

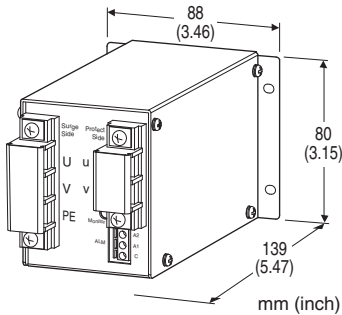
## Lightning Surge Protectors for Electronics Equipment M-RESTER

### 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 [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<sup>2</sup>  
(6 to 7 mm<sup>2</sup> 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  $\phi$  = 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)

## PERFORMANCE

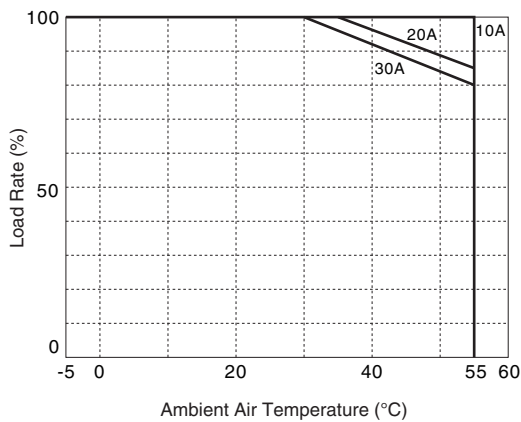
Surge protection: IEC 61643-1 Class II, III

	MMAJ-100xxx	MMAJ-200xxx
Max. Continuous Operating Voltage (Uc)	132V AC	264V AC
Operational Voltage 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)	

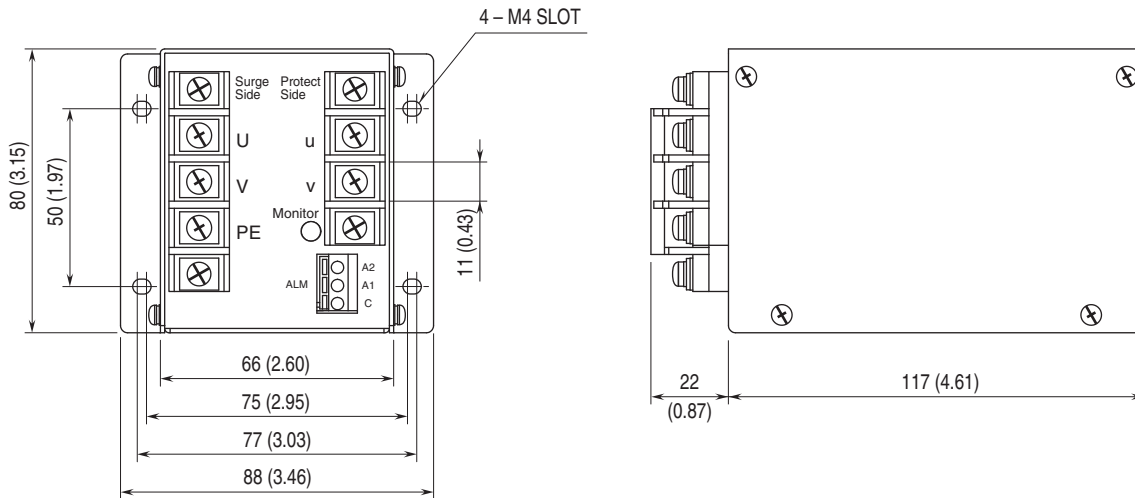
\*1. MMAJ is operational as an SPD despite the voltage less than the minimum. However, the functions of the monitor LED and the alarm output are not guaranteed.

\*2. Refer to Derating Curve

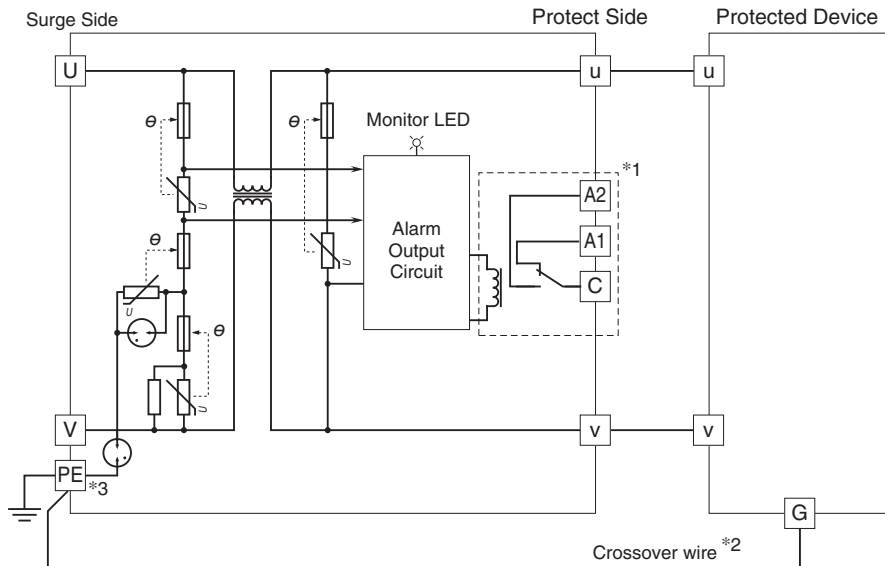
### DERATING CURVE



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



## SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



e: 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.