

LIGHTNING SURGE PROTECTOR FOR ETHERNET
 (PoE / 10 BASE-T / 100 BASE-TX / 1000 BASE-T, life monitor)

MODEL **MDCAT-A**

BEFORE USE

Thank you for choosing M-System. 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 M-System's Sales Office or representatives.

■ PACKAGE INCLUDES:

- Surge protector.....(1)
- LAN cable.....(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. Install the unit on a place where the check button and indicator LEDs can be easily visible and accessible.
- **DANGER!**
 DO NOT perform an installation, wiring and maintenance of the MDCAT-A during thunder storms.
- 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 -10 to +55°C (14 to 131°F) with relative humidity within 5 to 95% 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.

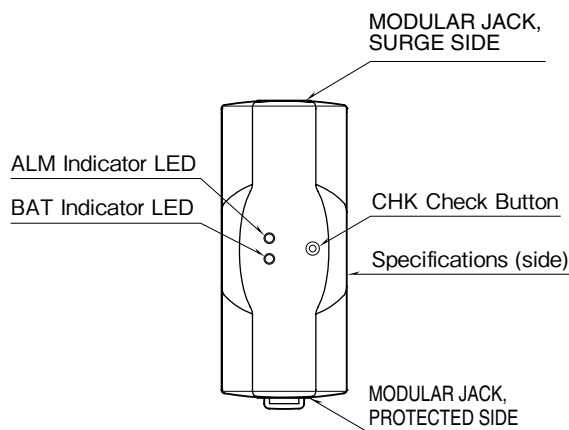
- Steel rails may be coated with thin oxide film. Discharging surge current may produce sparks with the film. However, this does not affect the surge protection. If you need to avoid sparks, prior to mounting on the DIN rail, remove the film by a wire brush.
- Single mount DIN rail for option code 'DR' is made of aluminum. Connect to ground with ground terminal when this DIN rail is used.

■ AND

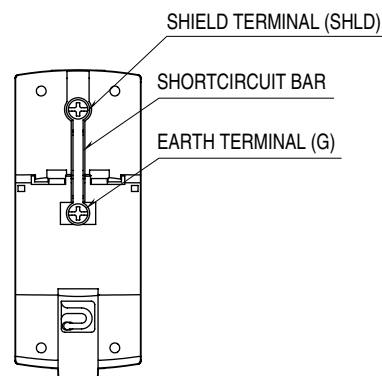
- We recommend that you keep spare surge protectors so that you can replace them when necessary.
- Lightning surge can enter not only through signal lines but also through power supply lines. We recommend that you also use the surge protectors for power line for sufficient protection.

COMPONENT IDENTIFICATION

■ FRONT VIEW



■ REAR VIEW

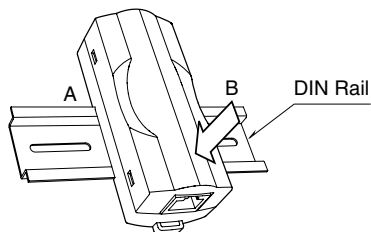


INSTALLATION

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

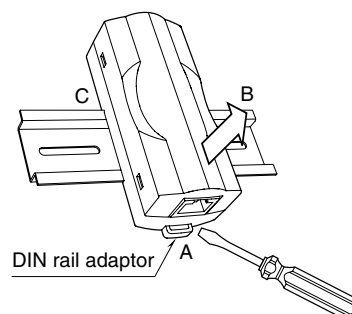
■ MOUNTING THE UNIT ON A DIN RAIL

- 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.



GENERAL

■ FUNCTION & FEATURES

- Designed specifically for Ethernet network
- Conforms with 1000 Base-T, PoE and PoE Plus
- LAN cable's shield wire can be floating or grounding by a shortcircuit bar
- Pressing CHK (Check) button confirms with LEDs the life span of the surge protect device
- DIN rail mounting

■ SPECIFICATIONS

	LINE TO LINE (pair)		LINE TO LINE (PoE)	LINE TO EARTH
	MDCAT-A-5E	MDCAT-A-6		
Max. continuous operating voltage (Uc)	±6V	±3.3V	±58V	±150V
Voltage protection level (Up)	±15V @2kV	±10V @2kV	±100V @2kV	±600V @4kV
Leakage current @Uc	25µA	5µA	25µA	5µA
Max. discharge current (Imax)	100A	100A	100A	10kA
Nominal current (In)	1A			
Series resistance	Approx. 0Ω			
Insertion loss	≤ 3dB			

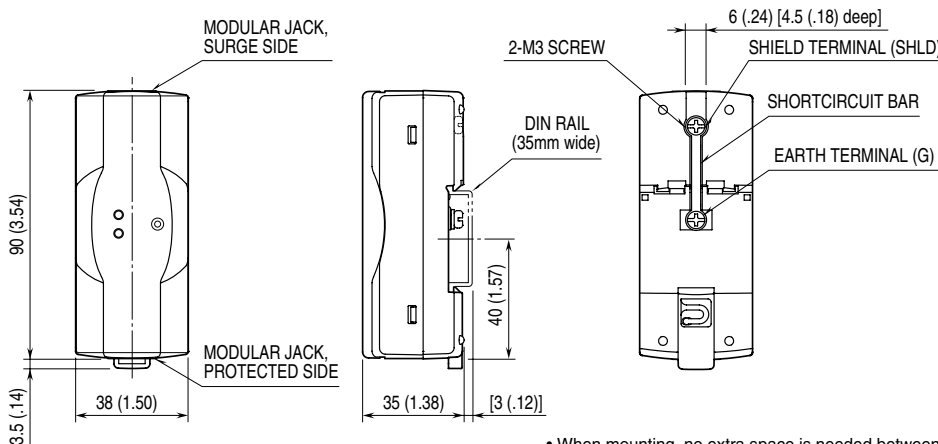
Transmission performance: TIA/EIA-568-B.2
 CAT5e (MDCAT-A-5E)
 CAT6 (MDCAT-A-6)

TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

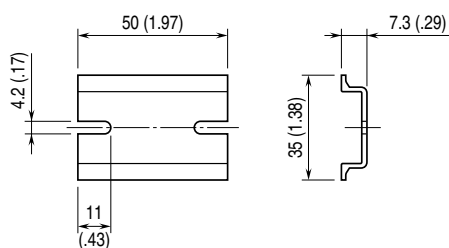
EXTERNAL DIMENSIONS unit: mm (inch)

UNIT



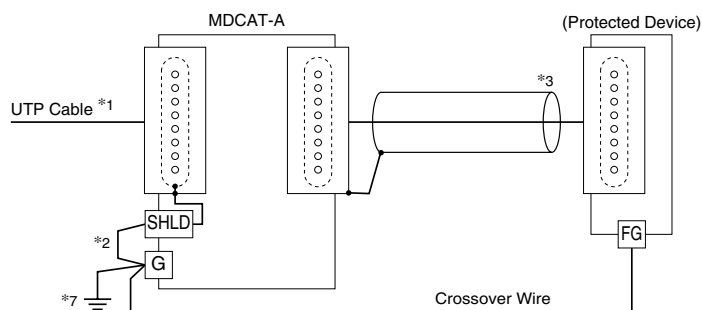
• When mounting, no extra space is needed between units.

DIN RAIL

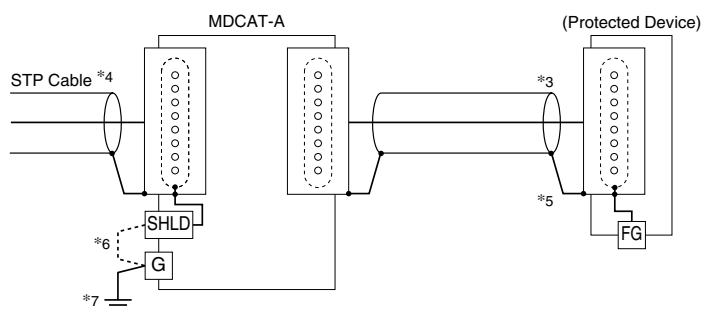


CONNECTION DIAGRAM

PROTECTING NON-STP (UTP) DEVICE

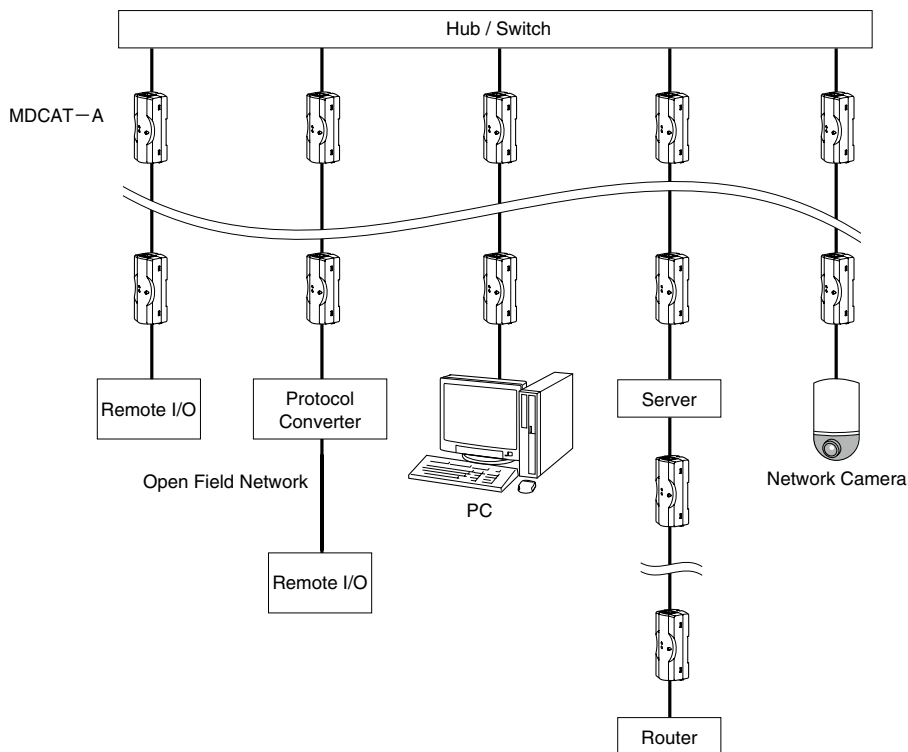


PROTECTING STP DEVICE



- *1. Unshield twisted-pair cable
- *2. Maintain the shortcircuit bar. The protected device is earthed.
- *3. Cable included in the product package or provided by customer.
- *4. Shield twisted-pair cable
- *5. STP cable's shield wire serves as the crossover wiring.
- *6. The protected device is 'earthed' when the shortcircuit bar is connected. Remove the bar in order to switch to 'floating' state.
- *7. Use a DIN rail made of steel or copper when connecting to ground via the DIN rail.
Single mount DIN rail for option code '/DR' is made of aluminum.
Connect to ground with ground terminal when this DIN rail is used.

■ NETWORK CONNECTION EXAMPLE



STATUS INDICATION

Press check button to indicate the status of internal discharge element.

■ INDICATORS

Activated by CHK (Check) button, see the status table shown below.

BAT: Green LED

ALM: Red LED

CHK button: Push button; momentary

BAT	ALM	BATTERY	DISCHARGE ELEMENT	REPLACEMENT
ON	OFF	Normal		No Need
ON	ON	Normal	Near End	Near
OFF	ON	Normal	End of Life	Immediately
OFF	OFF	Discharged	Unable to Judge	Required

CHECKING

■ WIRING

- Make sure that wiring is done as instructed in the connection diagram.
- Make sure that the Earth terminal is connected to the metallic housing of protected device.
- Make sure that the Earth terminal is connected to earth.

MAINTENANCE

Even lightning in remote locations could induce surges without our knowledge. Regular checking of the surge protector is important to find degradations in early stage, before and after the storm seasons, and whenever you experience a strong lightning storm. Checking procedure is explained in the following:

■ CHECKING EXTERIOR

If discoloration or deformation is observed, replace with a new one immediately.

■ CHECKING COMMUNICATION

Check the communication status is improved or not by removing the device when the communication is unstable or stopping. Replace with a new one if the device is not recovered.

DISCHARGE ELEMENT

For testing, press CHK (Check) button on the front and LEDs turn on or off according to the surge protector's condition. When replacement is required, replace the module to a new one immediately. Refer to the table for judgement.