

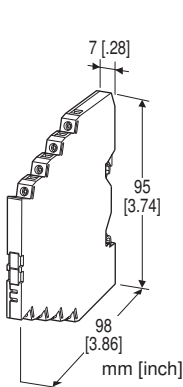
## Lightning Surge Protectors for Electronics Equipment M-RESTER

### LIGHTNING SURGE PROTECTOR FOR PROFIBUS-PA

(ultra-slim)

#### Functions & Features

- High discharge current capacity 20 kA (8 / 20  $\mu$ s), 1 kA (10 / 350  $\mu$ s)
- Ultra-thin 7-mm-wide module can be mounted in high density
- Excellent protection employing multi-stage SPD circuits
- DIN rail mounting and grounding
- Shield terminal provided



### MODEL: MD7PA-[1]0[2]

#### ORDERING INFORMATION

- Code number: MD7PA-[1]0[2]
- Specify a code from below for each of [1] and [2].  
(e.g. MD7PA-FF0/Q)
- Specify the specification for option code /Q  
(e.g. /C01)

#### [1] SHIELD TERMINAL (to earth)

FF: Floating

FG: Grounding

#### SAFETY APPROVAL

0: None

#### [2] OPTIONS

blank: none

/Q: Options other than the above (specify the specification)

#### SPECIFICATIONS OF OPTION: Q

**COATING** (For the detail, refer to M-System's web site.)

/C01: Silicone coating

/C02: Polyurethane coating

#### APPLICABLE NETWORK

PROFIBUS-PA and other networks complied with IEC 61158-2

Caution: Power supply to the bus must be limited to 400 mA or less.

#### GENERAL SPECIFICATIONS

**Construction:** Slim-sized front terminal structure

**Degree of protection:** IP20

**Connection:** Euro terminal block (torque 0.3 N·m)

**Applicable wire size:** 0.2 - 2.5 mm<sup>2</sup>, stripped length 8 mm

**Grounding:** DIN Rail

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

#### INSTALLATION

**Operating temperature:** -25 to +85°C (-13 to +185°F)

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

**Mounting:** DIN Rail (TH35-7.5, 1-mm-thick)

Oxide film on the surface of an aluminium DIN rail may lower the electric conductivity between this module and the ground. Use a steel or copper rail.

**Weight:** 70 g (2.5 oz)

#### PERFORMANCE

	LINE TO LINE	LINE TO EARTH	SHLD TO EARTH
Max. continuous operating voltage (Uc)	±32V	±160V	±160V*1
Voltage protection level (Up) @ 4kV (1.2 / 50 $\mu$ s)	±60V	±800V	±800V*1
Leakage current @Uc	≤ 5 $\mu$ A	≤ 5 $\mu$ A	≤ 5 $\mu$ A*1
Response time	≤ 4 nsec.	≤ 20 nsec.	≤ 20 nsec.*1
Approx. capacitance @ 10 kHz	1500 pF	100 pF	100 pF*1
Max. discharge current (Imax)	20kA (8 / 20 $\mu$ s) 1.0kA (10 / 350 $\mu$ s)		
Nominal current (In)	400mA		
Internal series resistance	1.5 $\Omega$ ±10% per line		
Surge protection	IEC 61643-21 Categories C1, C2, D1		

\*1. Values for the floating type (FF). Shortcircuited for the grounding type (FG).

## STANDARDS & APPROVALS

EU conformity:

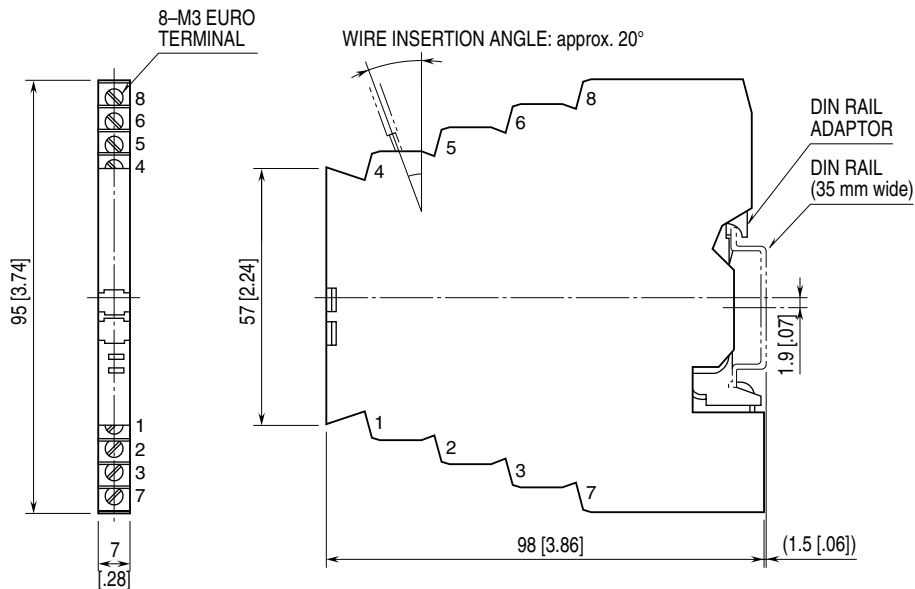
EMC Directive

EMI EN 61000-6-4

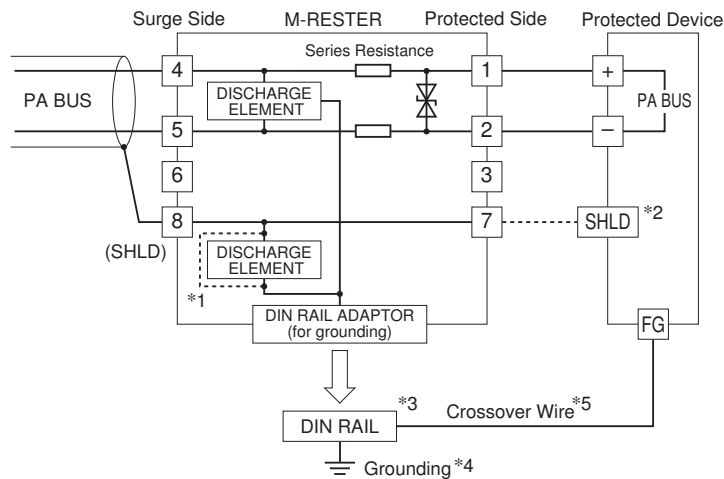
EMS EN 61000-6-2

RoHS Directive

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



## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



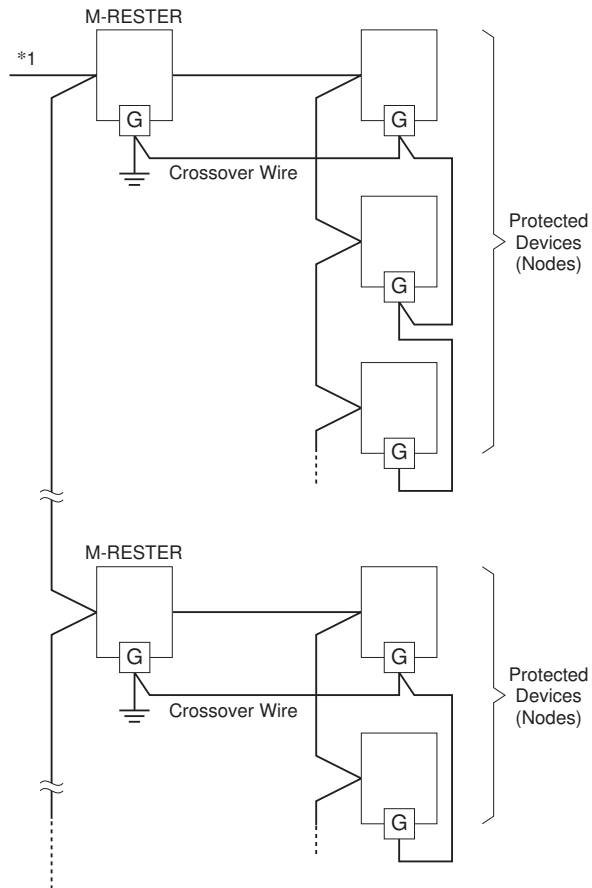
\*1. Choose the grounding (FG) when the shield wire is to be grounded.

\*2. When SHLD is not isolated from PA BUS, DO NOT connect the surge protector's terminal 7 to SHLD.

\*3. Oxide film on the surface of an aluminium rail may lower the electric conductivity between this module and the ground. Use a steel or copper rail.

\*4. Be sure to ground the DIN rail. Recommended grounding resistance max. 100 ohms.

\*5. Cross-wire from the DIN rail to the metal housing of the protected device to equalize the ground potential. Ground only the surge protector when the protected device has no grounding terminal.



\*1. Fieldbus devices complying with IEC 61158-2 operate by a supply voltage between 9V and 32V DC.  
Take the MD7PA's internal series resistance into consideration when determining the cable distance if there is a large current flow on the bus line.

When the distance between nodes are relatively long (e.g. grouped and separated by cabinets), install the MD7PA by each group of devices. Insert the MD7PA at the surge side of the network. For detailed information on the network, refer to that provided by PROFIBUS International.



Specifications are subject to change without notice.