

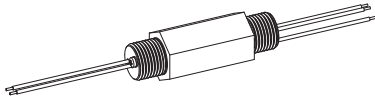
## Lightning Surge Protectors for Electronics Equipment M-RESTER

### 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
- CE marking (conforms to ATEX and EMC)



### MODEL: MD6N-24-[1][2][3]

■ SELECTABLE WIRING CONDUITS SPECIFIC TO EACH APPROVAL  
 'N' marked combinations are not selectable.

WIRING CONDUIT \ APPROVAL	0	1	2	3	4	5
0	Y	Y	Y	N	N	Y
1	Y	Y	Y	Y	Y	Y
2	Y	Y	Y	N	Y	Y

### ORDERING INFORMATION

• Code number: MD6N-24-[1][2][3]  
 Specify a code from below for [1] through [3] (e.g. MD6N-24-00B)  
 For the safety approval codes 2 and 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)
- 3: FM explosion-proof
- 4: CENELEC flameproof (ATEX)

5: FM nonincendive

Confirm selectable combinations of approval and wiring conduit types in the table.

### [2] WIRING CONDUIT

- 0: G 1/2
- 1: 1/2 NPT
- 2: M20 × 1.5

Confirm selectable combinations of approval and wiring conduit types in the table.

### [3] BODY MATERIAL

- B: Brass
- S: Stainless steel

### GENERAL SPECIFICATIONS

- Degree of protection: IP65
- Wiring conduit: See 'Ordering information.'
- Electrical connection: Leadwires
- Leadwire diameters
- Cable side & grounding: AWG20
- Protected equipment side: AWG22
- 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: 330 g (0.73 lbs)

### 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  $\Omega$  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

(ATEX))

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

Pi 750 mW

Ci 2.5 nF

Li 0 mH

## STANDARDS & APPROVALS

**CE conformity:**

ATEX Directive (94/9/EC)

EEx ia EN 50020: 2002

Category 1G EN 50284: 1999

Ex d EN 60079-1: 2004

EMC Directive (2004/108/EC)

EMI EN 61000-6-4: 2007

EMS EN 61000-6-2: 2005

**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: 2010, ANSI/ISA 60079-11: 2009)

FM: Explosion-proof and Dust-ignition proof

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

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

Class III, Div. 1

T6

(Class 3615: 2006)

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: 2004)

CENELEC: Intrinsic safety (ATEX)

⊕ II 1G, EEx ia IIC; T5 and T6

(EN 50020: 2002, EN 50284: 1999)

CENELEC: Flameproof (ATEX)

⊕ II 2G, Ex d IIC; T5 and T6

(EN 60079-1: 2004)

## SAFETY PARAMETERS

**Operating temperature:**

T5 -40 to +80°C

T6 -40 to +70°C

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

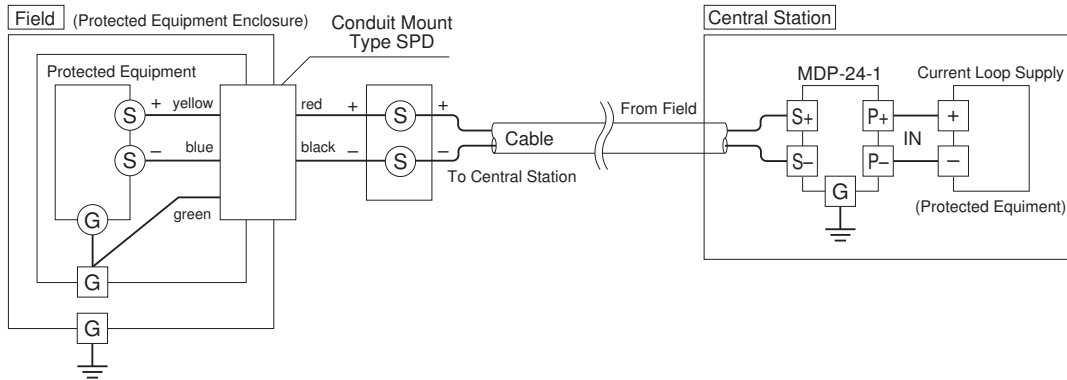
-40 to +80°C for FM explosion-proof and nonincendive

**Ex-data:**

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

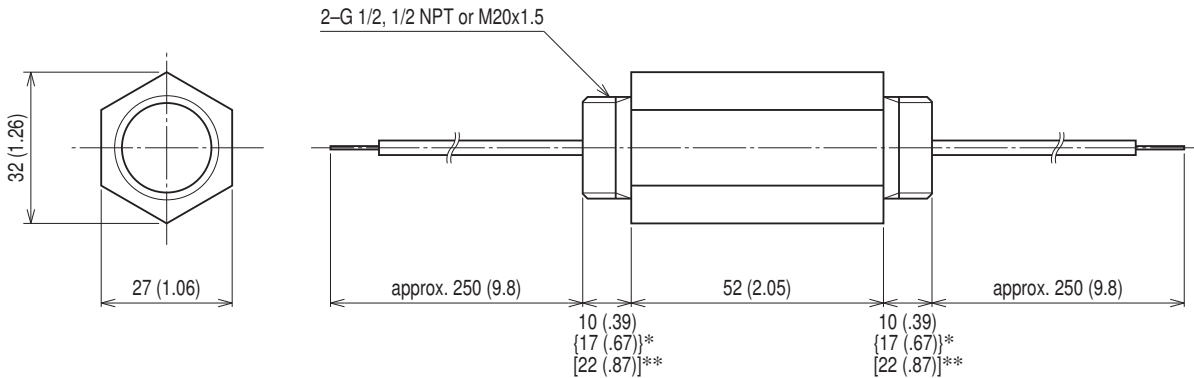


## CONNECTION EXAMPLES



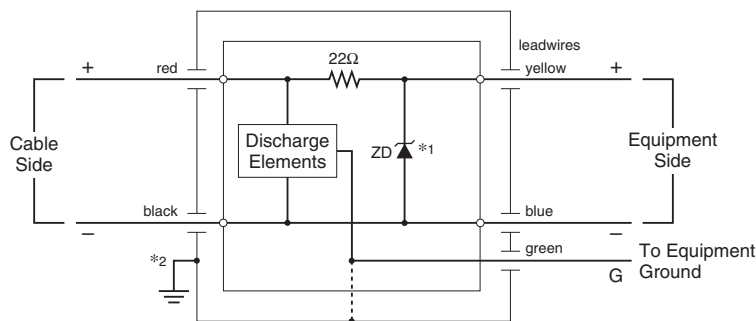
Connect the Conduit Mount Type SPD's green leadwire to the ground terminal inside the protected equipment enclosure to ground through the enclosure's outside ground terminal.  
 If the enclosure does not have an inside ground terminal, connect the green leadwire directly to the outside ground wire pulled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

## DIMENSIONS unit: mm (inch)



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

## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



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



Specifications are subject to change without notice.

