

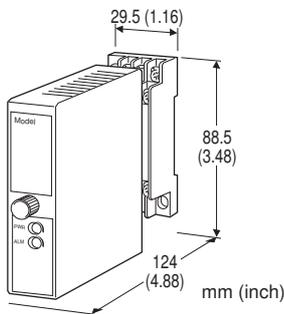
Lightning Surge Protectors for Electronics Equipment M-RESTER

LIGHTNING SURGE PROTECTOR FOR RS-485 / RS-422

(life monitor)

Functions & Features

- Designed specifically for RS-485 or RS-422 transmission line
- Life monitor function helps you to decide when you should replace the M-RESTER; reduces maintenance and prevents downtime
- LED indicator and alarm contact output indicate the degradation and life span of the surge protection circuits



MODEL: MDW2A-4R-[1]

ORDERING INFORMATION

- Code number: MDW2A-4R-[1]
- Specify a code from below for [1].
(e.g. MDW2A-4R-M2)

[1] POWER INPUT

AC Power

M2: 100 - 240 V AC (Operational voltage range 85 - 264 V, 47 - 66 Hz)

DC Power

R: 24 V DC

(Operational voltage range 24 V \pm 10 %, ripple 10 %p-p max.)

P: 110 V DC

(Operational voltage range 85 - 150 V, ripple 10 %p-p max.)

APPLICABLE NETWORK

RS-485 or RS-422 conformed network: Modbus, SINNET, MsysNet

GENERAL SPECIFICATIONS

Construction: Plug-in

Connection: M3 screw terminals (torque 0.8 N·m)

Screw terminal: Chromated steel

Housing material: Flame-resistant resin (black)

Alarm indicators

PWR: The green LED turns on while the power is supplied.

ALM: Tricolor LED (green/amber/red)

- Remains off when the power supply is first turned on.
- Green: The unit has received one or more surges.
- Amber: Replacement is recommended.
- Red: The life span has ended.

Degradation judged: When the leakage current at the voltage limiter exceed approx. 0.25 mA.

Life time judged: When the number of discharges of the discharge element reaches the expected life span.

Alarm contact: The N.C. contact is on when the life span of the discharge elements has ended, when the voltage limiter has degraded or when the power supply is removed.

Rating: 125 V AC @ 0.5 A (cos ϕ = 1)

30 V DC @ 1 A (resistive load)

Maximum switching voltage: 125 V AC or 110 V DC

Maximum switching power: 62.5 VA or 30 W

Minimum load: 5 V DC @ 10 mA

INSTALLATION

Power consumption

• AC:

Approx. 3 VA at 100 V

Approx. 4 VA at 200 V

Approx. 5 VA at 240 V

• DC: Approx. 2 W

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

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

Mounting: Surface or DIN rail

Weight: 200 g (0.44 lb)

PERFORMANCE

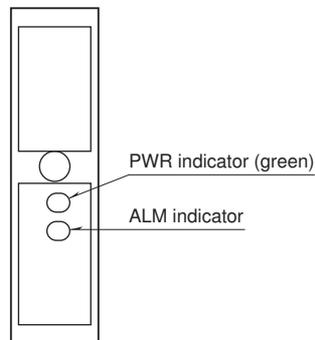
Insulation resistance: $\geq 100 \text{ M}\Omega$ with 500 V DC
(surge protector circuit to alarm output to power)

Dielectric strength: 2000 V AC @ 1 minute
(surge protector circuit to power to ground)

	BETWEEN LINES	LINE TO SG	LINE TO GROUND
Discharge voltage	$\pm 5\text{V}$ 7 to 8	5V 7 / 8 to 9	$\pm 160\text{V}$ (7 / 8 / 9 to G)
Max. surge voltage*	$\pm 25\text{V}$ 4 to 5	25V 4 / 5 to 6	$\pm 600\text{V}$ (4 / 5 / 6 to G)
Leakage current	$\leq 0.2\text{mA}$ @ $\pm 5\text{V}$ 7 to 8	$\leq 0.2\text{mA}$ @5V 7 / 8 to 9	$\leq 10\mu\text{A}$ @ $\pm 160\text{V}$ (7 / 8 / 9 to G)
Response time	$\leq 4 \text{ nsec.}$	$\leq 4 \text{ nsec.}$	$\leq 20 \text{ nsec.}$
Capacitance (approx.)	500 pF @10 kHz	500 pF @10 kHz	100 pF @10 kHz
Discharge current	5000A (8 / 20 $\mu\text{sec.}$)		
Max. load current	100mA		
Internal series resist.	approx. 5Ω including return		
Max. line voltage	$\pm 5\text{V}$		
Input attenuation	-1 dB max. @DC...1 MHz, $Z_0 = 110\Omega$		

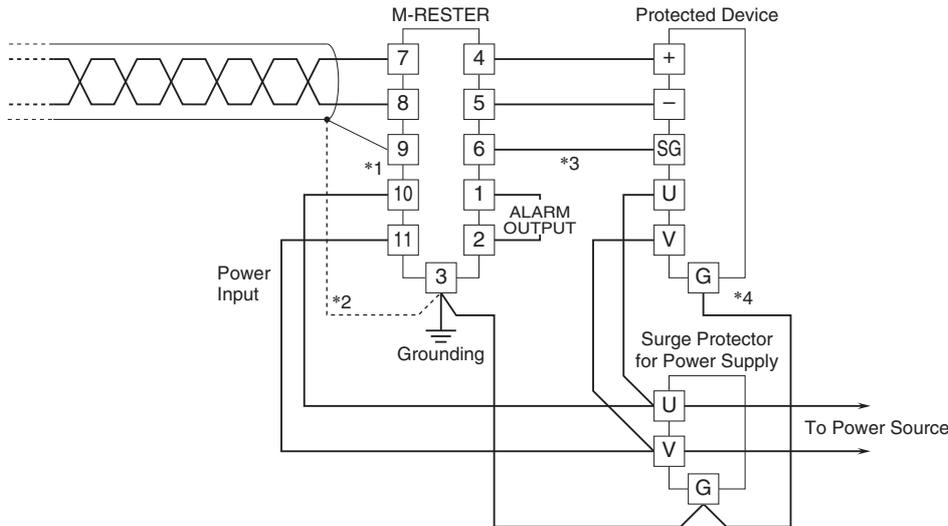
*The maximum voltage that could pass through M-RESTER. Protected equipment must be able to withstand this voltage for a very short time period.

EXTERNAL VIEW

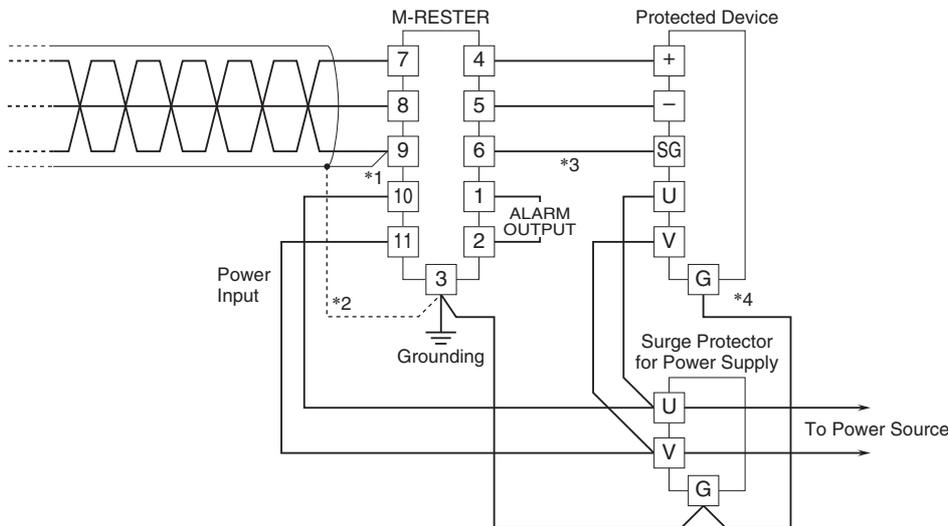


CONNECTION EXAMPLES

■ DUAL-CORE CABLE

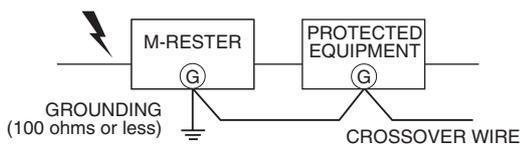


■ TRIPLE-CORE CABLE



- *1. No need of this part of the wiring if the cable has no shield.
- *2. Ground the shield via Terminal 3 if necessary.
- *3. No need of wiring to Terminal 6 if the protected device has no SG (Signal Ground) Terminal.
- *4. Cross wire from the protected device's G terminal to the surge protector's Terminal 3.
If the protected device has no G terminal, ground only the surge protector.

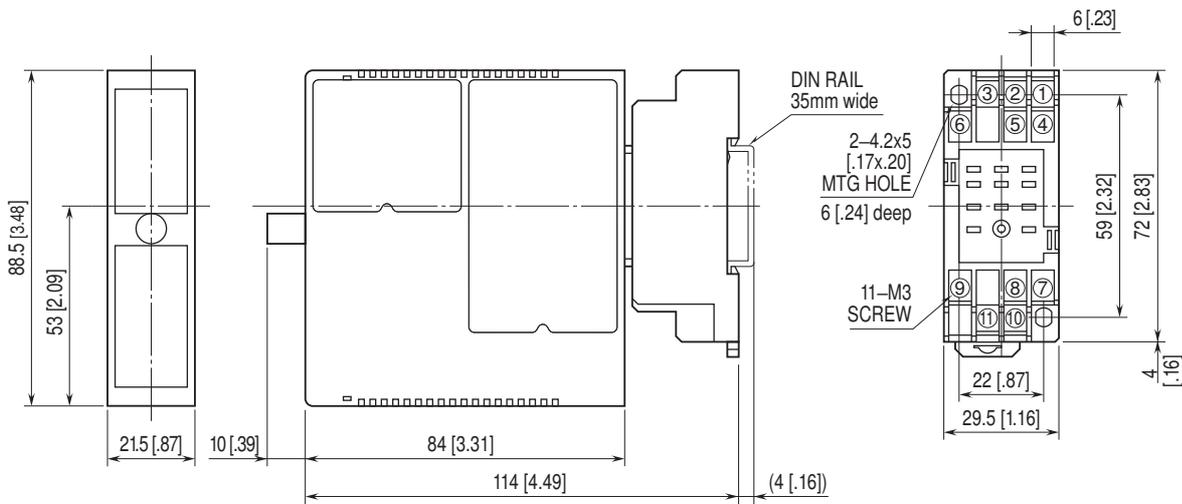
GROUNDING



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.

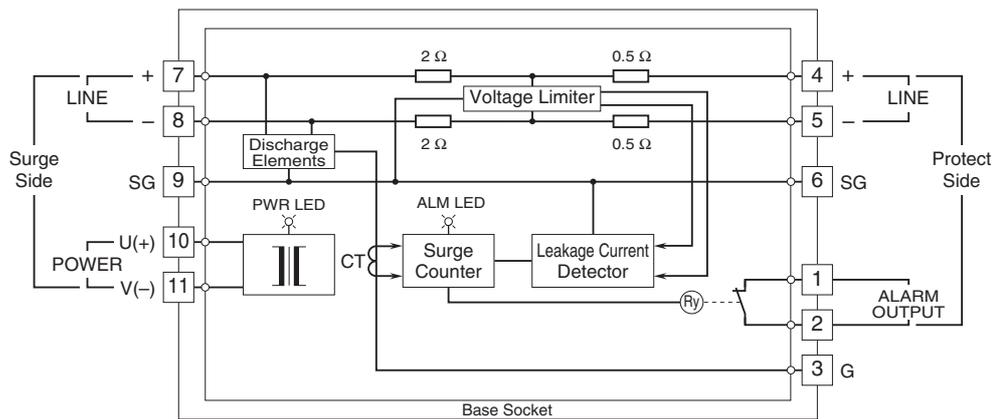
MODEL: MDW2A-4R

EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



• When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.