

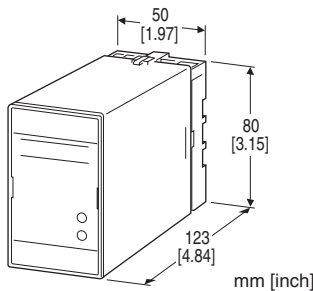
## Lightning Surge Protectors for Electronics Equipment M-RESTER

### LIGHTNING SURGE PROTECTOR FOR POWER SUPPLY USE

(5 A; high discharge current capacity; life monitor)

#### Functions & Features

- Designed specifically for AC power supplies up to 5 amps
- Discharge current capacity 10000 A
- Life monitor function helps you to decide when you should replace the M-RESTER; reduces maintenance and prevents downtime
- LED display and alarm contact output indicate the degradation and life span of the surge protection circuits
- No power supply interruption even when the unit is degraded or at the end of its life



### MODEL: MAA-[1]

#### ORDERING INFORMATION

- Code number: MAA-[1]
- Specify a code from below for [1].  
(e.g. MAA-100)

#### [1] OPERATIONAL VOLTAGE

**100:** 100 V / 110 V / 120 V AC  
**200:** 200 V / 220 V / 240 V AC

#### GENERAL SPECIFICATIONS

- Construction:** Plug-in  
**Connection:** M3.5 screw terminals (torque 0.8 N·m)  
**Screw terminal:** Chromated steel  
**Housing material:** Flame-resistant resin (black)  
**Alarm indicators**  
**POWER:** The green LED turns on while the circuit is alive and the internal fuse is not blown; and is off when the power supply is removed or the fuse is blown.  
**ALARM:** Tricolor LED (green/amber/red)  
• Remains off when the power supply is first turned on.

- Green: The unit has received one or more surges.
- Amber: Replacement is recommended.
- Red: The life span has ended.

**Alarm output:** The N.C. contact is on when the life span of the discharge elements has ended, when the voltage limiter has degraded, and/or when the power supply is removed.

**Rating:** 125 V AC @ 0.5 A (cos  $\phi$  = 1)  
30 V DC @ 1 A (resistive load)

**Maximum switching voltage:** 125 V AC or 110 V DC

**Maximum switching power:** 62.5 VA or 30 W

**Minimum load:** 5 V DC @ 1 mA

#### INSTALLATION

**Operating temperature:** -5 to +55°C (23 to 131°F)

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Mounting:** Surface or DIN rail

**Weight:** 500 g (1.1 lb)

#### PERFORMANCE

**Operational voltage range:**

90 - 132 V AC (MAA-100)

180 - 264 V AC (MAA-200)

50/60 Hz, approx. 2 VA

**Discharge voltage (peak voltage)**

Line to line: 190 V min. (MAA-100)

410 V min. (MAA-200)

Line to ground: 400 V min.

**Maximum surge voltage**

Line to line: 380 V max. (MAA-100)

700V max. (MAA-200)

Line to ground: 800 V max.

Withstand voltage of protected equipment between the circuit and the metal housing must be 1000 V AC or more.

**Response time:**  $\leq 0.01 \mu\text{sec}$ .

**Leakage current**

Line to line:  $\leq 26\text{mA}$  at 100 V AC (MAA-100)

$\leq 13 \text{ mA}$  at 200 V AC (MAA-200)

Line to ground:  $\leq 0.1 \text{ mA}$  at 300 V AC

**Discharge current capacity:** 10000 A (8/ 20  $\mu\text{sec}$ .)

**Maximum load current:** 5 A

**Internal series resistance:**  $\leq 0.5 \Omega$  including return

#### STANDARDS & APPROVALS

**EU conformity:**

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

Low Voltage Directive

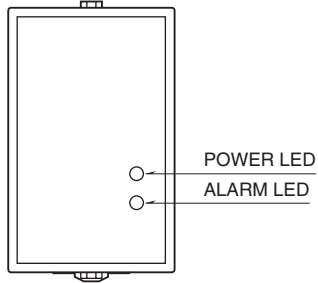
EN 61010-1

Measurement Category II (alarm output)

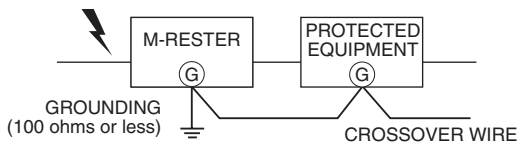
Installation Category II (power)

Pollution degree 2  
 Alarm output to power: Reinforced insulation (300 V)  
 RoHS Directive

## EXTERNAL VIEW

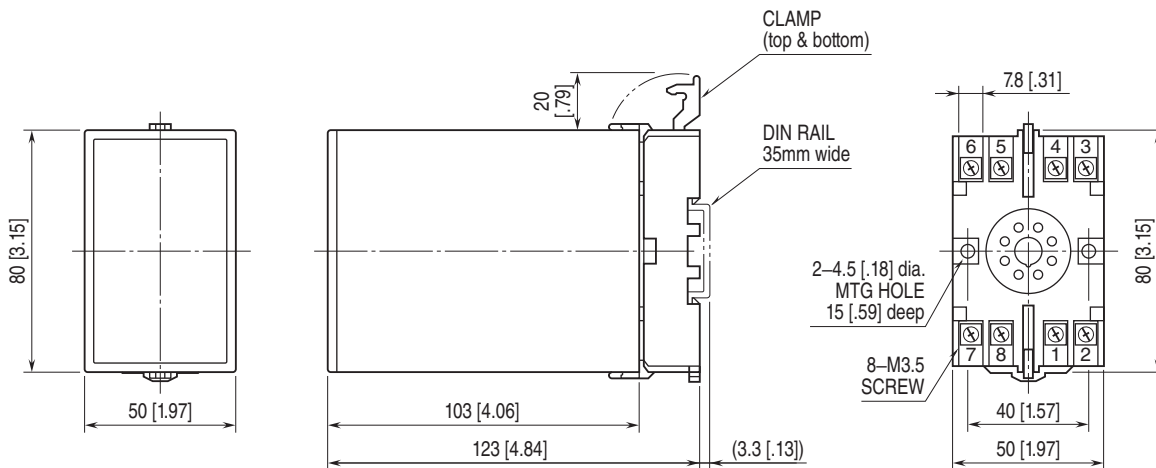


## GROUNDING



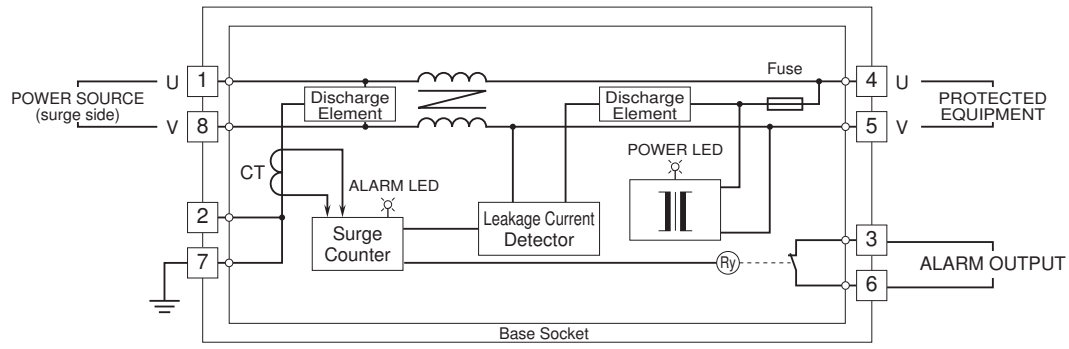
A crossover wire between M-RESTER ground and ground or metallic housing of equipment is required for protection.  
 If the protected equipment has no ground terminal, ground the M-RESTER only.

## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



Specifications are subject to change without notice.