Lightning Surge Protectors for Electronics Equipment M-RESTER

SURGE PROTECTOR FOR PHOTOVOLTAIC SYSTEM

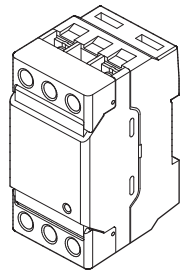
Functions & Features

• Surge protection for photovoltaic array and power conditioner.

•High discharge current capacity 20 kA or 40 kA (8/20 μs)

• 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 μsec.)
H: 40kA (8/20 μsec.)

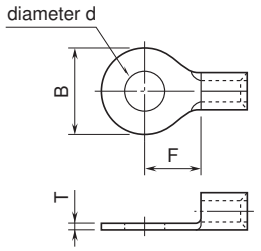
[2] ALARM OUTPUT

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^2 (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**



d : M5 use
B ≤ 13.0 mm
F ≥ 7.0 mm
(F ≥ 8.2 mm for sharing terminals)
T ≤ 1.8 mm

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 μs)
• 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 MΩ with 500 V DC (line to alarm output)
Dielectric strength: 2000 V AC @ 1 minute (line to alarm output)

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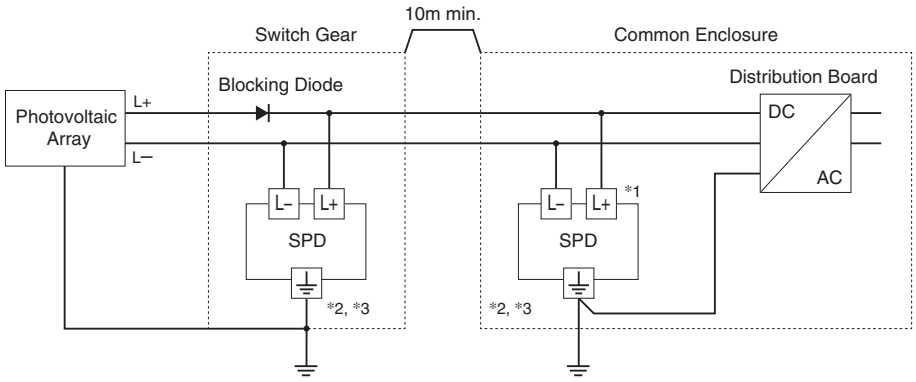
STANDARDS & APPROVALS

Surge protection: IEC 61643-1: 1998 Class II

CONNECTION EXAMPLES

■ CONNECTION DIAGRAM



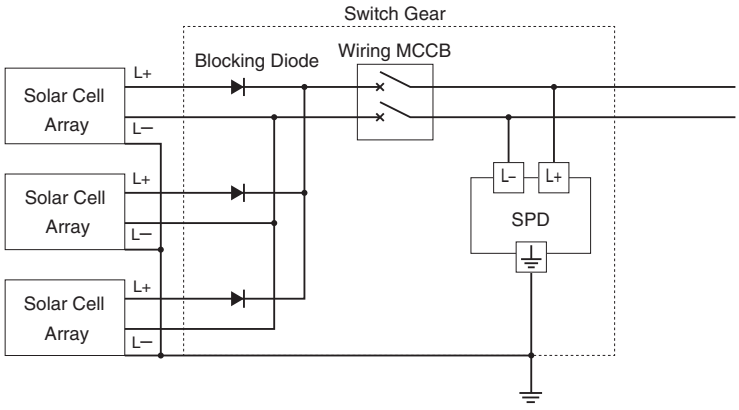
*1. When the wiring distance is longer than 10 m between the power conditioner and the surge protector in the switch gear, install near the power conditioner.

*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.



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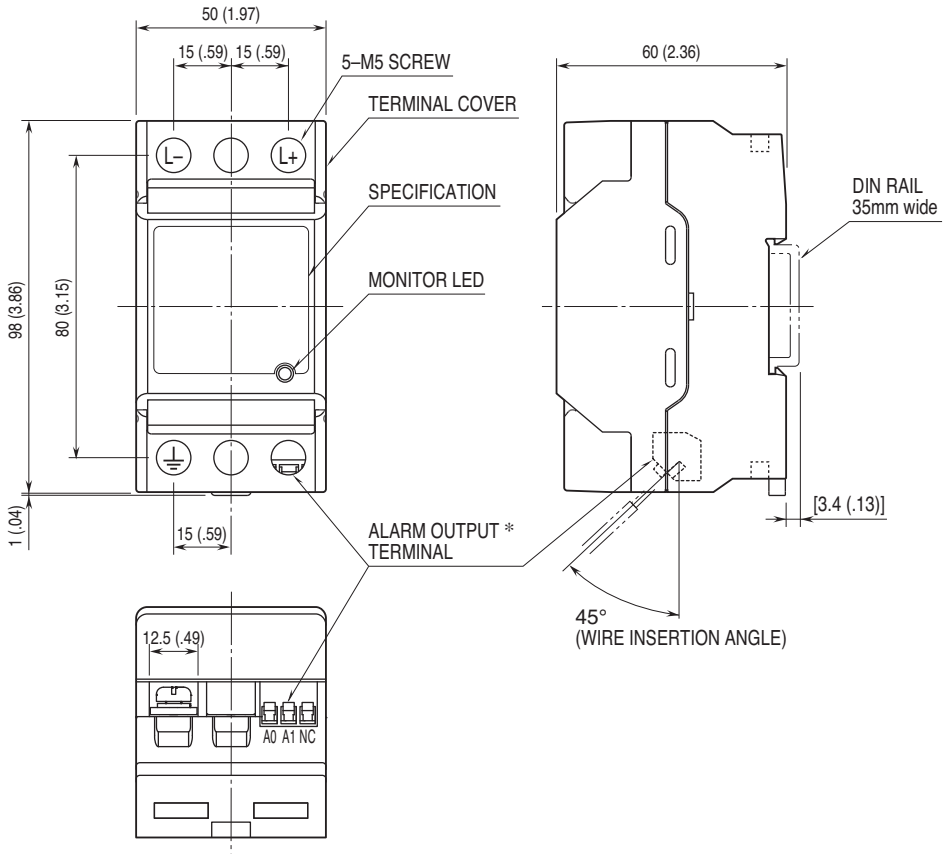
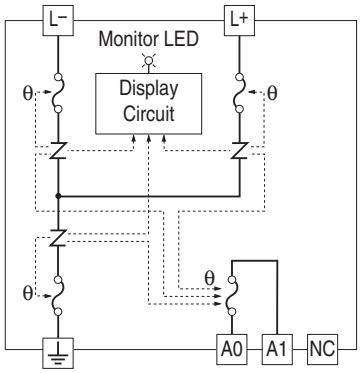
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



* 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.

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