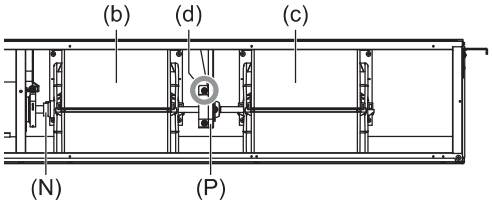



Fig.12

(3) Remove the two motor fixing screws to remove the motor and the Sirocco fan in the direction of arrow 3.

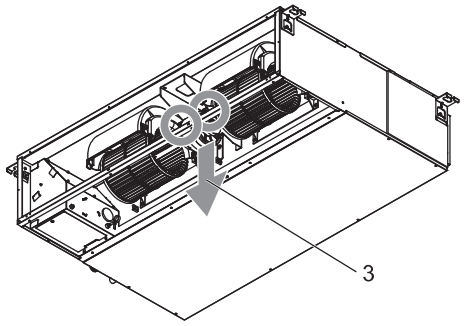



Fig.13

(4) Remove the four fan case fixing screws to take the top half of the fan casing off.

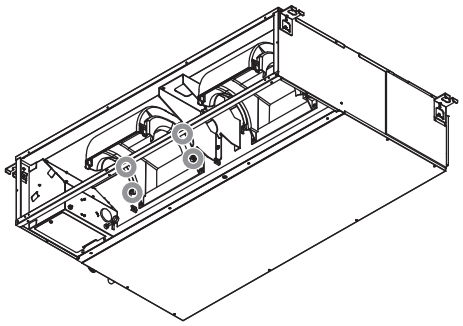


Fig.14

## 8. Heat exchanger

**Exercise caution when removing heavy parts.**

1. Remove the drain pan according to the procedure in section **[1]-5**.

2. Remove the heat exchanger cover according to the procedure in section **[1]-6-**2.

3. Removing the cover

(1) Remove the five fixing screws on the cover (Q) to remove it.

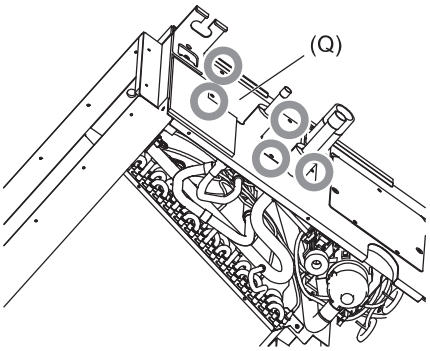



Fig.15

4. Removing the Heat exchanger

(1) Remove the fixing screws on the heat exchanger (R) to remove it.

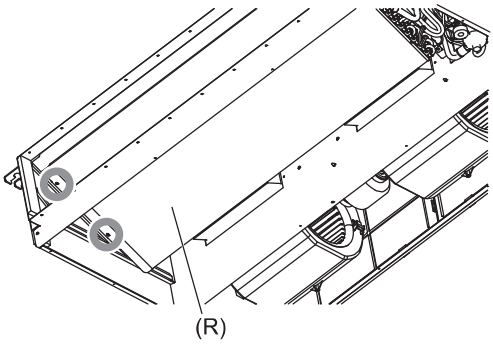



Fig.16

## [1] Inspection and maintenance

### 1. Guideline for preventive maintenance

The following maintenance intervals indicate the estimated intervals of parts replacement and repair to be required as a result of periodic inspections. They do not necessarily mean that replacement is required at the maintenance intervals. The maintenance intervals do not indicate the warranty period.

| Parts | Inspection interval | Maintenance interval* |
|---|---|---|
| Motor (Fan, drain pump) | 1 year | 20,000 hours |
| Bearing | | 15,000 hours |
| Electrical box | | 25,000 hours |
| Heat exchanger | | 5 years |
| Electronic expansion valve | | 20,000 hours |
| Sensor (Thermistor, refrigerant sensor, etc.) | | 5 years |
| Drain pan | | 8 years |

- The table above shows the main parts. Check the maintenance contract for details.
- This maintenance interval is an estimated period until the day when the maintenance should be conducted to use the product safely for a long time.
  Make use of the table above for maintenance planning (such as planning budget for maintenance inspection cost).
  Depending on the contents of the maintenance contract, the actual inspection and maintenance intervals may shorter than those in the table above.
- The maintenance and inspection items may differ depending on maintenance providers.
  Please check with your maintenance provider when concluding a maintenance contract.

*The following usage conditions are assumed.

- Normal use without frequent START/STOPs (The number of START/STOPs is assumed to be less than 6 times per hour in normal use)
- Operating hours are assumed to be 10 hours per day/2500 hours per year.

**When the equipment is used under the following conditions, the maintenance interval may be shortened.**

- When equipment is used in an environment where temperature and humidity are high or change dramatically
- When equipment is used in an environment where power supply fluctuations (the distortion of voltage, frequency, and waveform) are large (only within the allowable range)
- When equipment is used in an environment where the equipment may receive vibration or mechanical shock
- When equipment is used in an environment where dust, salt, toxic gases such as sulfur dioxide and hydrogen sulfide, and oil mist are present
- When equipment starts/stops frequently and operates for long periods (24-hour air-conditioning operation)

## 2. Recommended parts inspection interval

| Parts | Inspection interval | Maintenance interval | Inspection items | Criteria | Measures |
|---|---|---|---|---|---|
| Long-life filter | 1 year | 5 years | ⬧Visual check for dirt or torn. | ⬧Filter element is seen through.<br>⬧No torn or deformation. | ⬧Clean the filter if it is dirty.<br>⬧Replace the filter if it is torn. |
| High-performance filter | | 1 year | ⬧Check for clogging.<br>⬧Check the appearance. | ⬧No notable clogging in a short period of time.<br>⬧No deformation or damage. | ⬧Replace the filter if it is clogged.<br>⬧Replace the filter if it is deformed or damaged.<br>⬧Replace the filter periodically. |
| Smoothing capacitor | | 10 years | ⬧Check the appearance of electrolytic capacitors. | ⬧No liquid leakage, deformation, or sleeve (outer film) shrinkage. | Replace the electrolytic capacitor if there is leakage, deformation, or shrinkage of the sleeve (outer film). |
| Fuse | | 10 years | ⬧Check the appearance. | No deformation or discoloration. | ⬧Replace the fuse if the circuit is cut off. |
| Motor (Fan, drain pump) | | 20,000 hours | ⬧Auditory check for operating sounds.<br>⬧Measure the insulation resistance. | ⬧No abnormal sounds.<br>⬧Insulation resistance must be 1 MΩ or above. | ⬧Replace the fan motor if an insulation problem is found. |
| Bearing | | 15,000 hours | ⬧Fill oil periodically. | ⬧No abnormal sound. | ⬧Periodically replace the parts. |
| Electrical box | | 25,000 hours | ⬧Check the insulation resistance of the circuit (500 V)<br>⬧Check for loose terminals and connectors. | ⬧Insulation resistance must be 1 MΩ or above.<br>⬧No loose connections.<br>⬧No accumulated foreign objects.<br>⬧No error display. | ⬧Clean with a brush if dust accumulation is found.<br>⬧Replace the electrical part if the insulation resistance is 1 MΩ or below.<br>⬧Tighten the loose terminals and reconnect the connectors. |
| Heat exchanger | | 5 years | ⬧Check for clogging, contamination, and damage. | No clogging, contamination, or damage. | Perform cleaning. |
| Electronic expansion valve | | 20,000 hours | ⬧Operation check using operation data. | Temperature must change in proportion to the valve position. (Check the temperature variation with the centralized controller.) | Replace the valve if the operation data show an operation failure due to valve problems. |
| Sensor (Thermistor, refrigerant sensor, etc.) | | 5 years | ⬧Check for breakage and deterioration of the cables, and for disconnection of the connectors.<br>⬧Measure the insulation resistance.<br>⬧Check the resistance of parts (Thermistor, refrigerant sensor). | ⬧No breakage or deterioration of the cables or disconnected connectors.<br>⬧Insulation resistance must be 1 MΩ or above.<br>⬧Please refer to VIII Troubleshooting. | Replace the sensor if the cable is broken, short-circuited, or severely deteriorated, or an insulation problem is found. |
| Drain pan | | 8 years | ⬧Check for clogging and drain water flow.<br>⬧Check for coating's peeling or separation. | ⬧No drain clogging.<br>⬧No abnormal rust or hole. | ⬧Clean the drain pan and check that the drain pan is tilted properly.<br>⬧Replace the drain pan depending on the repairing coating or conditions. |

⬧The table above shows the main parts. Check the maintenance contract for details.
⬧This maintenance interval is an estimated period until the day when the maintenance should be conducted to use the product safely for a long time.
Make use of the table above for maintenance planning (such as planning budget for parts replacement cost).
⬧The inspection intervals depend on the usage and environment.
The inspection intervals do not indicate the warranty period.
⬧The maintenance and inspection items may differ depending on maintenance providers. Please check with your maintenance provider when concluding a maintenance contract.
⬧Repairs outside the warranty period will be charged, even if periodic inspections have been performed at the recommended intervals.

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