

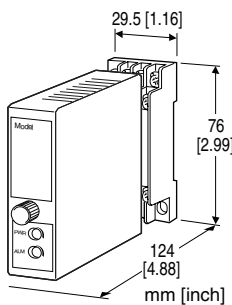
## Lightning Surge Protectors for Electronics Equipment M-RESTER

### LIGHTNING SURGE PROTECTOR FOR STANDARD SIGNAL LINE & PULSE USE

(life monitor, 24 V, 48 V or 65 V DC line voltage, photovoltaic system, instrument shelter)

#### Functions & Features

- Designed specifically for 4 - 20 mA DC and pulse signal lines
- Absorbs surges only without affecting instrumentation signal
- Life monitor function helps you to decide when you should replace the surge protector; reduces time and effort for maintenance and prevents downtime
- LED display and alarm output indicate the degradation and life span of the surge protection circuits
- Wide range of operating temperature from -20 to +70°C (-4 to +158°F)



### MODEL: MDM2AT-[1]-[2]

#### ORDERING INFORMATION

- Code number: MDM2AT-[1]-[2]

Specify a code from below for each of [1] and [2].  
(e.g. MDM2AT-24-M2)

#### [1] NOMINAL VOLTAGE

24: 24 V DC

65: 48 V or 65 V DC

#### [2] POWER INPUT

##### AC Power

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)

##### DC Power

R: 24 V DC

(Operational voltage range 24 V  $\pm$ 10 %, ripple 10 %p-p max.)

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

#### GENERAL SPECIFICATIONS

**Construction:** Plug-in

**Connection:** M3 screw terminals (torque 0.8 N·m)

**Housing material:** Flame-resistant resin (black)

##### Alarm indicators

**PWR:** The green LED turns on while the power is supplied.

**ALM:** 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.

**Degradation judged:** When the leakage current at the voltage limiter exceed approx. 7.5  $\mu$ A.

**Life time judged:** When the number of discharges of the discharge element reaches the expected life span.

**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

##### Power consumption

• AC:  $\geq$  2.3 VA at 100 V

$\geq$  3.5 VA at 200 V

$\geq$  4.6 VA at 240 V

• DC:  $\geq$  1.7 W

**Operating temperature:** -20 to +70°C (-4 to +158°F)

**Storage temperature:** -30 to +70°C (-22 to +158°F)

**Operating humidity:** 10 to 90 %RH (non-condensing)

**Mounting:** Surface or DIN rail

**Weight:** 150 g (0.33 lb)

#### PERFORMANCE

##### Max. continuous operating voltage (Uc):

Line to line: 30 V (24 V DC use), 70 V (48 V or 65 V DC use)

Line to earth:  $\pm$ 140 V

##### Voltage protection level (Up):

Line to line: 45 V max. (24 V DC use), 100 V max.

(48 V or 65 V DC use)

Line to earth:  $\pm$ 650 V max.

**Response time:**  $\leq$  0.1  $\mu$ sec.

##### Leakage current:

Line to line:  $\leq$  5  $\mu$ A @ max. voltage

Line to earth:  $\leq 5 \mu\text{A}$  @ max. voltage

**Discharge current capacity:** 5000 A (8 / 20  $\mu\text{sec.}$ )

**Max. load current:** 100 mA

**Insulation resistance:**  $\geq 100 \text{ M}\Omega$  with 500 V DC

(surge protector circuit to alarm output to power)

**Dielectric strength:** 2000 V AC @ 1 minute (surge protector circuit to alarm output to power)

**Internal series resistance:**  $20 \Omega \pm 10 \%$  (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

Surge protector circuit to power:

Reinforced insulation (300 V)

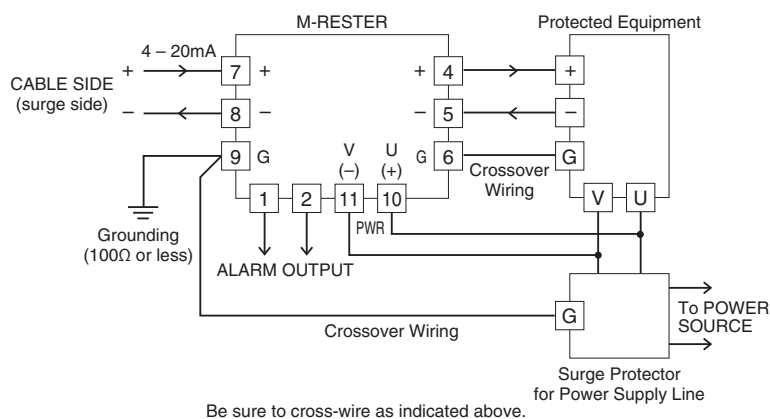
RoHS Directive

## CAUTION

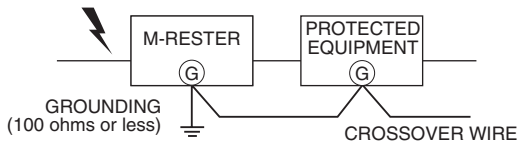
Before replacing the unit, make sure to turn off the power supply for safety. Other factors such like an alarm system connected to the line should also be considered.

The life monitoring circuit remains alive by the internal backup circuit even when the external power supply is removed. The LED is turned off in that case.

## CONNECTION EXAMPLES

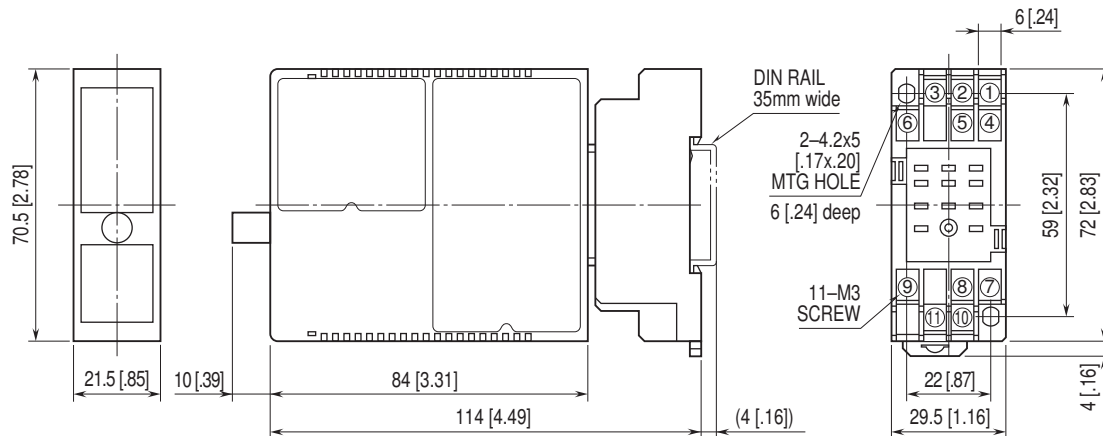


## GROUNDING

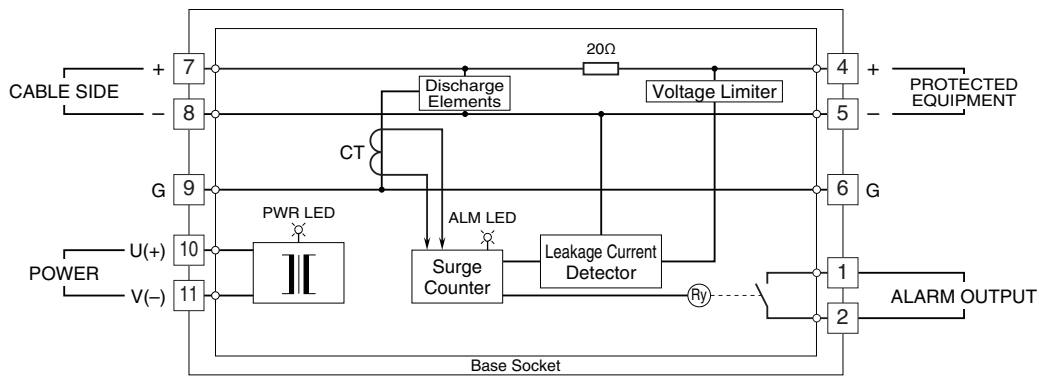


A crossover wire between M-RESTER ground and ground or metallic housing of equipment is required for protection.  
If the protected equipment has no ground terminal, ground the M-RESTER only.

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



## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.