

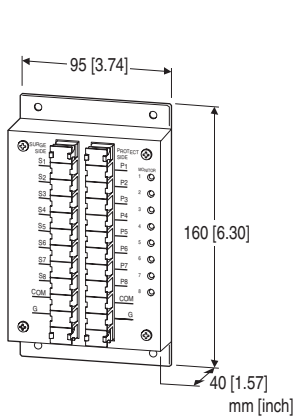
## Lightning Surge Protectors for Electronics Equipment M-RESTER

### LIGHTNING SURGE PROTECTOR FOR MULTI-CHANNEL USE

(high discharge current capacity)

#### Functions & Features

- Protection for semiconductor switches of discrete outputs against lightning surge damage
- Applicable to both negative and positive common signals
- Applicable to multi analog signals (non-isolation between channels)
- Space saving with multi-channel protectors
- LED monitor indicating degradation of voltage limiter
- LED monitor driven by discrete I/O signal without auxiliary power supply



### MODEL: MDR2-8[1][2]

#### ORDERING INFORMATION

- Code number: MDR2-8[1][2]

Specify a code from below for each of [1] and [2].  
(e.g. MDR2-8NA)

#### NUMBER OF PROTECTORS

8: 8 points

#### [1] COMMON

N: Negative common (NPN)

P: Positive common (PNP)

#### [2] LEAKAGE CURRENT INDICATOR

Y: None

A: With

#### GENERAL SPECIFICATIONS

**Construction:** terminal board; terminal cover provided

**Connection:** M3.5 screw terminals (torque 1.1 N·m)

**Screw terminal:** Nickel-plated steel

**Housing material:** Steel

**LED monitor:** Red

The leakage current from voltage limiter increases due to its degradation.

LED becomes brighter gradually in proportion to this leakage current.

#### INSTALLATION

**Operating temperature:** -5 to +55°C (23 to 131°F)

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

**Mounting:** Surface

**Weight:** 520 g (1.15 lb)

#### PERFORMANCE

**Response time:** ≤ 4 nsec

#### Leakage current @ max. voltage

Line to COM: 5 μA

Line to line: 5 μA

COM to earth: 5 μA

#### Max. discharge current (I<sub>max</sub>)

Line to COM: 10 kA

Line to line: 10 kA

COM to earth: 10 kA

**Nominal current (I<sub>n</sub>):** 150 mA

**Internal series resistance:** 22 Ω ±20 %

**Surge protection:** IEC 61643-21 Categories C1, C2, D1

**Max. Continuous operating voltage (U<sub>c</sub>)**

	MDR2			
	-8NY	-8NA	-8PY	-8PA
Between each of S1 to S8 lines	±30V			
Each line to COM*	+30V		-30V	
Each line or COM to Earth	±150V			

\*MDR2 is operational as an SPD despite less than +2V (for MDR2-8PA) or more than -2V (for MDR2-8NA). However, the function of the monitor LED is not guaranteed.

#### Voltage protection level (U<sub>p</sub>)

- @1kV / 100A (1.2 / 50μs)

	MDR2			
	-8NY	-8NA	-8PY	-8PA
Between each of S1 to S8 lines	±40V	±50V	±40V	±50V
Each line to COM	+40V	+50V	-40V	-50V
Each line or COM to Earth	±500V			

- @4kV / 2kA (1.2 / 50μs)

	MDR2			
	-8NY	-8NA	-8PY	-8PA
Between each of S1 to S8 lines	±60V			
Each line to COM	+50V	+60V	-50V	-60V
Each line or COM to Earth	±600V			

## STANDARDS & APPROVALS

EU conformity:

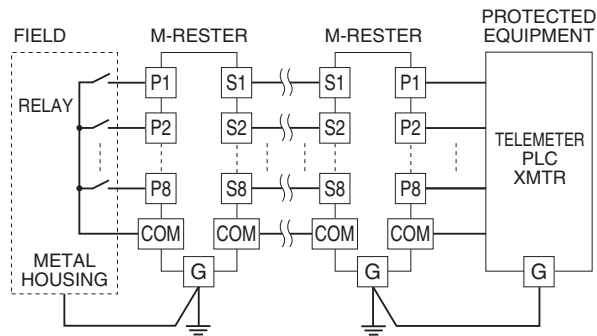
EMC Directive

EMI EN 61000-6-4

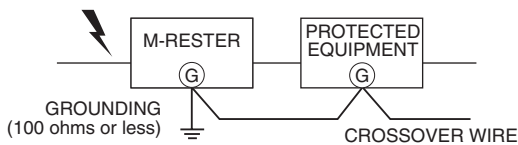
EMS EN 61000-6-2

RoHS Directive

## CONNECTION EXAMPLES



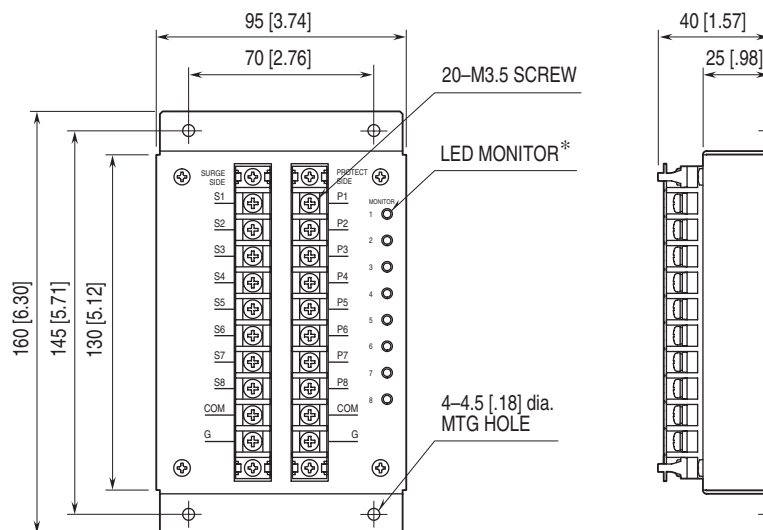
## GROUNDING



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.

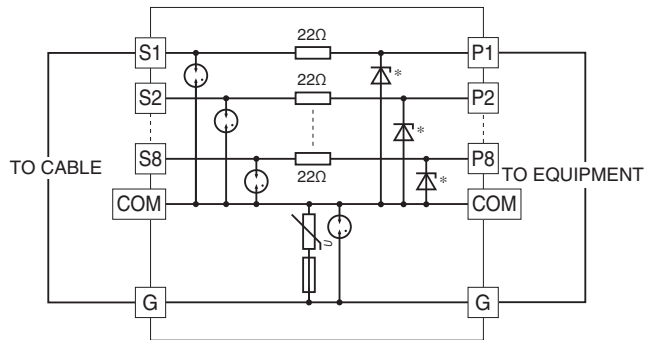
## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



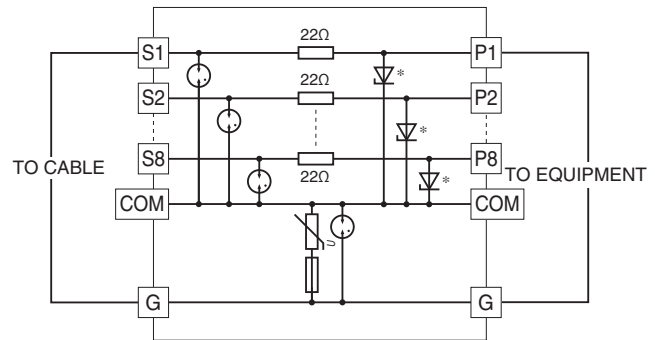
\*Only available with MDR2-8xA

## SCHEMATIC CIRCUITRY

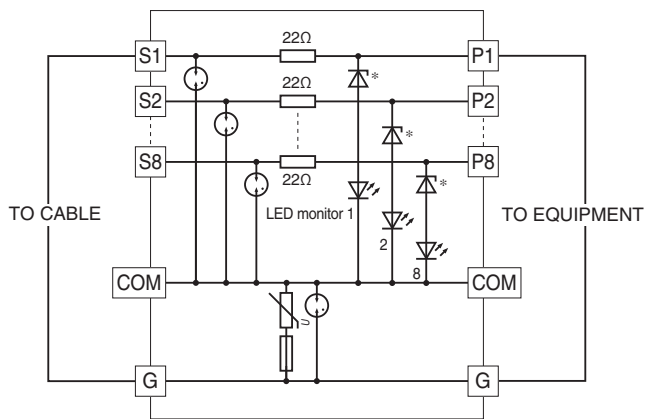
■ NPN, WITHOUT MONITOR LED



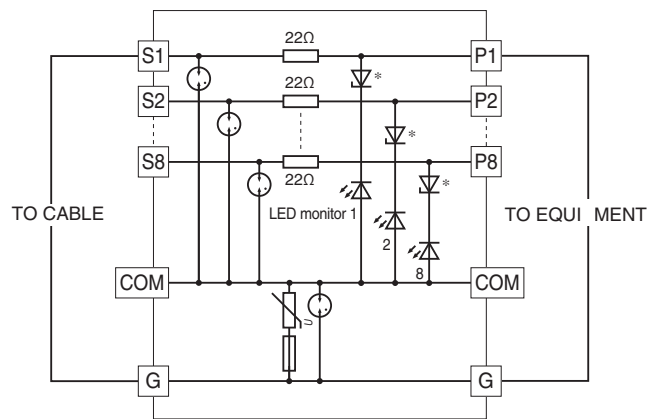
■ PNP, WITHOUT MONITOR LED



■ NPN, WITH MONITOR LED



■ PNP, WITH MONITOR LED



\*Zenor diode has polarity.  
Not applicable to zero-cross signals.



Specifications are subject to change without notice.