

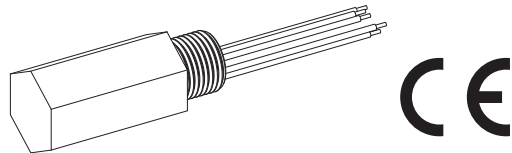
Lightning Surge Protectors for Electronics Equipment M-RESTER

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: MD6P-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: MD6P-24-[1][2][3]
- Specify a code from below for [1] through [3] (e.g. MD6P-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: 300 g (0.66 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 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

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

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

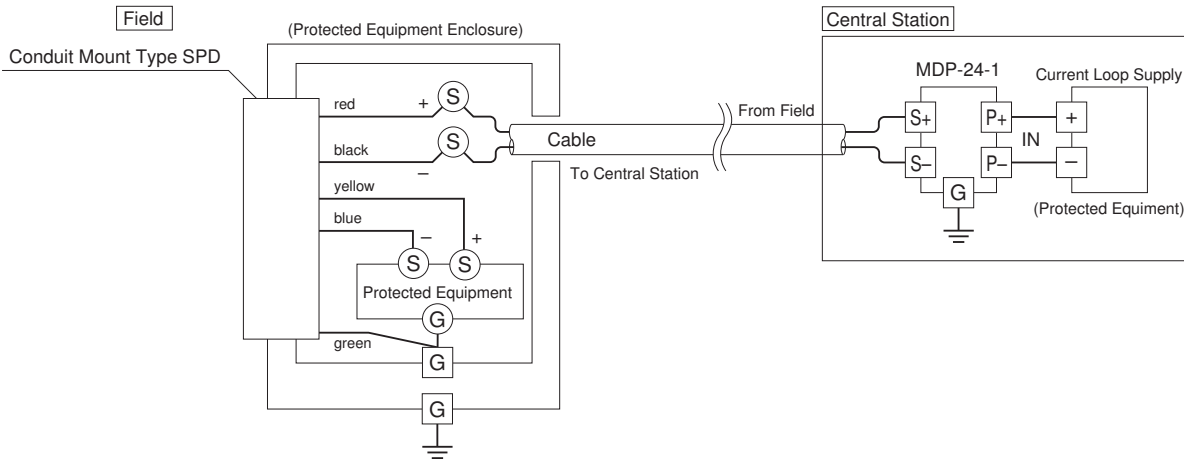
Operating temperature:

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:



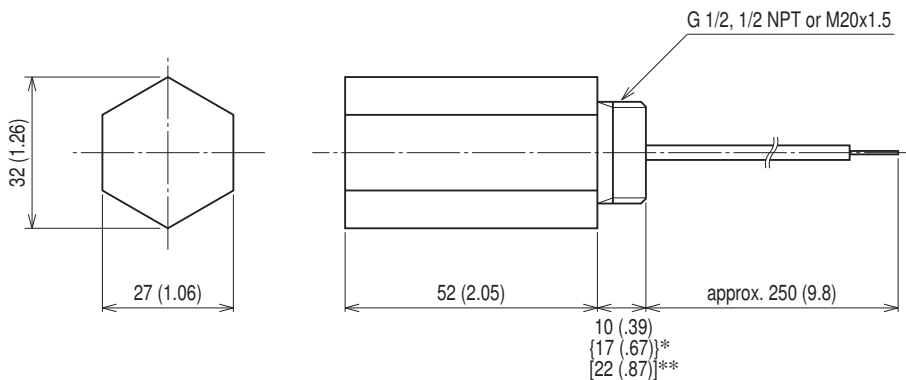
CONNECTION EXAMPLES



Connect the MD6P'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.

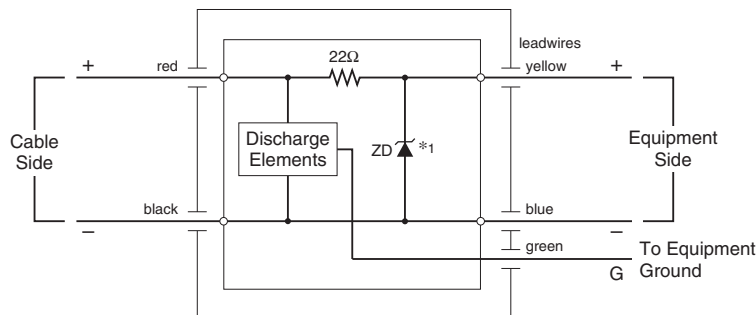
DIMENSIONS unit: mm (inch)



* { } for M20x1.5 with CENELEC (ATEX) flameproof approval

** [] for 1/2 NPT

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



*1. The zenor diode has polarity. Zero-cross signal cannot be connected.



Specifications are subject to change without notice.



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