Lightning Surge Protectors for Electronics Equipment M-RESTER

LIGHTNING SURGE PROTECTOR FOR POWER SUPPLY USE

(fast response: 3 nsec.)

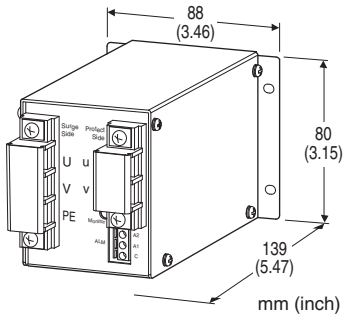
Functions & Features

• Designed to protect equipment from induced lightning surges entering through power supply cables

• High discharge current capacity type with a maximum of 20 kA is available.

• 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 alert the failure status.

• Conforms to IEC 61643-1 Class II, III



MODEL: MMAJ-[1][2][3][4]

ORDERING INFORMATION

• Code number: MMAJ-[1][2][3][4]

Specify a code from below for each of [1] through [4].
(e.g. MMAJ-10020MA)

[1] OPERATIONAL VOLTAGE

100: 100 V / 110 V / 120 V AC
200: 200 V / 220 V / 240 V AC

[2] LOAD CURRENT

10: 10 A
20: 20 A
30: 30 A

[3] MAXIMUM DISCHARGE CURRENT

L: 10 kA
M: 20 kA

[4] ALARM OUTPUT

A: With
Y: Without

GENERAL SPECIFICATIONS

Construction: Wall-mounted, front terminals; terminal cover provided
Surge protection type: Surge energy limiting type two-port SPD
Connection
Line: M4 screw terminal (torque: 1.2 N·m)
Alarm output: Tension clamp
Applicable wire size: 0.33 to 1.5 mm^2
(6 to 7 mm^2 exposed)
Screw terminal: Nickel-plated steel
Housing material: Steel plate t = 1.2 (black)
Alarm output: SPDT relay contact trips when the thermal breaker operates.
•**Normal**
Output terminal A1 – C: Open
Output terminal A2 – C: Close
•**Thermal breaker operating or power off**
Output terminal A1 – C: Close
Output terminal A2 – C: Open
Rated load:
250 V AC @1 A (cos ø = 1)
24 V DC @1 A (resistive load)
Maximum switching voltage: 250 V AC or 24 V DC
Maximum switching power: 250 VA or 24 W
Minimum load: 5 V DC @ 20 mA
Safety function: Thermal breaker incorporated
Monitor LED: Green LED; ON in normal conditions OFF in failure conditions (power off or thermal breaker operating)

INSTALLATION

Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Surface
Weight: 1.6 kg (3.5 lb)

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PERFORMANCE

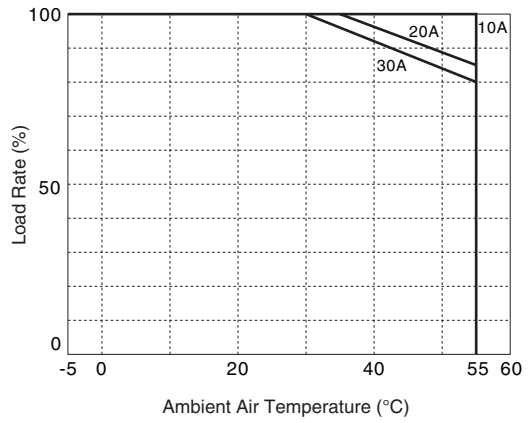
Surge protection: IEC 61643-1 Class II, III

	MMAJ-100xxx	MMAJ-200xxx
Max. Continuous Operating Voltage (Uc)	132V AC	264V AC
Operational Volatge Range *1	85 – 132V AC	170 – 264V AC
Discharge Voltage (Vmin)	Line to line: 190V Line to earth: 300V	Line to line: 380V Line to earth: 450V
Voltage Protection Level (Up)	900V	1500V
Leakage Current @ Uc	Line to line: Without Alarm 6mA, With Alarm 20mA Line to earth: 10μA	
Nominal Discharge Current (In)	MMAJ-xxL: 5kA MMAJ-xxM: 10kA	
Max. Load Current *2	MMAJ-x10: 10A MMAJ-x20: 20A MMAJ-x30: 30A	
Voltage Drop	≤1V	
Surge Energy Attenuation Ratio @8/20 μs (Line to earth)	MMAJ-10010: -56 dB MMAJ-10020: -56 dB MMAJ-10030: -40 dB	MMAJ-20010: -53 dB MMAJ-20020: -53 dB MMAJ-20030: -40 dB
Response Time (Line to line)	3 nsec.	
Insulation Resistance	≥100MΩ with 500V DC (line to alarm output to housing)	
Dielectric Strength	2000V AC @1 minute (line to alarm output to housing)	

*1. MMAJ is operational as an SPD despite the voltage less than the minimum. However, the functions of the monitor LED and the alarm output are not guaranteed.

*2. Refer to Derating Curve

■ DERATING CURVE



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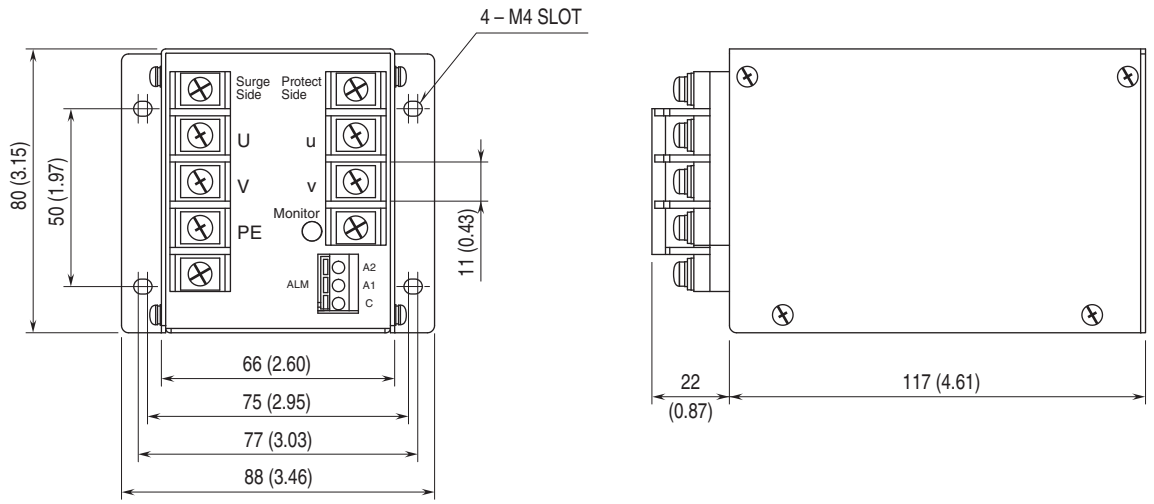
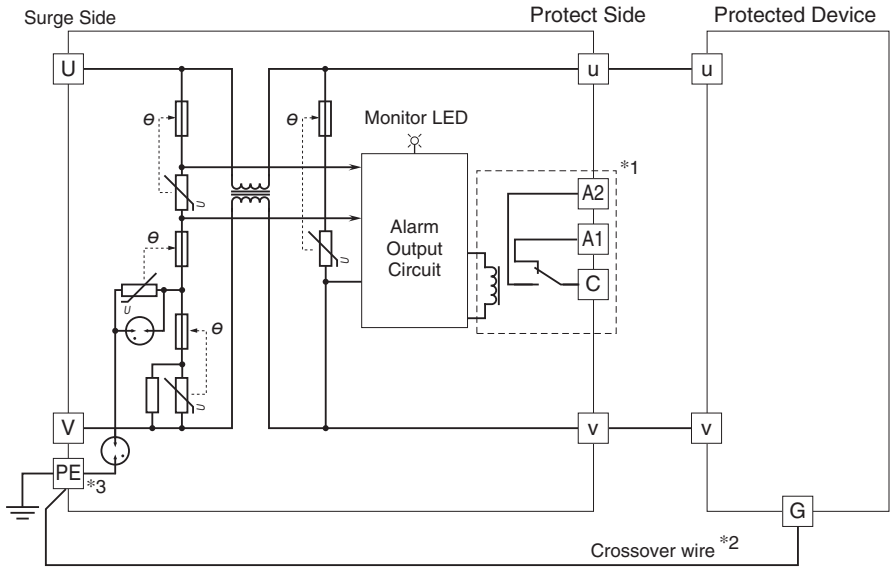
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



ϴ: Thermal breaker

*1. Sections enclosed with broken line are applicable for “alarm output” option.
The schematic shows the relay contact status of a thermal trip or power off.

*2. Be sure to make a cross-wire. If the protected device has no earth terminal, earth only the MMAJ.

*3. “PE” stands for “Protective Earth”. Besides “PE” M-RESTER has a terminal called “G”, both terminals are for grounding.

⚠ Specifications are subject to change without notice.

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