

BEFORE USE

Thank you for choosing us. Before use, please check contents of the package you received as outlined below. If you have any problems or questions with the product, please contact our sales office or representatives.

PACKAGE INCLUDES:

- Surge protector.....(1)
- Single mount DIN rail.....(1)
- (Only for option code 'DR' selected)

MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

LIMITATION APPLICABLE TO M-RESTER

The M-RESTER will protect electronics equipment from damage caused by lightning by absorbing most of the surge voltages.

However, M-RESTER may not be effective against certain extremely high voltages caused by a direct or almost direct hit by lightning.

M-RESTER must be installed according to this installation / instruction manual.

POINTS OF CAUTION

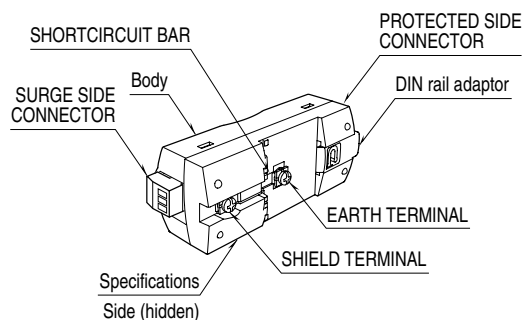
ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the surge protector inside proper housing with sufficient ventilation.
- Do not install the surge protector where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -25 to +85°C (-13 to +185°F) with relative humidity within 10 to 90% RH in order to ensure adequate life span and operation.
- This unit can be earthed via a DIN rail. Oxide film on the surface of an aluminum rail may lower the electric conductivity between this module and the ground. When this unit is earthed via a DIN rail, use a steel or copper rail.
- Steel rails may be coated with thin oxide film. Discharging surge current may produce sparks with the film. However, this does not affect the surge protection. If you need to avoid sparks, prior to mounting on the DIN rail, remove the film by a wire brush.
- Single mount DIN rail for option code 'DR' is made of aluminum. Connect to ground with ground terminal when this DIN rail is used.

AND

- We recommend that you keep spare surge protectors so that you can replace them when necessary.
- Lightning surge can enter not only through signal lines but also through power supply lines. We recommend that you also use the surge protectors for power line for sufficient protection.

COMPONENT IDENTIFICATION

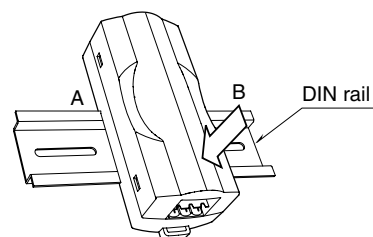


INSTALLATION

Mount the unit on a DIN rail. Once installed, do not move it to another DIN rail.

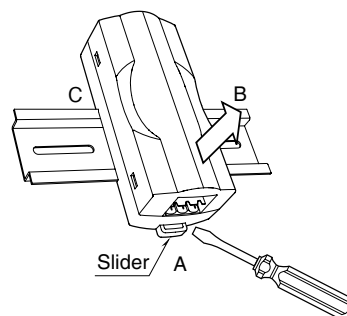
MOUNTING THE UNIT ON A DIN RAIL

- A) Hang the upper hook of the DIN rail mounting adaptor at the rear side of unit, on the DIN rail.
- B) Push in the lower in keeping pressing the unit to the DIN rail.



REMOVING THE UNIT

- A) Pull down the DIN rail adaptor utilizing a minus screwdriver.
- B) Pull out the lower part of the unit.
- C) Detach the upper part from the DIN rail.

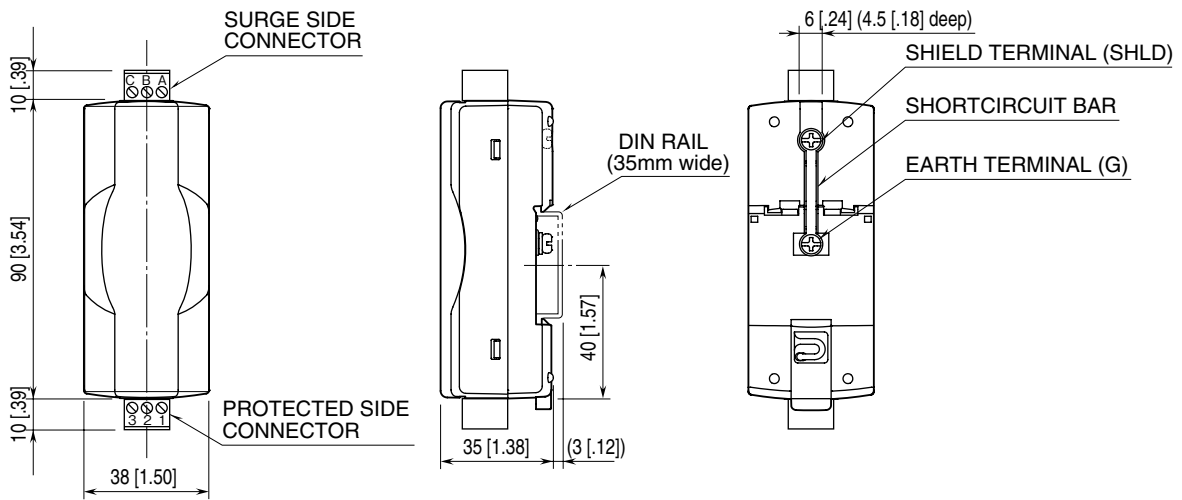


TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

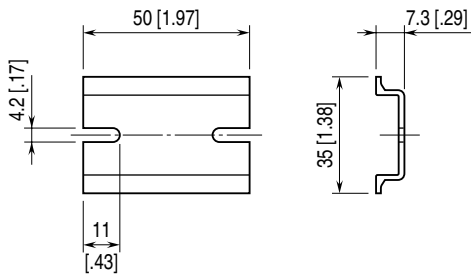
EXTERNAL DIMENSIONS unit: mm [inch]

UNIT

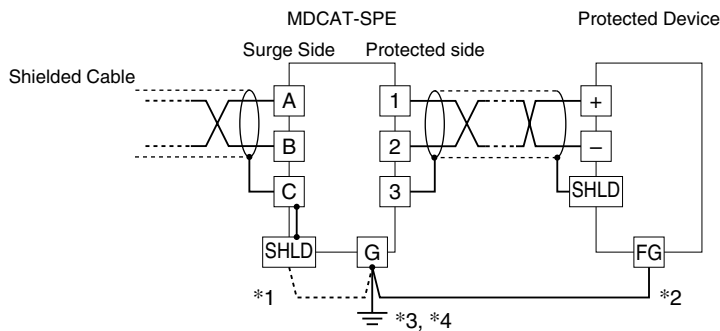


• When mounting, no extra space is needed between units.

DIN RAIL



CONNECTION DIAGRAM



- *1. Use shortcircuit bar to ground the shield.
- *2. If the protected device has an FG terminal, connect to the G terminal of the MDCAT-SPE.
- *3. Use a DIN rail made of steel or copper when connecting to ground via the DIN rail.
- *4. Single mount DIN rail for option code 'DR' is made of aluminum.
Connect to ground with ground terminal when this DIN rail is used.

■ WIRING INSTRUCTIONS

Applicable wire size range for euro type connector terminal of communication is as shown below.

- Applicable wire size

Solid: 0.2 to 2.5 mm² (0.55 to 1.75 dia.)

Stranded: 0.2 to 2.5 mm²

Tinning wire ends may cause contact failure and therefore is not recommended.

Ferruled: 0.2 to 1.5 mm² (0.55 to 1.35 dia.)

The following Phoenix Contact terminals are recommended:

AI 0.25-8YE 0.2 to 0.25 mm²

AI 0.34-8TQ 0.25 to 0.34 mm²

AI 0.5-8WH 0.34 to 0.5 mm²

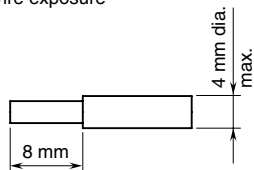
AI 0.75-8GY 0.5 to 0.75 mm²

AI 1.0-8RD 0.75 to 1.0 mm²

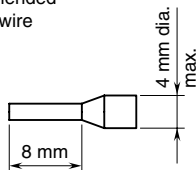
AI 1.5-8BK 1.0 to 1.5 mm²

- Expose wire conductors by 8 mm (0.31").

Wire exposure



Recommended ferruled wire



MAINTENANCE

Check surge protectors periodically. Many cases of lightning are ignored, and even lightning at a far distance often causes inductive surges.

We recommend that you check your surge protector about twice a year, before and after the rainy season. Check whenever you experience a strong lightning occurrence.

Checking procedure is explained in the following:

■ CHECKING

1. WIRING

- Make sure that wiring is done as instructed in the connection diagram.

2. DISCHARGE ELEMENT

Approximate checking can be conducted as following.

- **Shortcircuit test**

- 1) Remove all cables connected to the MDCAT-SPE.
- 2) Remove also the shortcircuit bar.
- 3) Check resistance across the following terminals on the high resistance range of multimeter and confirm no conduction. (The meter will indicate the same value as it will show when these terminals are open.)
(1)-G, (2)-G, (3)-G
- 4) Then, apply $\pm 60V$ DC across the following terminals and measure leakage current to show $\leq 5\mu A$. If a voltage generator is not available, check resistance with a multimeter and confirm no conduction. (Use of a voltage generator is strongly recommended.)

- **Discharging test**

- 1) Check that discharging occurs across the following terminals with a $\pm 500V$ DC 1000 M Ω insulation tester.
(The tester shows $\leq 20M\Omega$.)
(1)-G, (2)-G, (3)-G