

1. BEFORE INSTALLATION

1-1. THE FOLLOWING SHOULD ALWAYS BE OBSERVED FOR SAFETY

- Be sure to read "THE FOLLOWING SHOULD ALWAYS BE OBSERVED FOR SAFETY" before installing the air conditioner.
- Be sure to observe the warnings and cautions specified here as they include important items related to safety.
- After reading this manual, be sure to keep it together with the OPERATING INSTRUCTIONS for future reference.

WARNING (Could lead to death, serious injury, etc.)

- **Do not install the unit by yourself (user).** Incomplete installation could cause fire, electric shock, injury due to the unit falling, or leakage of water. Consult the dealer from whom you purchased the unit or a qualified installer.
- **Perform the installation securely referring to the installation manual.** Incomplete installation could cause fire, electric shock, injury due to the unit falling, or leakage of water.
- **When installing the unit, use appropriate protective equipment and tools for safety.** Failure to do so could cause injury.
- **Install the unit securely in a place which can bear the weight of the unit.** If the installation location cannot bear the weight of the unit, the unit could fall causing injury.
- **Electrical work should be performed by a qualified, experienced electrician, according to the installation manual.** Be sure to use an exclusive circuit. Do not connect other electrical appliances to the circuit.
- **Failure to do so could cause electric shock.**
- **Use the specified wires to connect the indoor and outdoor units securely and attach the wires firmly to the terminal block connecting sections so the stress of the wires is not applied to the sections.** Do not extend the wires, or use intermediate connection.
- **Do not connect the earth to a gas pipe, water pipe, lightning rod, or telephone earth.** Defective earthing could cause electric shock.
- **Do not damage the wires by applying excessive pressure with parts or screws.**
- **Damaged wires could cause fire or electric shock.**
- **Be sure to cut off the main power in case of setting up the indoor P.C. board or wiring works.**
- **Failure to do so could cause electric shock.**
- **Use the specified wires to connect the indoor and outdoor units securely and attach the wires firmly to the terminal block connecting sections so the stress of the wires is not applied to the sections.** Do not extend the wires, or use intermediate connection.
- **Do not discharge the refrigerant into the atmosphere.** If refrigerant gases during installation, ventilate the room. If refrigerant comes in contact with a fire, harmful gas could be generated. Refrigerant leakage may cause suffocation. Provide ventilation in accordance with EN378-1.
- **Check that the refrigerant gas does not leak after installation has been completed.** If refrigerant gas leaks indoors, and comes into contact with the flame of a fan heater, space heater, stove, etc., harmful substances will be generated.
- **Use appropriate tools and piping materials for installation.** The pressure of R410A is 1.6 times more than R22. Not using appropriate tools or materials and incomplete installation could cause the pipes to burst or injury.
- **When plugging down the refrigerant, stop the compressor before disconnecting the refrigerant pipes.** If the refrigerant pipes are disconnected while the compressor is running and the stop valve is open, air could be drawn in and the pressure in the refrigeration cycle could become abnormally high. This could cause the pipes to burst or injury.
- **When installing the unit, securely connect the refrigerant pipes before starting the compressor.** If the compressor is started before the refrigerant pipes are connected and when the stop valve is open, air could be drawn in and the pressure in the refrigeration cycle could become abnormally high. This could cause the pipes to burst or injury.
- **Fasten a flare nut with a torque wrench as specified in this manual.** If fastened too tight, a flare nut may break after a long period and cause refrigerant leakage.
- **The unit shall be installed in accordance with national wiring regulations.**

CAUTION (Could lead to serious injury in particular environments when operated incorrectly.)

- **Install an earth leakage breaker depending on the installation place.** If an earth leakage breaker is not installed, it could cause electric shock.
- **Perform the drainage/piping work securely according to the installation manual.**
- **Do not install the outdoor unit where small animals may live.** If small animals enter and touch the electric parts inside the unit, it could cause a malfunction, smoke emission, or fire. Also, advise user to keep the area around the unit clean.

1-2. SELECTING THE INSTALLATION LOCATION

- INDOOR UNIT**
- Where airflow is not blocked.
 - Where cool air spreads over the entire room.
 - Avoid wall without vibration.
 - Where it is not exposed to direct sunshine. Do not expose to direct sunshine also during the period following unpacking to before use.
 - Where easily drained.
 - At a distance 1 m or more away from your TV and radio. Operation of the air conditioner may interfere with radio or TV reception. An amplifier may be required for the affected device.
 - In a place as far away as possible from fluorescent and incandescent lights (so the infrared remote control can operate the air conditioner normally).
 - Where the air filter can be removed and replaced easily.
- REMOTE CONTROLLER**
- Where it is easy to operate and easily visible.
 - Where children cannot touch it.
 - Select a position about 1.2 m above the floor and check that signals from the remote controller are surely received by the indoor unit from that position ("beep" or "beep beep" receiving tone sounds). After that, attach remote controller holder to a pillar or wall and install wireless remote controller.
- OUTDOOR UNIT**
- Where it is not exposed to strong wind.
 - Where airflow is good and dustless.
 - Where rain or direct sunlight can be avoided as much as possible.
 - Where neighbours are not annoyed by operation sound or hot air.
 - Where rigid wall or support is available to prevent the increase of operation sound or vibration.
 - Where there is no risk of combustible gas leakage.
 - When installing the unit at a high level, be sure to secure the unit legs.
 - Where it is at least 3 m away from the antenna of TV set or radio. Operation of the air conditioner may interfere with radio or TV reception in areas where reception is weak. An amplifier may be required for the affected device.
 - Install the unit horizontally.
 - Please install it in an area not affected by snowfall or blowing snow. In areas with heavy snow, please install a canopy, a pedestal and/or some baffle boards.

1-3. SPECIFICATIONS

| Model | Outdoor unit | Power supply *1 | | Wire specifications *2 | | Pipe size (thickness *3, *4) |
|------------|---------------|-----------------|-----------|------------------------|--------------------------------|------------------------------|
| | | Rated Voltage | Frequency | Power supply | Indoor/outdoor connecting wire | |
| MSZ-SF25VE | MUZ-SF25VE(H) | 230 V | 50 Hz | 10 A | 3-core 1.0 mm ² | ø9.52 / 6.35 mm (0.8 mm) |
| MSZ-SF35VE | MUZ-SF35VE(H) | | | | 4-core 1.0 mm ² | |
| MSZ-SF42VE | MUZ-SF42VE(H) | | | 16 A | 3-core 2.0 mm ² | ø12.7 / 6.35 mm (0.8 mm) |
| MSZ-SF50VE | MUZ-SF50VE(H) | | | | 4-core 2.0 mm ² | |

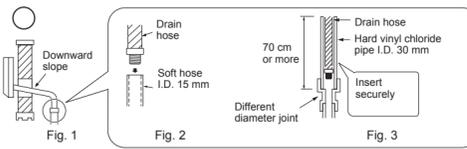
- *1 Connect to the power switch which has a gap of 3 mm or more when open to interrupt the source power phase. (When the power switch is shut off, it must interrupt all phases.)
- *2 Use wires in conformity with design 60245 IEC 57.
- *3 Never use pipes with thickness less than specified. The pressure resistance will be insufficient.
- *4 Use a copper pipe or a copper-alloy seamless pipe.
- *5 Be careful not to crush or bend the pipe during pipe bending.
- *6 Refrigerant pipe bending radius must be 100 mm or more.
- *7 If pipe length exceeds 7 m, additional refrigerant (R410A) is required. (No additional charge is required for pipe length less than 7 m.)
- *8 Insulation material: Heat resisting foam plastic 0.045 specific gravity
- *9 Be sure to use the insulation of specified thickness. Excessive thickness may cause incorrect installation of the indoor unit and insufficient thickness may cause dew drip.

Rear, right, or downward piping

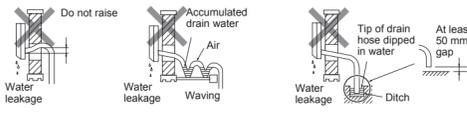
- Put the refrigerant piping and the drain hose together, then firmly apply piping tape (G) from the end.
- Insert the piping and the drain hose into the wall hole sleeve (C), and hook the upper part of the indoor unit on the installation plate (1).
- Check if the indoor unit is hooked securely on the installation plate (1) by moving the unit to left and right.
- Thrust the lower part of the indoor unit into the installation plate (1).

Drain Piping

- If the extension drain hose has to pass through a room, be sure to wrap it with commercially sold insulation.
- The drain hose should point downward for easy drain flow. (Fig. 1)
- If the drain hose provided with the indoor unit is too short, connect it with drain hose (I) that should be provided at your site. (Fig. 2)
- When connecting the drain hose to the hard vinyl chloride pipe, be sure to insert it securely into the pipe. (Fig. 3)



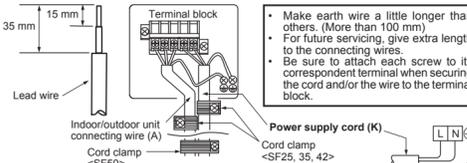
Do not make drain piping as shown below.



3. OUTDOOR UNIT INSTALLATION

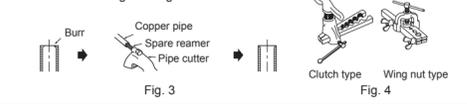
3-1. CONNECTING WIRES FOR OUTDOOR UNIT

- Open the service panel.
- Loosen terminal screw, and connect indoor/outdoor unit connecting wire (A) from the indoor unit correctly on the terminal block. Be careful not to make mis-wiring. Fix the wire to the terminal block securely so that no part of its core is appeared, and no external force is conveyed to the connecting section of the terminal block.
- Firmly tighten the terminal screws to prevent them from loosening. After tightening, pull the wires lightly to confirm that they do not move.
- Connect power supply cord (K).
- Fix indoor/outdoor unit connecting wire (A) and power supply cord (K) with the cord clamp.
- Close the service panel securely.



3-2. FLARING WORK

- Cut the copper pipe correctly with pipe cutter. (Fig. 1, 2)
- Completely remove all burrs from the cut cross section of pipe. (Fig. 3)
 - Put the end of the copper pipe to downward direction as you remove burrs in order to avoid to let burrs drop in the piping.
- Remove flare nuts attached to indoor and outdoor units, then put them on pipe having completed burr removal. (Not possible to put them on after flaring work.)
- Flaring work (Fig. 4, 5). Firmly hold copper pipe in the dimension shown in the table. Select A mm from the table according to the tool you use.
- Check
 - Compare the flared work with Fig. 6.
 - If flare is noted to be defective, cut off the flared section and do flaring work again.



| Pipe diameter (mm) | Nut (mm) | Clutch type tool for R410A | | Wing nut type tool for R22 | Tightening torque | |
|--------------------|----------|----------------------------|--------------------------|----------------------------|-------------------|------------|
| | | Clutch type tool for R410A | Clutch type tool for R22 | | N·m | kgf·cm |
| ø 6.35 (1/4") | 17 | 0 to 0.5 | 1.0 to 1.5 | 1.5 to 2.0 | 13.7 to 17.7 | 140 to 180 |
| ø 9.52 (3/8") | 22 | | | 34.3 to 41.2 | 350 to 420 | |
| ø 12.7 (1/2") | 26 | | | 49.0 to 56.4 | 500 to 575 | |
| ø 15.88 (5/8") | 29 | | | 73.5 to 78.4 | 750 to 800 | |

3-3. PIPE CONNECTION

- Connect both liquid and gas pipings to indoor unit.
 - Apply a thin coat of refrigeration oil (J) on the seat surface of pipe.
 - For connection, first align the center, then tighten the first 3 to 4 turns of flare nut.
 - Use tightening torque table above as a guideline for indoor unit side union joint section, and tighten using two wrenches. Excessive tightening damages the flare section.
- Indoor unit connection**
- Connect pipes to stop valve pipe joint of the outdoor unit in the same manner applied for indoor unit.
 - For tightening, use a torque wrench or spanner and use the same tightening torque applied for indoor unit.

WARNING When installing the unit, securely connect the refrigerant pipes before starting the compressor.

3-4. INSULATION AND TAPING

- Cover piping joints with pipe cover.
- For outdoor unit side, surely insulate every piping including valves.
- Using piping tape (G), apply taping starting from the entry of outdoor unit.
 - Stop the end of piping tape (G) with tape (with adhesive agent attached).
 - When piping have to be arranged through above ceiling, closet or where the temperature and humidity are high, wind additional commercially sold insulation to prevent condensation.

4-1. INSTALLATION DIAGRAM

ACCESSORIES

Check the following parts before installation.

<Indoor unit>

| | |
|---|---|
| (1) Installation plate | 1 |
| (2) Installation plate fixing screw 4 × 25 mm | 5 |
| (3) Remote controller holder | 1 |
| (4) Fixing screw for (3) 3.5 × 16 mm (Black) | 2 |
| (5) Battery (AAA) for (6) | 2 |
| (6) Wireless remote controller | 1 |
| (7) Felt tape (For left or left-rear piping) | 1 |

<Outdoor unit>

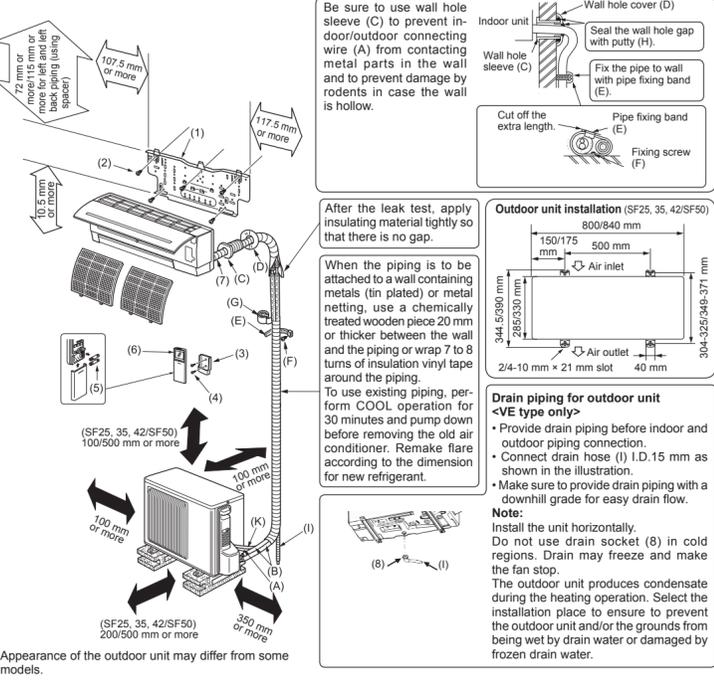
| | |
|---------------------------------|---|
| (8) Drain socket (VE type only) | 1 |
|---------------------------------|---|

PARTS TO BE PROVIDED AT YOUR SITE

| | |
|---|--------|
| (A) Indoor/outdoor unit connecting wire* | 1 |
| (B) Extension pipe | 1 |
| (C) Wall hole sleeve | 1 |
| (D) Wall hole cover | 1 |
| (E) Pipe fixing band | 2 to 5 |
| (F) Fixing screw for (E) 4 × 20 mm | 2 to 5 |
| (G) Piping tape | 1 |
| (H) Putty | 1 |
| (I) Drain hose (or soft PVC hose, 15 mm inner diameter or hard PVC pipe VP16) | 1 or 2 |
| (J) Refrigeration oil | 1 |
| (K) Power supply cord* | 1 |

* Note: Place indoor/outdoor unit connecting wire (A) and power supply cord (K) at least 1 m away from the TV antenna wire.

Units should be installed by licensed contractor according to local code requirements.



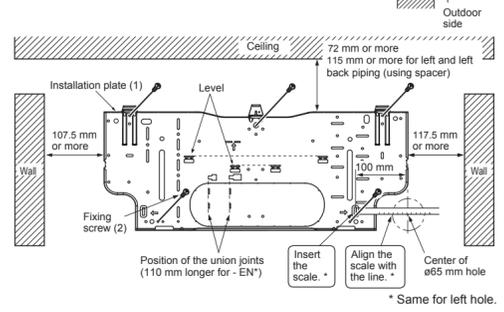
2. INDOOR UNIT INSTALLATION

2-1. FIXING OF INSTALLATION PLATE

- Find a structural material (such as a stud) in the wall and fix installation plate (1) horizontally by tightening the fixing screws (2) firmly.
- To prevent installation plate (1) from vibrating, be sure to install the fixing screws in the holes indicated in the illustration. For added support, fixing screws may also be installed in other holes.
- When the knockout is removed, apply vinyl tape to the knockout edges to prevent damaging the wires.
- When bolts recessed in the concrete wall are to be utilized, secure installation plate (1) using 11 × 20 × 11 × 26 oval hole (450 mm pitch).
- If the recessed bolt is too long, change it for a shorter one available in the market.

2-2. WALL HOLE DRILLING

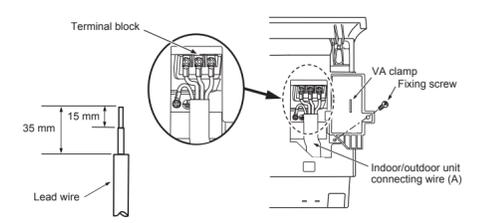
- Determine the wall hole position.
- Drill a ø65 mm hole. The outdoor side should be 5 to 7 mm lower than the indoor side.
- Insert wall hole sleeve (C).



2-3. CONNECTING WIRES FOR INDOOR UNIT

- Open the front panel.
- Remove VA clamp.
- Pass indoor/outdoor unit connecting wire (A) from the back of the indoor unit and process the end of the wire.

- Loosen terminal screw, and connect first the earth wire, then indoor/outdoor unit connecting wire (A) to the terminal block. Be careful not to make mis-wiring. Fix the wire to the terminal block securely so that no part of its core is appeared, and no external force is conveyed to the connecting section of the terminal block.
- Firmly tighten the terminal screws to prevent them from loosening. After tightening, pull the wires lightly to confirm that they do not move.
- Secure indoor/outdoor unit connecting wire (A) and the earth wire with the VA clamp. Never fail to hook the left claw of the VA clamp. Attach the VA clamp securely.



- For future servicing, give extra length to the connecting wires.
- Make earth wire a little longer than others. (More than 60 mm)
- Do not fold the excess wire, or cram it into small space. Take caution not to damage the wires.
- Be sure to attach each screw to its correspondent terminal when securing the cord and/or the wire to the terminal block.
- Note: Do not place the wires between the indoor unit and the installation plate (1). Damaged wire could cause heat generation or fire.

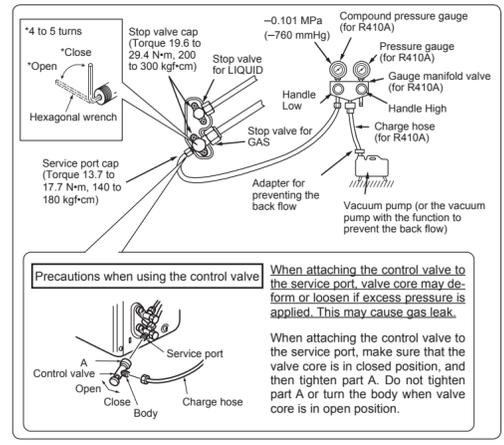
2-4. PIPE FORMING AND DRAIN PIPING

- Pipe Forming**
- Place the drain hose below the refrigerant piping.
 - Make sure that the drain hose is not heated or snaked.
 - Do not pull the hose when applying the tape.
 - When the drain hose passes the room, be sure to wrap insulation material (obtainable at a store) around it.

4. PURGING PROCEDURES, LEAK TEST, AND TEST RUN

4-1. PURGING PROCEDURES AND LEAK TEST

- Remove service port cap of stop valve on the side of the outdoor unit gas pipe. (The stop valves are fully closed and covered in initial state.)
- Connect gauge manifold valve and vacuum pump to service port of stop valve on the gas pipe side of the outdoor unit.



- Run the vacuum pump. (Vacuumize for more than 15 minutes.)
- Check the vacuum with gauge manifold valve, then close gauge manifold valve, and stop the vacuum pump.
- Leave as it is for one to two minutes. Make sure pointer gauge manifold valve remains in the same position. Confirm that pressure gauge shows -0.101 MPa [Gauge] (-760 mmHg).
- Remove gauge manifold valve quickly from service port of stop valve.
- After refrigerant pipes are connected and evacuated, fully open all stop valves on both sides of gas pipe and liquid pipe. Operating without fully opening lowers the performance and this causes trouble.
- Refer to 1-3., and charge the prescribed amount of refrigerant if needed. Be sure to charge slowly with liquid refrigerant. Otherwise, composition of the refrigerant in the system may be changed and affect performance of the air conditioner.
- Tighten cap of service port to obtain the initial status.
- Leak test

4-2. TEST RUN

- Insert power supply plug into the power outlet and/or turn on the breaker.
- Press the E.O. SW once for COOL, and twice for HEAT operation. Test run will be performed for 30 minutes. If the left lamp of the operation indicator blinks every 0.5 seconds, inspect the indoor/outdoor unit connecting wire (A) for mis-wiring. After the test run, emergency mode (set temperature 24°C) will start.
- To stop operation, press the E.O. SW several times until all LED lamps turn off. Refer to operating instructions for details.

Checking the remote (infrared) signal reception

Press the ON/OFF button on the remote controller (6) and check that an electronic sound is heard from the indoor unit. Press the ON/OFF button again to turn the air conditioner off.

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

4-3. AUTO RESTART FUNCTION

This product is equipped with an auto restart function. When the power supply is stopped during operation, such as during blackouts, the function automatically starts operation in the previous setting once the power supply is resumed. (Refer to the operating instructions for details.)

- Caution:**
- After test run or remote signal reception check, turn off the unit with the E.O. SW or the remote controller before turning off the power supply. Not doing so will cause the unit to start operation automatically when power supply is resumed.
- To the user:**
- After installing the unit, make sure to explain the user about auto restart function.
 - If auto restart function is unnecessary, it can be deactivated. Consult the service representative to deactivate the function. Refer to the service manual for details.

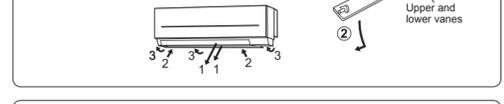
4-4. EXPLANATION TO THE USER

- Using the OPERATING INSTRUCTIONS, explain to the user how to use the air conditioner (how to use the remote controller, how to remove the air filters, how to remove or put the remote controller in the remote controller holder, how to clean, precautions for operation, etc.).
- Recommend the user to read the OPERATING INSTRUCTIONS carefully.

5. RELOCATION AND MAINTENANCE

5-1. REMOVING AND INSTALLING THE PANEL ASSEMBLY

- Removal procedure**
- Unlock the upper and lower vanes as shown in ① and ② using a thin instrument. Then, remove the horizontal vanes.
 - Remove the 2 screws which fix the panel assembly.
 - Remove the panel assembly. Be sure to remove its bottom right end first.



- Installation procedure**
- Install the panel assembly following the removal procedure in reverse.
 - Be sure to press the positions as indicated by the arrows in order to attach the assembly completely to the unit.
 - Install the horizontal vanes.

5-2. REMOVING THE INDOOR UNIT

- Remove the bottom of the indoor unit from the installation plate.
- When releasing the corner part, release both left and right bottom corner part of indoor unit and pull it downward and forward as shown in the figure on the right.

5-3. PUMPING DOWN

- When relocating or disposing of the air conditioner, pump down the system following the procedure below so that no refrigerant is released into the atmosphere.
- Connect the gauge manifold valve to the service port of the stop valve on the gas pipe side of the outdoor unit.
 - Fully close the stop valve on the liquid pipe side of the outdoor unit.
 - Close the stop valve on the gas pipe side of the outdoor unit almost completely so that it can be easily closed fully when the pressure gauge shows 0 MPa [Gauge] (0 kgf/cm²).
 - Start the emergency COOL operation.
 - To start the emergency operation in COOL mode, disconnect the power supply plug and/or turn off the breaker. After 15 seconds, connect the power supply plug and/or turn on the breaker, and then press the E.O. SW once. (The emergency COOL operation can be performed continuously for up to 30 minutes.)
 - Fully close the stop valve on the gas pipe side of the outdoor unit when the pressure gauge shows 0.05 to 0 MPa [Gauge] (approx. 0.5 to 0 kgf/cm²).
 - Stop the emergency COOL operation.
 - Press the E.O. SW several times until all LED lamps turn off. Refer to operating instructions for details.

WARNING When pumping down the refrigerant, stop the compressor before disconnecting the refrigerant pipes. The compressor may burst if air etc. get into it.

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

The product at hand is based on the following EU regulations:

2006/95/EC: Low Voltage Directive
2006/42/EC: Machinery Directive
2004/108/EC: Electromagnetic Compatibility Directive
2009/125/EC: Energy-related Products Directive

MITSUBISHI ELECTRIC CORPORATION

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

AUTHORIZED REPRESENTATIVE IN EU: MITSUBISHI ELECTRIC EUROPE B.V. HARMAN HOUSE, 1 GEORGE STREET, UXBRIDGE, MIDDLESEX UB8 1QQ, U.K.