MITSUBISHI ELECTRIC

CE

Building Air Conditioning Control System

Power supply unit
Model: PAC-SC50KUA

Installation Manual

Contents

1. Safety precautions 1
2. Product feature 2
    1. Specification 2
    2. Appearance 2
3. Installation 3
    1. Parts prepared at site 3
    2. Installation space and the direction 3
    3. Unit installation 4
4. Wiring 4
    1. Cover Removal and Installation 4
    2. Power line 5
    3. DC Power Supply and M-NET Transmission Line 5
5. Allowable length of M-NET Transmission Lines 6

Before using the controller, please read this Installation Manual carefully to ensure correct operation. Store this Installation Manual in a location that is easy to find.

This manual describes the installation of the PAC-SC50KUA Power supply unit and wiring to the central controller and the air conditioner units. For the information about how to install the central controller or the air conditioner units, see the installation manual for them.
For your safety, first be sure to read (1 Safety precautions) described below thoroughly and then install the PAC-SC50KUA correctly. After reading this installation manual, keep it in a location that is easy to find, If the PAC-SC50KUA Power supply unit is going to be operated by another person, make sure that this manual is given to them.

1 Safety precautions

Before installing this unit, make sure you read all the “Safety Precautions”.
The “Safety Precautions” provide very important points regarding safety. Make sure you follow them.

Symbols and Terms

⚠ **WARNING**	Statements identify condition or practices that could result in personal injury or loss of life.
⚠ **CAUTION**	Statements identify condition or practices that could result in damage to the unit or other property.

Specific Precautions

⚠ WARNING

Ask your dealer or technical representative to install.
Any deficiency cased by your own installation may result in an electric shock and fire.

Install in a place which is strong enough to withstand the weight of the unit.
Any lack of the strength may cause the unit to fall down, resulting in a personal injury.

Wire and connect using the desired cables securely so that any external force exerted on the cable is not imparted on to the terminal connections.
Imperfect connection and fixing may result in heating or fire.

Never modify or repair the unit by yourself.
Any deficiency caused by your modification or repair may result in an electric shock or fire.
Consult with your distributor for repair.

Make sure that the unit is powered by a dedicated line.
Other appliances connected to the same line could cause an overload.

Make sure that there is a main power switch.
A ready accessible breaker for power source line helps reduce the risk of electric shocks. Installation of a breaker is mandatory in same area.

Ensure that installation work is done correctly following this installation manual.
Any deficiency caused by installation may result in an electric shock or fire.

All electrical work must be performed by a licensed technician, according to local regulations and the instructions given in this manual.
Any lack of electric circuit or any deficiency caused by installation may result in an electric shock or fire.

Do not move and re-install the unit yourself.
Any deficiency caused by installation may result in an electric shock or fire.
Ask your distributor or special vender for moving and installation.

This appliance must be earthed (grounded).
Make sure to install a protect earth(PE)/grounding line .
Do not connect the PE (grounding) line to gas or water pipes, lightning conductors or telephone grounding lines.
Improper grounding may cause an electric shock.

Securely install the cover (panel) of the PAC-SC50KUA.
If the cover(panel) is not installed properly, dust or water may enter the unit and fire or electric shock may result.

⚠ CAUTION

Do no install any place exposed to flammable gas leakage.
Flammable gases that accumulates around the body of the unit may caused an explosion.

Do not use in any special environment.
If use in any place exposed to oil (including machine oil), steam and sulfuric gas may degrade performances significantly or damage the component parts.

Wire so that it wires do not received any tension.
Tension may caused wire breakage, heating or fire.

Do not wash with water.
Doing so may cause an electric shock or malfunction.

Do not install in any place at a temperature of more than 40°C (104°F) or less than 0°C (32°F) or exposed to direct sunlight.

Use only an earth leakage breaker and fuse of the specified capacity.
If no earth leakage breaker is installed, it may cause an electric shock.
Using fuse and wire or copper wire with too large a capacity may cause a malfunction to the unit or fire.

Do not install in any steamy place such as bath room or kitchen.
Avoid any place where moisture is condensed into dew.
Doing so may cause an electric shock or a malfunction.

Do not install in any place where acidic or alkaline solution or special spray or other similar substances are used.
Doing so may cause an electric shock or malfunction.

Use standard wires in compliance with the current capacity.
A failure to do this may result in an electric leakage, heating or fire.

Do not touch any PCB (Printed Circuit Board) with your hand or tools. Do not allow dust to collect on the PCB.
Doing so may cause fire or an electric shock.

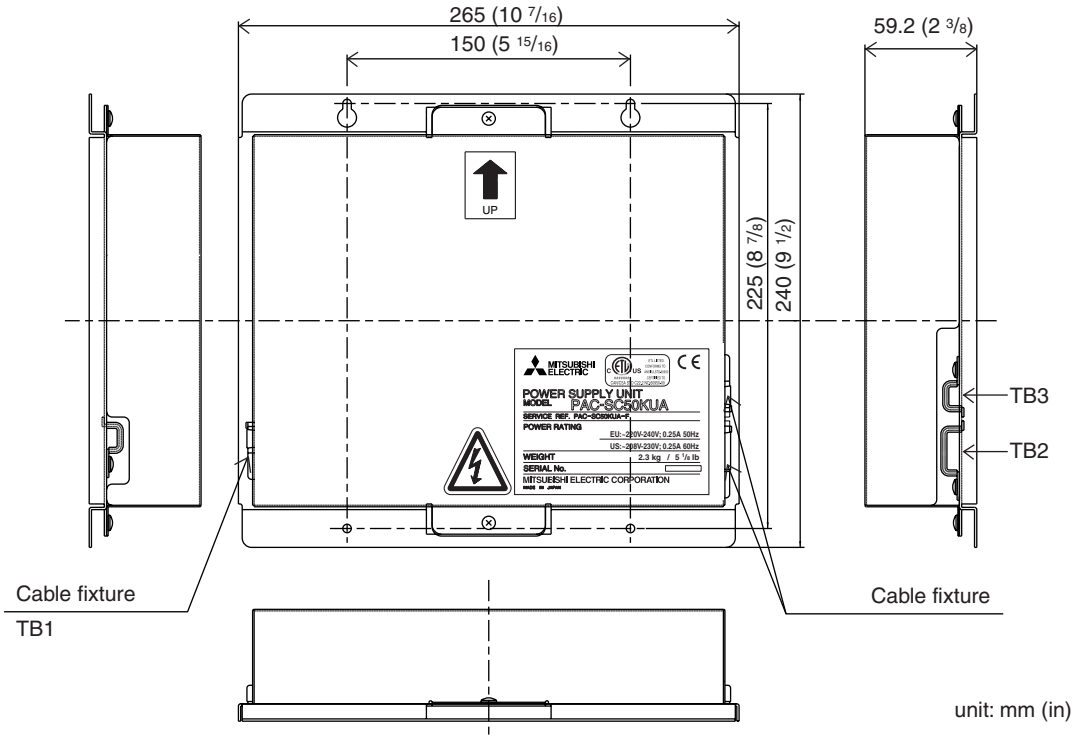
2 Product feature

This unit supplies DC power to the central controller G-50A by means of the central controller system M-NET transmission line and DC power line.

1. Specification

Source power requirement	Rated input voltage and current	EU: ~220V - 240V ; 0.25A / 50Hz Single-phase US: ~208V - 230V ; 0.25A / 60Hz Single-phase
	Fuse:2.0A Time-delay type (IEC127-2 S.S.5)	
Output voltage/current	M-NET : DC24V 0.45A (Maximum loading) DC power supply : DC12V 0.2A (Maximum loading)	
Load capacity	Number of the loading unit: G-50A Central Controller 1 unit	
Environmental condition	Temperature	Operating range 0 to 40°C / 32 to 104°F Storage range -20 to 60°C / -4 to 140°F
	Humidity	30~90%RH (No condensation)
Dimensions	240 (H) ×265 (W) ×59.2 (D) mm / 9 1/2 (H) x 10 7/16 (W) x 2 3/8(D) in	
Weight	2.3kg / 5 1/8 lb	
Installation Environment	In the control panel box (indoor) *This unit is installed and used in a business office or equivalent environment.	

2. Appearance



3 Installation

1. Parts prepared at site

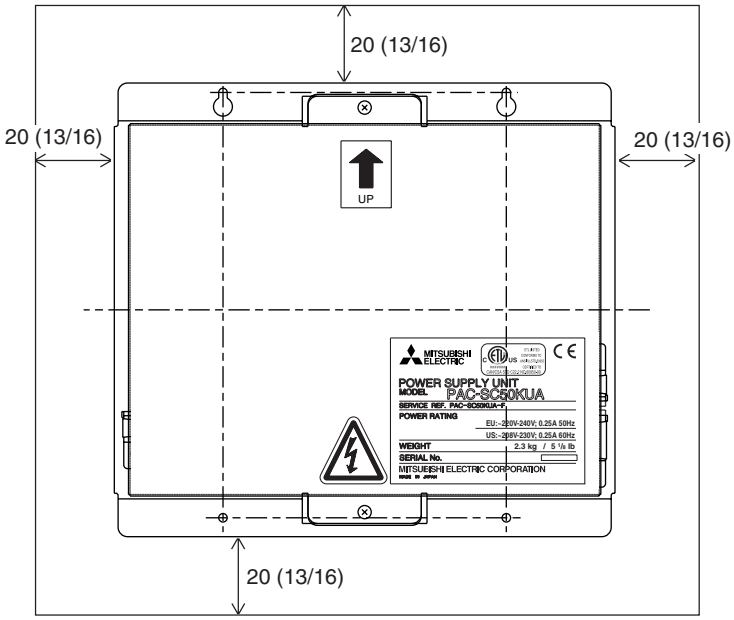
Please prepare the following parts before installation of the unit.

Preparation parts	Specification
Unit fixing screw	M4 screw × 4pcs
Power cable/ Protective earth cable (Ground cable)	Use sheathed vinyl cord or wire. Wire type: Wire should not be lighter than ordinary PVC sheathed flexible cord IEC 60227 (designation 60227 IEC 53) Wire size: 0.75mm² to 2mm² (AWG18 to 14)
Main power switch (Circuit breaker)	Qty.:1pc Type: 250VAC, Single-phase 3A
Transmission cable	Type of the cable; Sheathed vinyl cords or cable which comply with the following specifications or equivalent. • CPEVS ϕ1.2mm to ϕ1.6mm • CVVS 1.25mm² to 2mm² (AWG16 to 14) * CPEV; PE insulated PVC jacketed shielded communication cable * CVVS; PVC insulated PVC jacketed shielded control cable PE: Polyethylene PVC: Polyvinyl chloride Cable length: Please refer to section 5 Allowable length of M-NET transmission line
DC power cable	The DC power cable should comply with both local standards as well as the power requirement of the unit. Recommended type: 0.75mm² to 2mm² (AWG18 to 14) Cable length: Within 10m (32 ft)

* Use a breaker with a contact distance of 3mm (1/8 in) or more.

2. Installation space and the direction

PAC-SC50KUA Power supply unit is not waterproof.
PAC-SC50KUA shall be installed in a control panel box (steel : thickness 1mm (3/64 in) or more).
Please prepare the control panel box in consideration with installation space as shown in the Fig.3-1.
(Install in an area capable of withstanding a 2.3 kg (5 1/8 lb) load.)
The unit shall be also installed in vertical direction only indicated by arrow making on the cover as shown in the Fig.3-1.



unit: mm (in)

Fig.3-1

3. Unit installation

Fix the unit to the control panel box using M4 screw as shown in the Fig.3-2.

> ⚠ **CAUTION**
>
> The unit should be fixed with 4 positions to prevent from unit falling down.

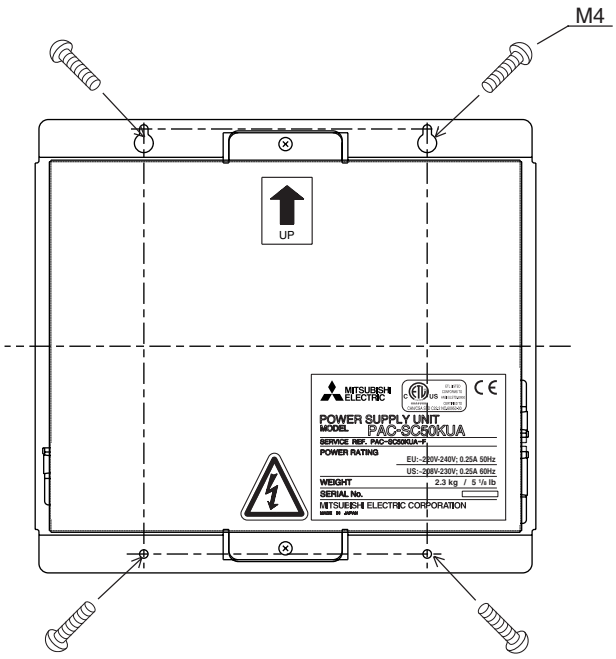


Fig.3-2

4 Wiring

> ⚠ **WARNING**
>
> • All electric work must be performed according to local regulations.
> Improper electrical work may result in electric shock or fire.
> • Be sure to shut off the power source of the unit and the all other unit to be connected to the power supply unit before wiring.
>
> ⚠ **CAUTION**
>
> Do not connect the AC power line to the M-NET and POWER (DC12V) terminal blocks of this device. Otherwise, the unit may fail.

1. Cover Removal and Installation

When removing the cover, remove the 2 mounting screws and remove the cover.
When installing the cover, install the cover by tightening the 2 screws.

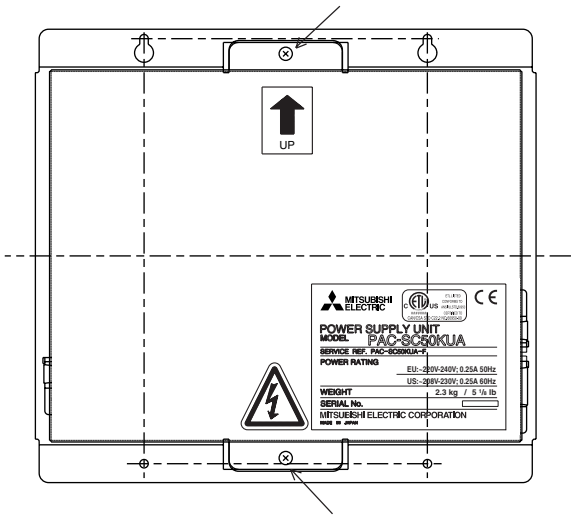
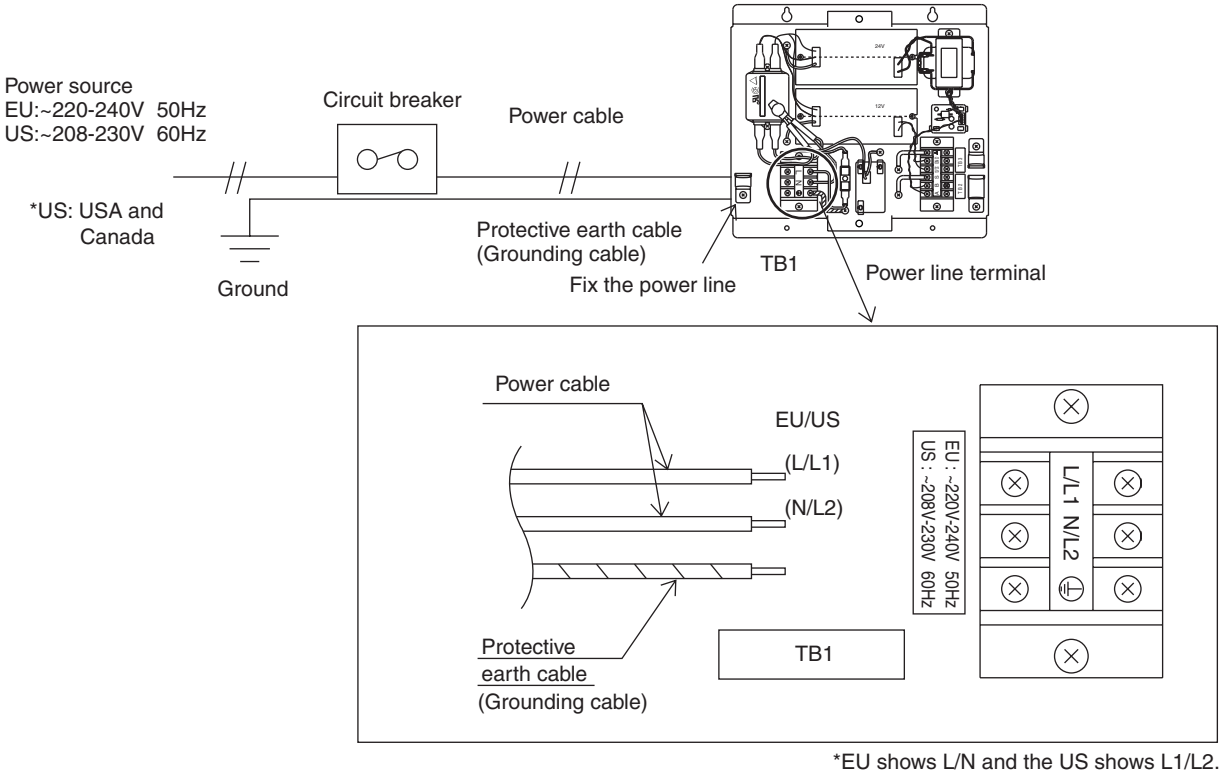


Fig.4-1

2. Power line

Wire the power cable and protective earth cable (grounding cable) to L/L1,N/L2 and the earth line (grounding line) terminals on the TB1 as shown in the Fig.4-2.



*EU shows L/N and the US shows L1/L2.

Fig.4-2

3. DC Power Supply and M-NET Transmission Line

The DC power line and M-NET transmission line connect as shown in Fig. 4-3. The DC power line has a 12VDC and a GND polarity. Connect it to the terminals in accordance with the polarity. Connect the M-NET transmission line to the A, B (non-polarity) and S (shield) terminal block.

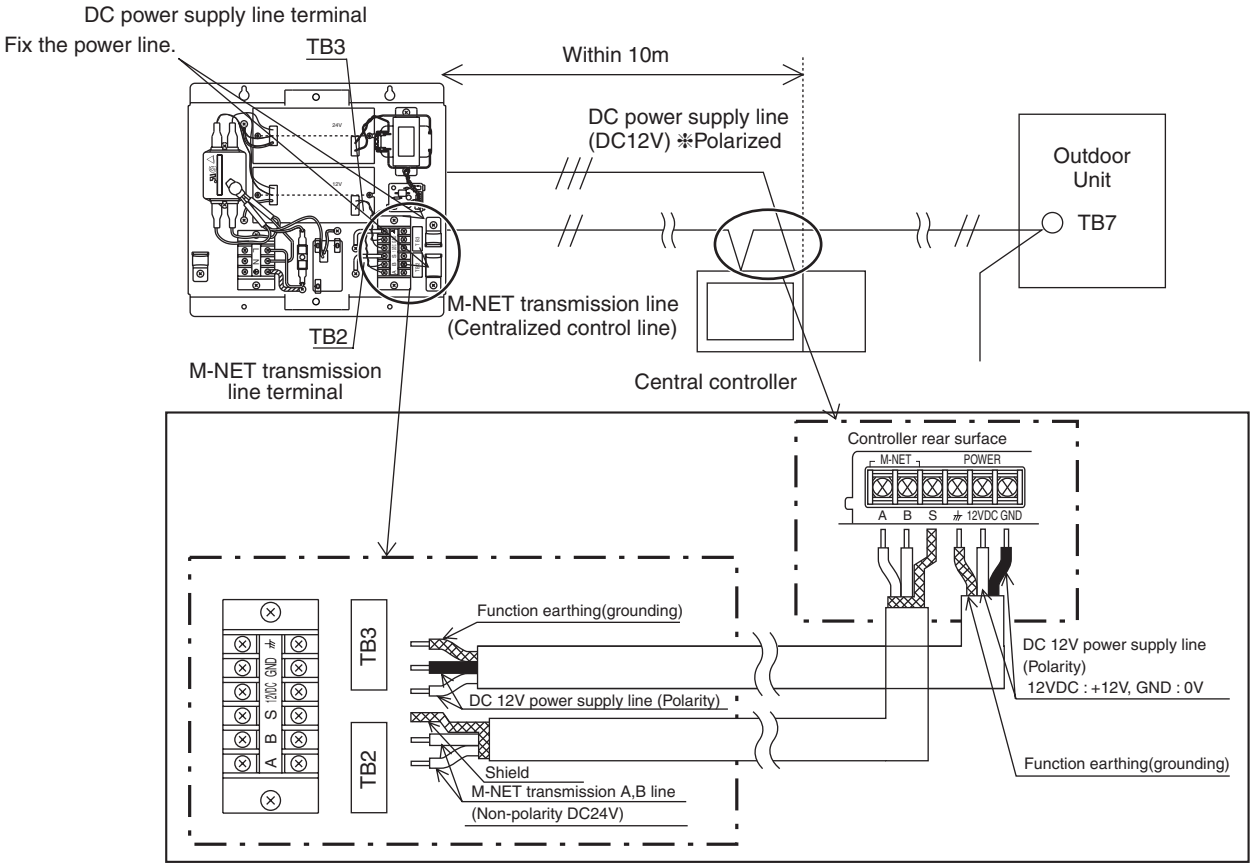


Fig.4-3

⚠ CAUTION

- Both of PAC-SC50KUA and Outdoor unit can supply DC power to the M-NET transmission line.
  Set the outdoor unit central control system transmission line power supply to the factory setting CN41 (no supply). For further details, refer to the installation manual of the outdoor unit. Not doing so may cause unit failure or fire.

NOTE
The shied wire of M-NET transmission line shall be grounded by one point similar to earthing (grounding) method.
The shield wire shall be connected to the S terminal of only one unit on the common transmission line.

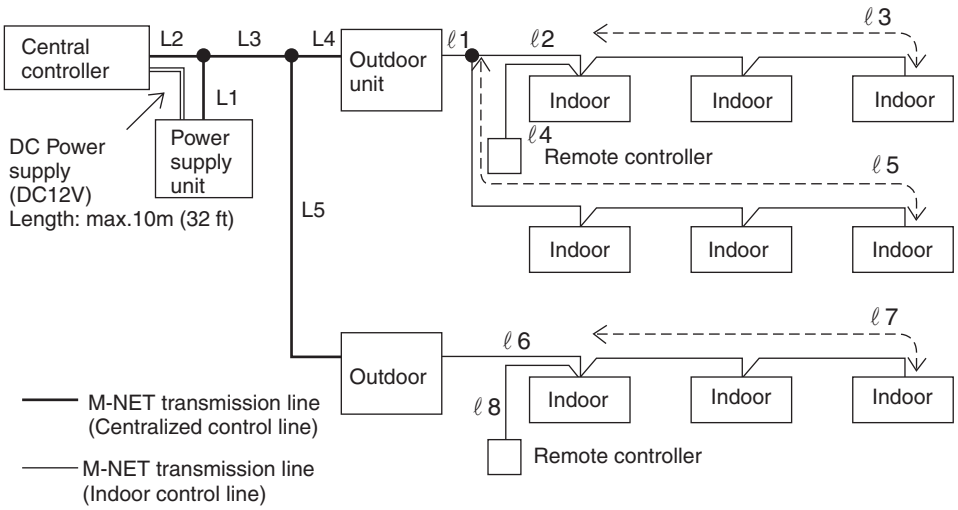
After connection for the each cable, fasten each cable with the cable fixture.

5 Allowable length of M-NET Transmission Lines

- Maximum length of M-NET transmission ≦500m/1640 ft *1
- Maximum power feeding length ≦200m/656 ft

NOTE
* 1: Not including the remote control cables up to 10m (32 ft) in length. If the remote control cable exceeds 10m (32 ft), the excess must be added to the total length in order to avoid exceeding the maximum length.

Example



1) Maximum length of M-NET transmission
   ① L2+L3+L4+ℓ1+ℓ2+ℓ3 (ℓ4) ≦500m/1640 ft
   ② L2+L3+L4+ℓ1+ℓ5 ≦500m/1640 ft
   ③ L2+L3+L5+ℓ6+ℓ7 (ℓ8) ≦500m/1640 ft
   ④ ℓ3 (ℓ4) + ℓ2+ℓ1+L4+L5+ℓ6+ℓ7 (ℓ8) ≦500m/1640 ft
   ⑤ ℓ5+ℓ1+L4+L5+ℓ6+ℓ7 (ℓ8) ≦500m/1640 ft

2) Maximum power feeding length for the indoor control line
   ① ℓ1+ℓ2+ℓ3 (ℓ4) ≦200m/656 ft
   ② ℓ1+ℓ5 ≦200m/656 ft

3) Maximum power feeding length for the centralized control line
   ① L1 +L2 ≦200m/656 ft
   ② L1 +L3+L4 (L5) ≦200m/656 ft

NOTE
If the remote control cable (ℓ4, ℓ8) do not exceed 10m (32 ft) in length, the length for ℓ4, ℓ8 may not consider to the total length.

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:

- Low Voltage Directive 73/23/EEC
- Electromagnetic Compatibility Directive 89/336/EEC

NOTE:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide resonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no quarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: MITSUBISHI DENKI BLDG. , 2-2-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN

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