

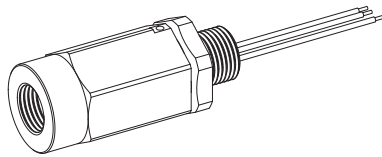
## Lightning Surge Protectors for Electronics Equipment M-RESTER

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

(conduit mount, weather-proof, 24 V DC line voltage)

#### Functions & Features

- Designed specifically for 4 - 20 mA DC and pulse signal line including both 4-wire and 2-wire transmitters
- Direct mount in a wiring conduit of outdoor enclosures
- Absorbs surges only without affecting instrumentation signal



**MODEL: MD6T-24-[1][2][3]**

#### ORDERING INFORMATION

- Code number: MD6T-24-[1][2][3]
- Specify a code from below for each [1] through [3].  
(e.g. MD6T-24-00B)
- For the safety approval code 2 or 4, specify the product's destination country using Ordering Information Sheet (No. ESU-8284).

#### [1] SAFETY APPROVAL

- 0: None
- 1: FM intrinsically safe
- 2: CENELEC intrinsic safety (ATEX)
- 4: CENELEC flameproof (ATEX)
- 5: FM nonincendive

#### [2] WIRING CONDUIT

- 0: G 1/2 (Not selectable for CENELEC flameproof approval)
- 1: 1/2 NPT
- 2: M20 × 1.5

#### [3] BODY MATERIAL

- B: Brass
- S: Stainless steel

#### CAUTION

The packing of the cable gland must be separate from the body. Choose an appropriate one for the environment in which the surge protector is used.

#### GENERAL SPECIFICATIONS

**Degree of protection:** IP65

**Wiring conduit:** See 'Ordering information.'

#### Connection

**Cable side:** Euro type terminal block (Applicable wire size: 0.14 - 1.5 mm<sup>2</sup> (AWG26 - 16) for both stranded and solid wires; stripped length: 6 mm)

**Equipment side:** Leadwires (leadwire diameter AWG20 for grounding; AWG22 for the protected equipment)

**Body material:** Nickel-plated brass or stainless steel 316

#### INSTALLATION

**Operating temperature:** -40 to +85°C (-40 to +185°F)

(See Safety Parameters for use in a hazardous location.)

**Mounting:** Screwed into an electrical conduit of outdoor enclosures

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

#### PERFORMANCE

##### Discharge voltage (peak voltage)

Line to line: 30 V min.

Line to ground: ±160 V min.

##### Max. surge voltage

Line to line: 40 V max.

Line to ground: ±650 V max.

(The maximum voltage that could pass through the surge protector. Protected equipment must be able to withstand this voltage for a very short time period.)

##### Response time:

Line to line: ≤ 4 nsec.

Line to ground: ≤ 20 nsec.

##### Leakage current:

Line to line: ≤ 5 μA @ 30 V DC

Line to ground: ≤ 5 μA @ ±160 V DC

**Discharge current capacity:** 10000 A (8/ 20 μsec.)

**Max. load current:** 100 mA

**Internal series resistance:** Approx. 22 Ω including return

##### Max. line voltage

Without safety approval: 30 V DC

With safety approval: 28 V DC

**Capacitance @ 1 kHz:**

Line to line:  $\leq 2500$  pF

Line to ground:  $\leq 100$  pF

## STANDARDS & APPROVALS

**EU conformity:**

ATEX Directive

EEx ia EN 50020

Ex d EN 60079-1

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

EN 50581

**Safety approval:**

FM: Intrinsically safe

Class I, Div. 1, Groups A, B, C and D

Class II, Div. 1, Groups E, F and G

Class III, Div. 1

Class I, Zone 0, AEx ia IIC

T5 and T6

(Class 3610, ANSI/ISA 60079-11)

FM: Nonincendive

Class I, Div. 2, Groups A, B, C, and D

Class II, Div. 2, Groups E, F and G

Class III, Div. 1

T6

(Class 3611)

CENELEC: Intrinsic safety (ATEX)

⊗ II 1G, EEx ia IIC; T5 and T6

(EN 50020)

CENELEC: Flameproof (ATEX)

⊗ II 2G, Ex d IIC, T5 and T6

(EN 60079-1)

## SAFETY PARAMETERS

**Operating temperature:**

T5 -40 to +80°C

T6 -40 to +70°C

-40 to +75°C for CENELEC (ATEX) flameproof

-40 to +80°C for FM nonincendive

**Ex-data:**

Ui (Vmax) 30 V ('Any' for CENELEC intrinsic safety approval (ATEX))

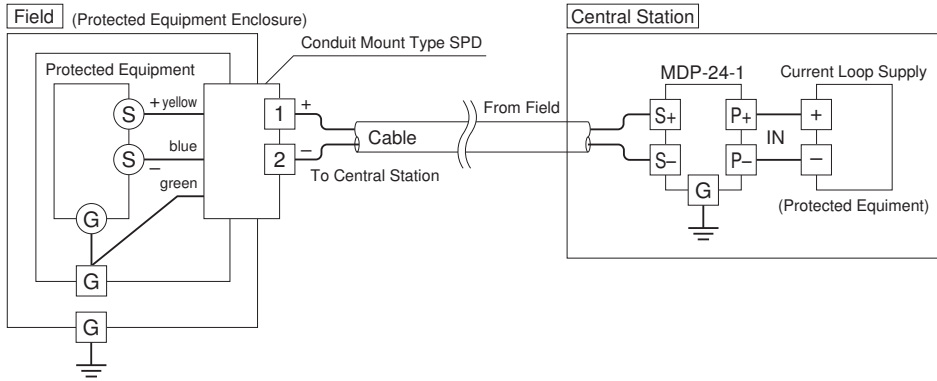
Ii (Imax) 100 mA ('Any' for CENELEC intrinsic safety approval (ATEX))

Pi 750 mW

Ci 2.5 nF

Li 0 mH

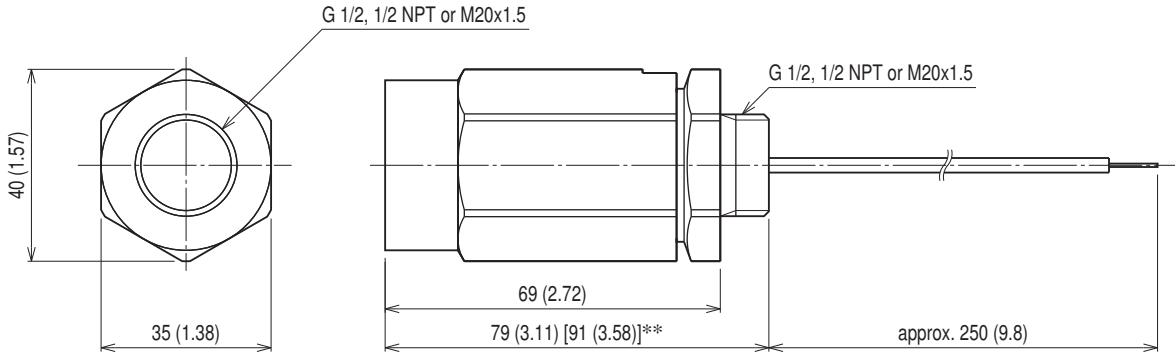
**CONNECTION EXAMPLES**



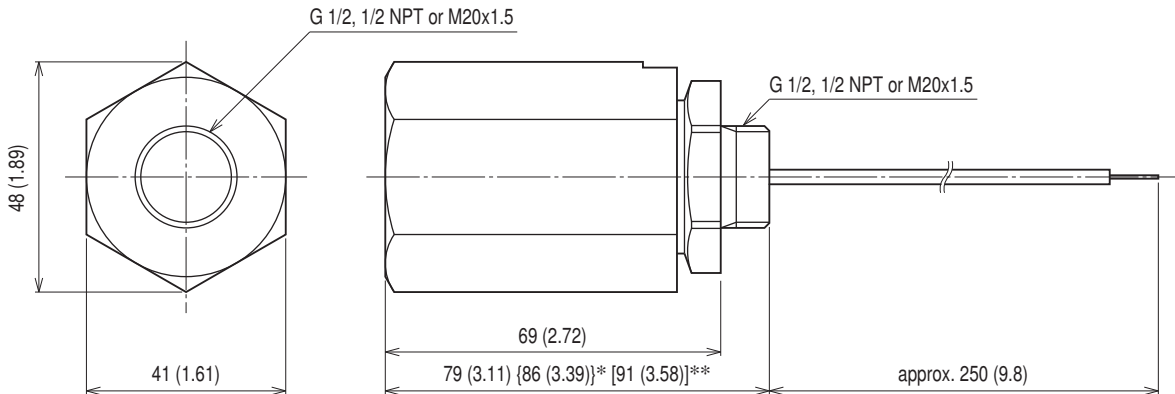
Connect the MD6T's green leadwire to the ground terminal inside the protected equipment enclosure to ground through the enclosure's outside ground terminal.  
 If the enclosure does not have an inside ground terminal, connect the green leadwire directly to the outside ground wire pulled inside the enclosure. Keep the ground wire as short as possible.

**EXTERNAL DIMENSIONS unit: mm (inch)**

**WITHOUT SAFETY APPROVAL**

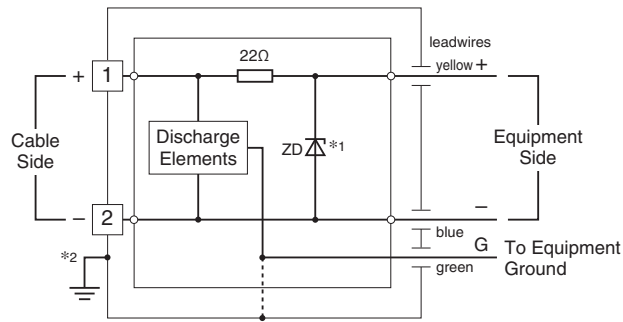


**WITH SAFETY APPROVAL**



\* { } for M20x1.5 with CENELEC (ATEX) flameproof approval  
 \*\*[ ] for 1/2 NPT

**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



- \*1. The zenor diode has polarity. Zero-cross signal cannot be connected.
- \*2. Use only when the signal line require functional grounding.  
This is NOT for surge protection.



Specifications are subject to change without notice.