## Lightning Surge Protectors for Electronics Equipment M-RESTER

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

Functions & 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

CE

38 [1.5]
93.5 [3.68]
35 [1.38]
mm [inch]
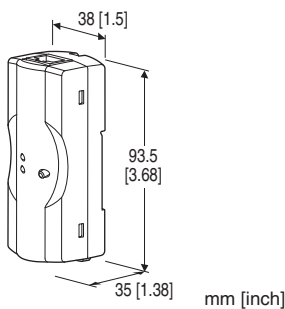
MODEL: MDCAT-A-[1][2]

ORDERING INFORMATION
• Code number: MDCAT-A-[1][2]
Specify a code from below for each of [1] and [2].
  (e.g. MDCAT-A-5E/DR/Q)
• Specify the specification for option code /Q
  (e.g. /C01)

[1] CABLE CATEGORY
5E: CAT5e
6: CAT6

[2] OPTIONS (multiple selections)
Single mount DIN rail
blank: Without
/DR: With single mount DIN rail
Other Options
blank: none
/Q: Option other than the above (specify the specification)

SPECIFICATIONS OF OPTION: Q
COATING (For the detail, refer to our web site.)
/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating

CAUTION
• When this unit is earthed via a DIN rail, use a steel or copper rail. Oxide film on the surface of an aluminium rail may lower the electric conductivity between this module and the ground.
• Single mount DIN rail for option code '/DR' is made of aluminum. Connect to ground with ground terminal when this DIN rail is used.

PACKAGE INCLUDES...
LAN cable connected to the protected device (STP, 1 meter)

APPLICABLE NETWORK
10 BASE-T: IEEE 802.3i
100 BASE-TX: IEEE 802.3u
1000 BASE-T: IEEE 802.3ab
PoE: IEEE 802.3af
PoE Plus: IEEE802.3at

GENERAL SPECIFICATIONS
Connection
  Ethernet: RJ-45 modular jack
  Grounding: M3 screw terminal (torque 0.6 N·m)
  or via DIN rail
Screw terminal: Nickel-plated brass
DIN rail material: Aluminum
Housing material: Flame-resistant resin (black)
Indicators: Activated by CHK (Check) button, see the status table shown below.
•BAT: Green LED
•ALM: Red LED
Life time judged: When the number of discharges of the discharge element reaches the expected life span.
CHK button: Push button; momentary
Battery: Lithium; No recharge or replacement available.
Battery life: 10 years (when used ≤ 2 minutes/month)

Life status table

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

INSTALLATION
Operating temperature: -10 to +55°C (14 to 131°F)
Operating humidity: 5 to 95 %RH (non-condensing)
Mounting: DIN Rail (TH35-7.5, 1-mm-thick)

Weight: 160 g (0.35 lb) include the attached LAN cable

PERFORMANCE

Transmission performance:

  TIA/EIA-568-B.2 CAT5e (MDCAT-A-5E)

  TIA/EIA-568-B.2 CAT6 (MDCAT-A-6)

Surge protection: IEC 61643-21 Categories C1, C2

	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	5µA	5µA
Max. discharge current (Imax)	100A	100A	100A	10kA
Nominal current (I_N)	1A			
Series resistance	Approx. 0Ω			
Insertion loss	≤ 3dB			

STANDARDS & APPROVALS

EU conformity:

EMC Directive

  EMI EN 61000-6-4

  EMS EN 61000-6-2
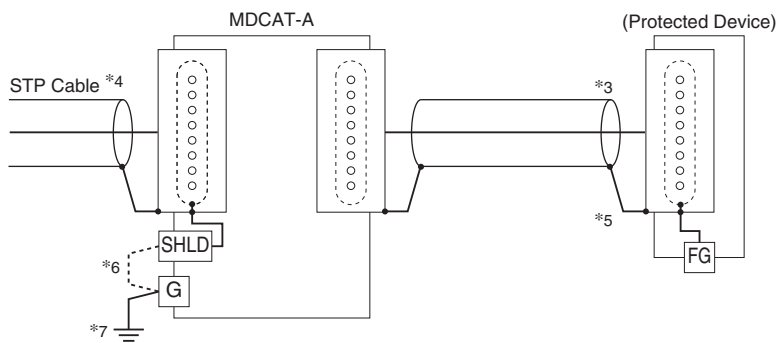
RoHS Directive

EXTERNAL VIEW

ALM Indicator LED

BAT Indicator LED

CHK Check Button
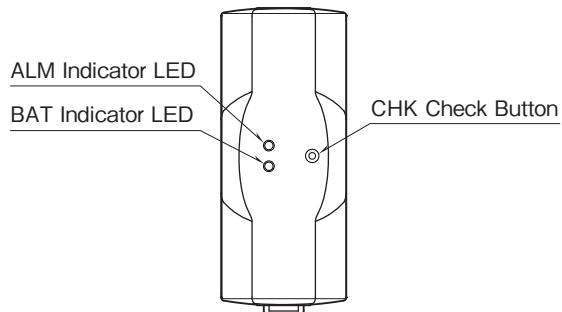
CONNECTION EXAMPLES

■ PROTECTING NON-STP (UTP) DEVICE

MDCAT-A

(Protected Device)

*3

UTP Cable *1

SHLD

*2

G

*7

FG

Crossover Wire

■ PROTECTING STP DEVICE

MDCAT-A

(Protected Device)

*3

STP Cable *4

*5

SHLD

*6

G

FG
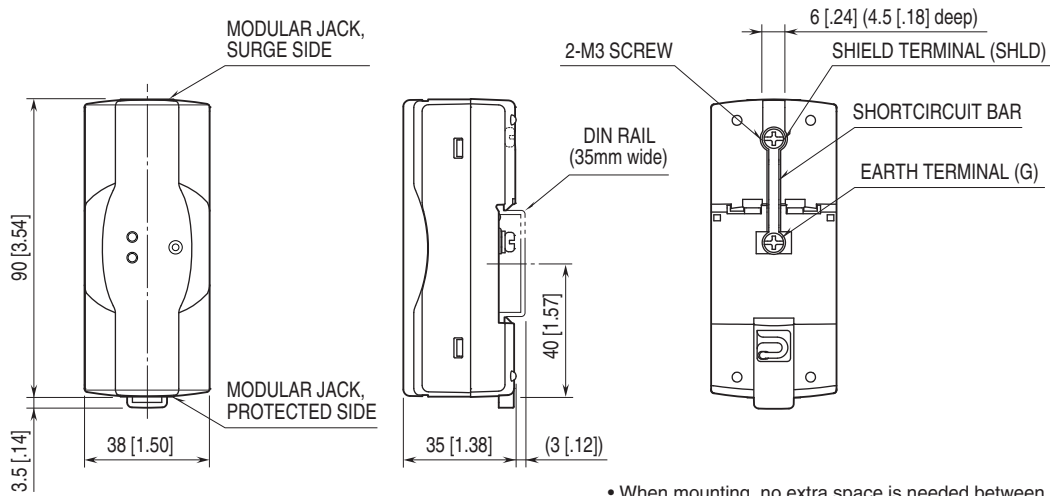
*7
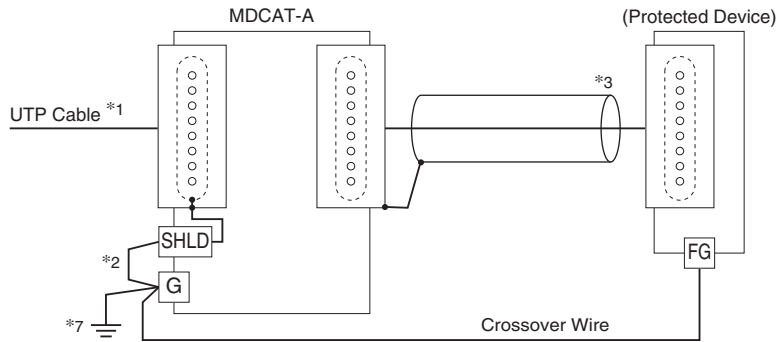
*1. Unshield twisted-pair cable
*2. Maintain the shortcircuit bar. The protected device is earthed.
*3. Cable included in the product package or provided by customer.
*4. Shield twisted-pair cable
*5. STP cable's shield wire serves as the crossover wiring.
*6. The protected device is 'earthed' when the 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.
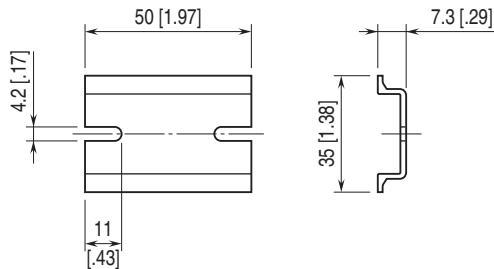   Connect to ground with ground terminal when this DIN rail is used.
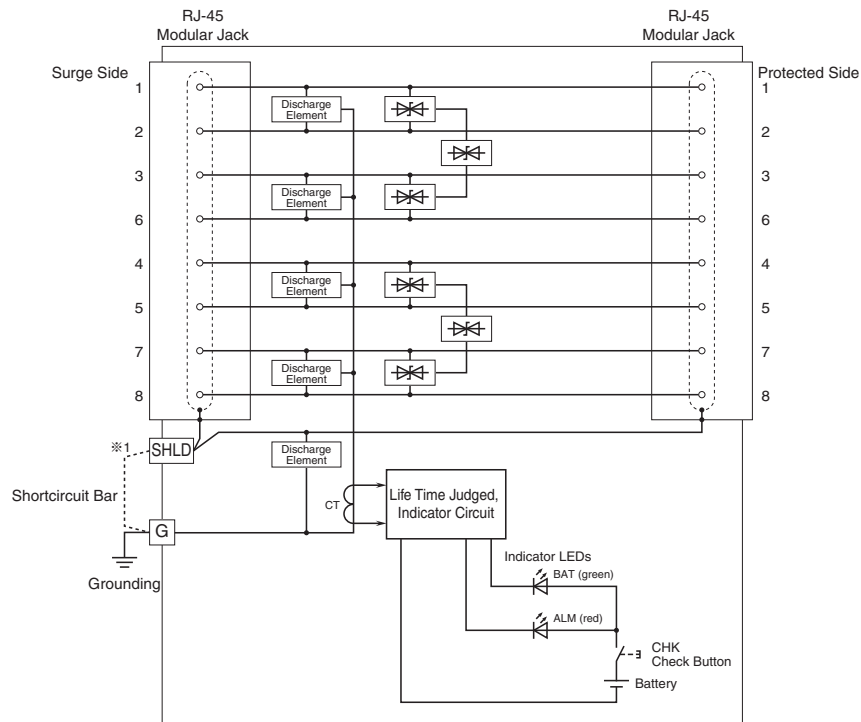
EXTERNAL DIMENSIONS   unit: mm [inch]

■ UNIT

MODULAR JACK, SURGE SIDE

2-M3 SCREW

6 [.24] (4.5 [.18] deep)

SHIELD TERMINAL (SHLD)

SHORTCIRCUIT BAR

EARTH TERMINAL (G)

DIN RAIL (35mm wide)

90 [3.54]

40 [1.57]

MODULAR JACK, PROTECTED SIDE

3.5 [.14]

38 [1.50]

35 [1.38]   (3 [.12])

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

■ DIN RAIL

50 [1.97]

7.3 [.29]

4.2 [.17]

35 [1.38]

11 [.43]

SCHEMATIC CIRCUITRY

RJ-45 Modular Jack

RJ-45 Modular Jack

Surge Side

Protected Side

1	Discharge Element		1
2			2
3	Discharge Element		3
6			6
4	Discharge Element		4
5			5
7	Discharge Element		7
8			8

※1   SHLD   Discharge Element

Shortcircuit Bar

CT

Life Time Judged, Indicator Circuit

G

Grounding

Indicator LEDs

BAT (green)
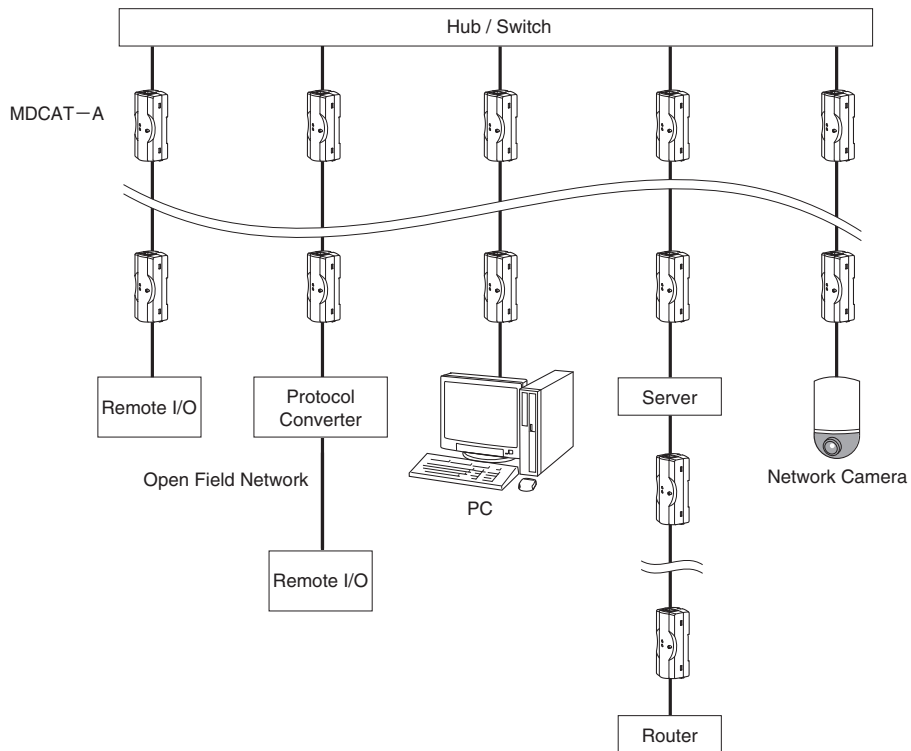
ALM (red)

CHK Check Button

Battery

*1. Remove the shortcircuit bar when the LAN cable's shield wire is floating.
Note: Line to line (PoE): Terminal 1 & 2 to 3 & 6, 4 & 5 to 7 & 8
      Line to line (pair): Terminal 1 to 2, 3 to 6, 4 to 5 and 7 to 8

SYSTEM CONFIGURATION EXAMPLES

⚠ Specifications are subject to change without notice.

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