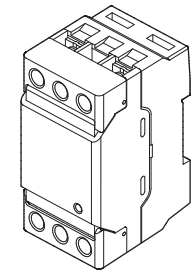


## Lightning Surge Protectors for Electronics Equipment M-RESTER

### SURGE PROTECTOR FOR PHOTOVOLTAIC SYSTEM

#### Functions & Features

- Surge protection for photovoltaic array and power conditioner.
- High discharge current capacity 20 kA or 40 kA (8/20  $\mu$ s)
- Degraded head element is automatically separated from the power lines by the incorporated thermal breaker, and the LED lamp (turns off) and the relay contact alerts the failure status.
- Breakdown of the surge protector remotely detected with the alarm output



### MODEL: MATP-600[1][2]

#### ORDERING INFORMATION

- Code number: MATP-600[1][2]  
Specify a code from below for each [1] and [2].  
(e.g.MATP-600MA)

#### OPERATIONAL VOLTAGE

600: 600 V DC

#### [1] MAXIMUM DISCHARGE CURRENT

M: 20kA (8/20  $\mu$ sec.)

H: 40kA (8/20  $\mu$ sec.)

#### [2] ALARM OUTPUT

A: With

Y: Without

#### GENERAL SPECIFICATIONS

**Construction:** Standalone; terminal access at the front

**Degree of protection:** IP20 (If the solderless terminals are covered with insulation tubes.)

**Surge protection type:** Voltage limiting type one-port SPD Connection

**Line:** M5 screw terminal (torque: 2.5 N·m)

**Alarm output:** Tension clamp

**Applicable wire size**

**Line:** See the drawing below.

**Alarm output:** 0.13 to 1.5 mm<sup>2</sup> (8 mm exposed)

**Screw terminal**

**Line:** Nickel-plated steel

**Alarm output:** Tin-plated copper alloy

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

**Alarm output:** Trips when the thermal breaker operates. (N.C. contact)

**Rated load:**

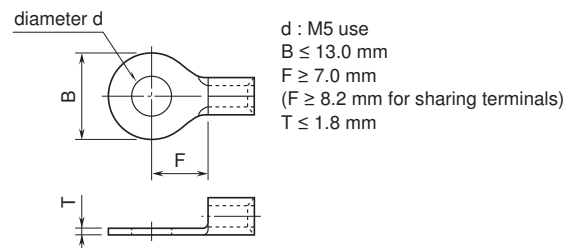
250 V AC @50 mA (resistive load)

24 V DC @50 mA (resistive load)

**Safety function:** Thermal breaker incorporated

**Monitor LED:** Green LED turns on during normal conditions between 150 and 600 V DC, and turns off during failure condition, power off and the thermal breaker operating.

#### • Applicable Solderless Terminal Size



#### INSTALLATION

**Operating temperature:** -25 to +80°C (-13 to +176°F)

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

**Mounting:** DIN Rail

**Weight**

MATP-600Mx: 200 g (0.44 lb)

MATP-600Hx: 250 g (0.55 lb)

#### PERFORMANCE

**Max. continuous operating voltage (Uc):** 600 V DC

**Discharge voltage:** (Line to earth) 600 V DC

**Maximum surge voltage:** 2.5 kV

**Maximum (Imax) and Nominal (In) discharge current:** (8/ 20  $\mu$ s)

• MATP-600Mx: 20 kA (Imax), 10 kA (In)

• MATP-600Hx: 40 kA (Imax), 20 kA (In)

**Response time:** ≤ 4 nsec

**Leakage current:** ≤ 1 mA

**Insulation resistance:** ≥ 100 M $\Omega$  with 500 V DC (line to alarm output)

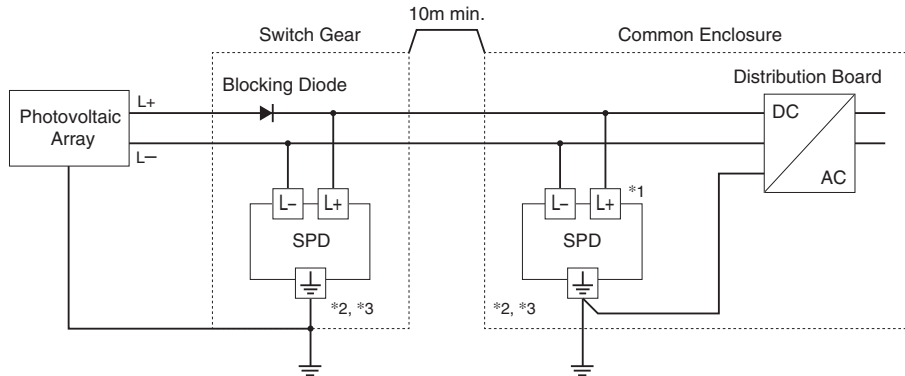
**Dielectric strength:** 2000 V AC @ 1 minute (line to alarm output)

## STANDARDS & APPROVALS

Surge protection: IEC 61643-1: 1998 Class II

## CONNECTION EXAMPLES

### CONNECTION DIAGRAM



\*1. When the wiring distance is longer than 10 m between the power conditioner and the surge protector in the switch gear, install near the power conditioner.

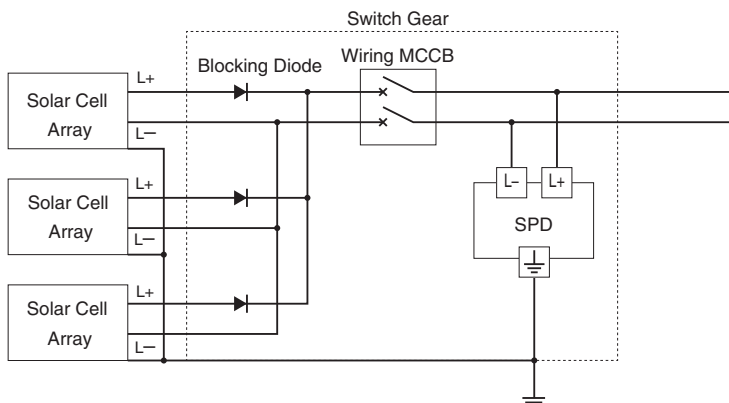
\*2. Cable length between the branch point and the earthing: 0.5 m or less recommended

\*3. When the solar panel manufacturer requires earthing at negative line of DC side, do NOT use the earth terminal of the SPD but use the L- terminal. If also, earthing at positive line is necessary, earth the L+ terminal.

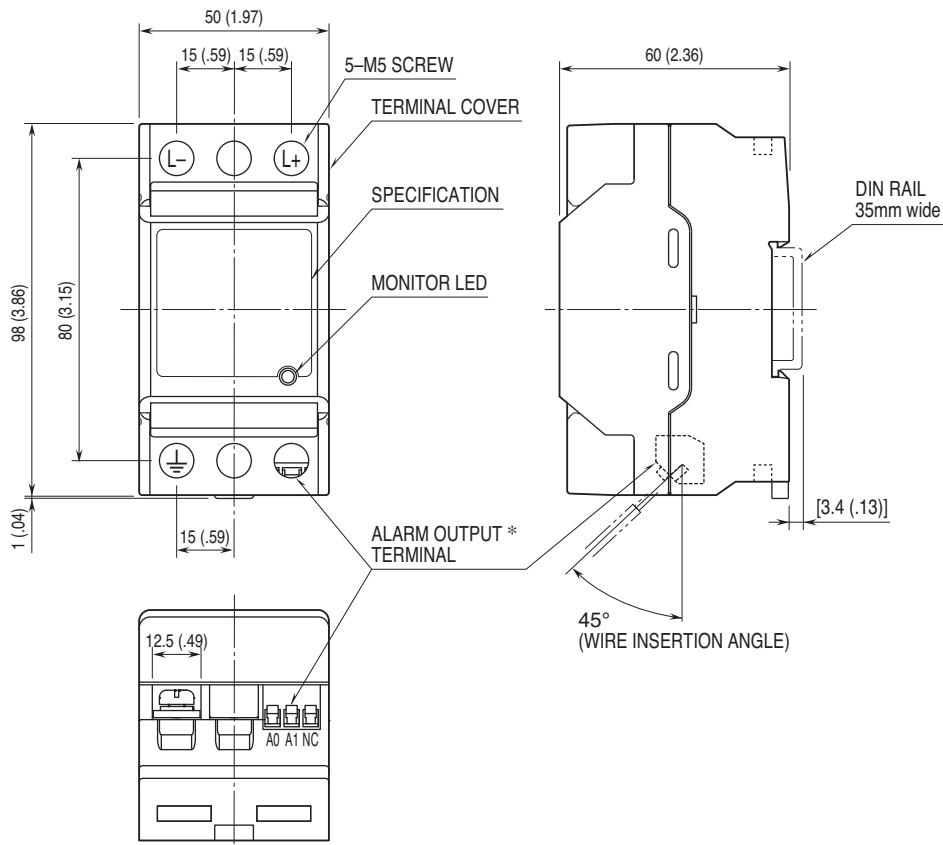
### CIRCUIT BREAKER POSITION

If you want to use circuit breaker as SPD maintenance switch, insert a wiring MCCB for DC on SPD power side (diagram below).

Even when the output current of solar cell array is low, use 20 AT or more for wiring MCCB.

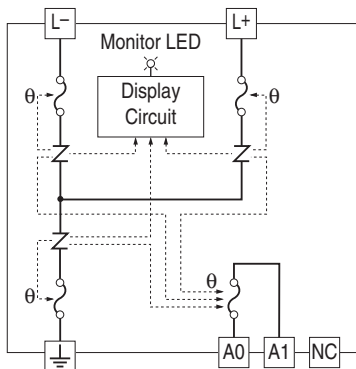


## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



\* Only for 'Alarm output' code 'A.'

## SCHEMATIC CIRCUITRY



θ: Thermal breaker

Note: Terminals A0 & A1 are available for 'Alarm output' code 'A.'



Specifications are subject to change without notice.