

## Lightning Surge Protectors for Electronics Equipment M-RESTER

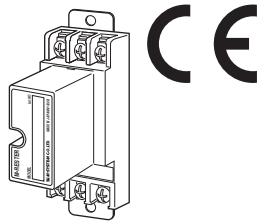
### LIGHTNING SURGE PROTECTOR FOR DC POWER SUPPLY USE

#### Functions & Features

- Designed specifically for 12 V/24 V DC power supplies of small capacity
- Absorbs surges only without affecting instrumentation signal
- Monitor LED

#### Typical Applications

- DC power sources, switching regulators
- Power source for electronic devices



### MODEL: MDP-D[1][2]

#### ORDERING INFORMATION

- Code number: MDP-D[1][2]
- Specify a code from below for each [1] and [2].  
(e.g. MDP-D24/A33/Q)
- Specify the specification for option code /Q  
(e.g. /C01)

#### [1] OPERATIONAL VOLTAGE

12: 12 V DC  
24: 24 V DC

#### [2] OPTIONS (multiple selections)

##### DIN Rail Mounting Adapter

blank: Without

/A33: With adapter (model A-33)

##### Other Options

blank: none

/Q: Option other than the above (specify the specification)

#### SPECIFICATIONS OF OPTION: Q

**COATING (For the detail, refer to M-System's web site.)**

/C01: Silicone coating

/C02: Polyurethane coating

/C03: Rubber coating

#### GENERAL SPECIFICATIONS

**Construction:** Plug-in

**Surge protection type:** Voltage limiting type two-port SPD

**Connection:** M4 screw terminals (torque 0.8 N·m)

**Screw terminal:** Nickel-plated steel

**Housing material:** Flame-resistant resin (black)

**Monitor LED:** Green light turns ON during the power is supplied; OFF when the voltage limiter is failed.

#### INSTALLATION

**Power input:** Max. output current 1 A

Use a DC power source with the overload current protection.

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

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

**Mounting:** Surface or DIN rail

**Weight:** 140 g (0.31 lb), standard

165 g (0.36 lb), with DIN rail mounting adapter

#### PERFORMANCE

**Max. continuous operating voltage (Uc):**

MDP-D12 Line to line: 14 V

MDP-D24 Line to Line: 27 V

Line to earth:  $\pm 160$  V

**Voltage protection level (Up):**

MDP-D12 Line to line: 20 V

MDP-D24 Line to Line: 40 V

Line to earth:  $\pm 650$  V

**Response time:**

Line to line:  $\leq 4$  nsec.

Line to earth:  $\leq 20$  nsec.

**Leakage current:**

MDP-D12 Line to line:  $\leq 3$  mA @ 14 V DC

MDP-D24 Line to line:  $\leq 6$  mA @ 27 V DC

Line to earth:  $\leq 0.1$  mA @  $\pm 160$  V DC

**Max. discharge current (Imax):** 5000 A (8 / 20  $\mu$ s)

**Nominal current (In):** 1.0 A

**Internal series resistance:**  $\leq 0.6$   $\Omega$  (including return)

**Surge protection:** IEC 61643-1 Class III

#### STANDARDS & APPROVALS

**EU conformity:**

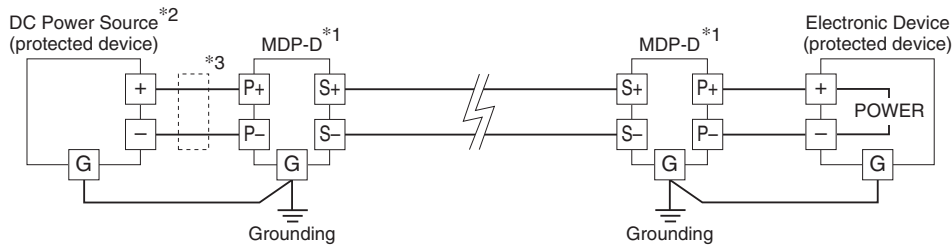
EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

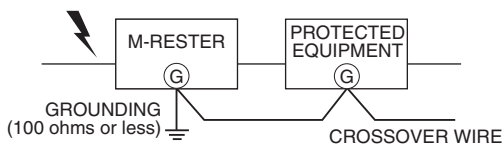
## CONNECTION EXAMPLES



The MDP-D is not applicable to protect two-wire transmitters. To protect two-wire transmitters, model MDP-24-1 designed to yield only small leakage current is suitable.

- \*1. Confirm the polarity of the terminals when connecting this module to a protected device.
- \*2. Use a DC power source with the overload current protection function. (maximum output current 1A)
- \*3. Install a current limiting element (capacity 1A) when the output current exceeds 1A.

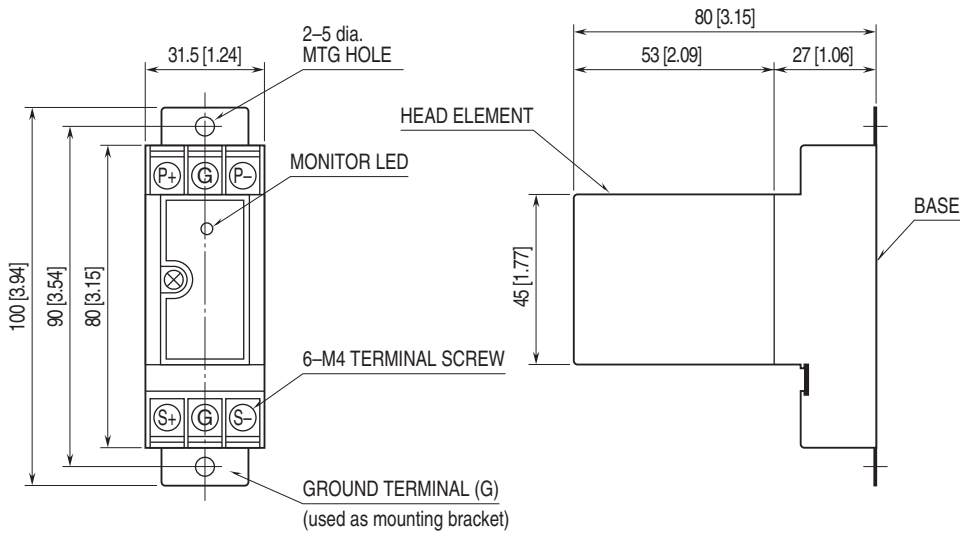
## GROUNDING



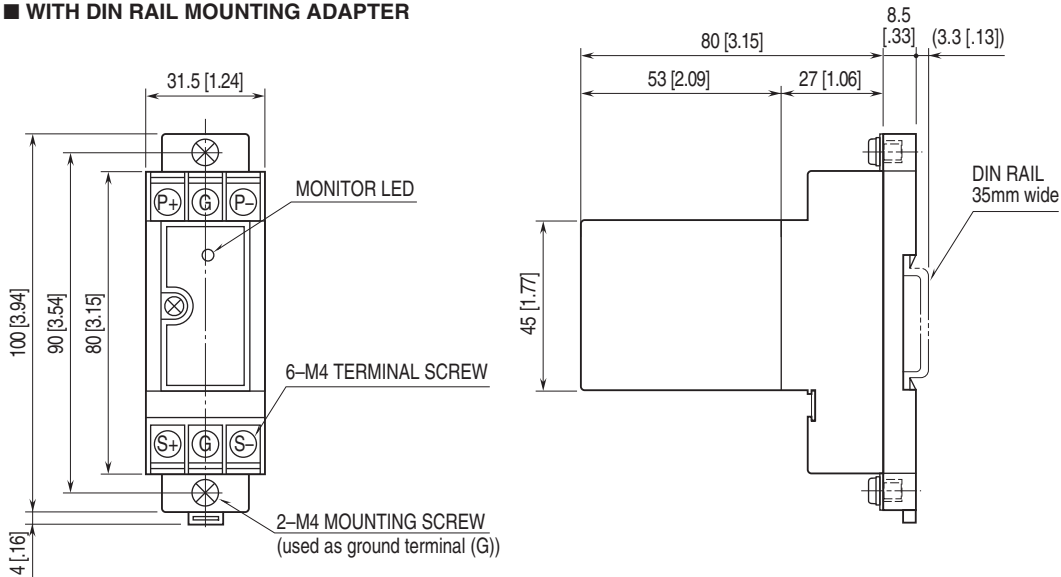
A crossover wire between M-RESTER ground and the ground or metallic housing of the equipment is required for protection.  
 If the protected equipment has no ground terminal, ground the M-RESTER only.  
 When the M-RESTER is mounted with DIN Rail Mounting Adapter, connect the grounding wire to the mounting screw of the M-RESTER.

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

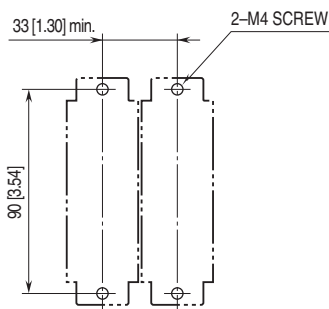
### ■ STANDARD



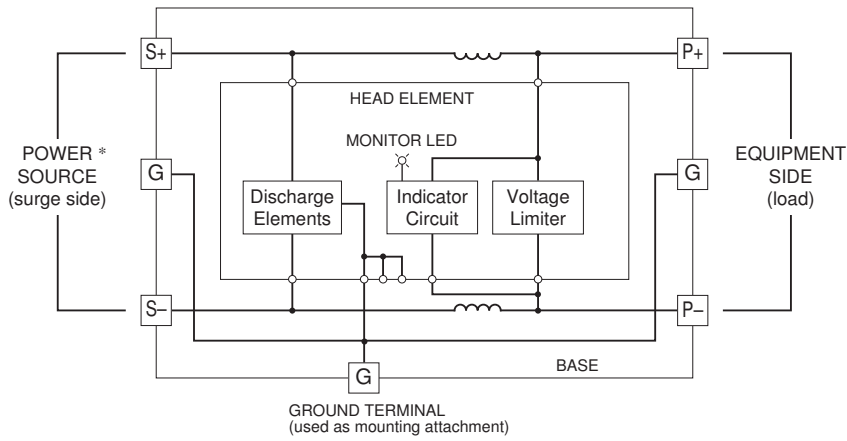
### ■ WITH DIN RAIL MOUNTING ADAPTER



## MOUNTING REQUIREMENTS unit: mm [inch]



**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



\* Use a DC power source with the overload current protection function. (maximum output current 1A)



Specifications are subject to change without notice.