

Lightning Surge Protectors for Electronics Equipment *M-RESTER*

LIGHTNING SURGE PROTECTOR FOR POWER SUPPLY USE
(DC power use; life monitor)

MODEL **MDHA**

MODEL & SUFFIX CODE SELECTION

MODEL _____ MDHA-□
 LINE VOLTAGE _____
 12 : 12V DC
 24 : 24V DC

ORDERING INFORMATION

Specify code number. (e.g. MDHA-24)

GENERAL SPECIFICATIONS

Construction: Plug-in

Connection: M3.5 screw terminals
(chromated steel; torque 0.8 N·m)

Housing material: Flame-resistant resin (black)

Alarm contact: The N.C. contact is on when the life span of the discharge elements has ended, when the voltage limiter has degraded, when the fuses are blown, and/or when the power supply is removed.

Rating: 125V AC @0.5A (cosφ=1)
30V DC @1A (resistive load)

Maximum switching voltage: 125V AC or 110V DC

Maximum switching power: 62.5VA or 30W

Minimum load: 5V DC @1mA

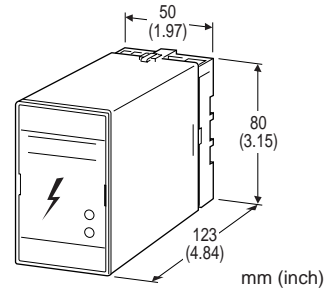
Alarm indicators

Power: The green LED turns on while the circuit is alive and the internal fuse on the voltage limiter side is not blown; and is off when the power supply is removed or this fuse is blown.

Alarm: Tricolor LED (green/amber/red)
 • Remains off when the power supply is first turned on.
 • Green: The unit has received one or more surges.
 • Amber: Replacement is recommended.
 • Red: The life span has ended.

Degradation judged: when the leakage current at the voltage limiter exceed approx. 3mA; or when the fuses are blown.

Life time judged: when the number of discharges of the discharge element reaches the expected life span.



Functions & Features

- Designed specifically for DC power supplies up to 5 amps
- Life monitor function helps you to decide when you should replace the M-RESTER; reduces maintenance and prevents downtime
- LED display and alarm contact output indicate the degradation and life span of the surge protection circuits
- No power supply interruption even when the unit is degraded or at the end of its life

Life status table

POWER LED	ALARM LED	ALARM CONTACT	STATUS	REPLACEMENT
	OFF		Normal (no surge)	No Need
ON	Green	OFF	Normal (multiple hits)	
	Amber		Near End	Without Delay
	Red	ON	End (degraded)	Now
OFF	----	----	Power supply removed or End (degraded)	Now if the power supply is normal.

INSTALLATION

Operational line voltage

MDHA-12: 10.8 – 13.2V DC (Uc)

MDHA-24: 21.6 – 26.4V DC (Uc)

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

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

Mounting: Surface or DIN rail

Dimensions: W50×H80×D123 mm (1.97"×3.15"×4.84")

Weight: 500 g (1.10 lbs)

PERFORMANCE

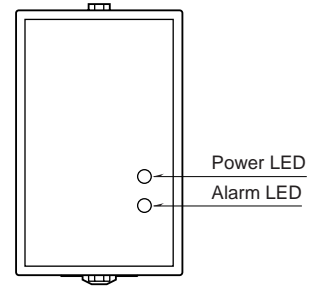
	BETWEEN LINES		LINE TO GND
	MDHA-12	MDHA-24	
Discharge voltage (peak voltage)	±15V min.	±30V min.	±160V min.
Max. surge voltage (Up)*	±80V max.	±120V max.	±700V max.
Leakage current	≤40mA @13.2V DC	≤40mA @26.4V DC	≤0.1mA @160V DC
Response time	≤4 nsec.	≤4 nsec.	≤20 nsec.
Discharge current	10000A (8 / 20 μsec.)		
Max. load current	5A		
Internal series resist.	≤0.2Ω including return		

*The maximum voltage that could pass through M-RESTER. Protected equipment must be able to withstand this voltage for a very short time period.

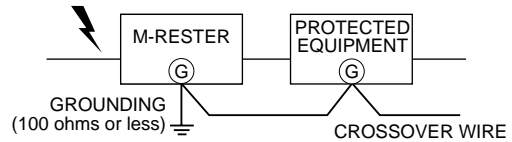
Insulation resistance: ≥100MΩ with 500V DC
(line or ground to alarm output)

Dielectric strength: 1500V AC @1 minute
(line or ground to alarm output)

FRONT PANEL CONFIGURATION

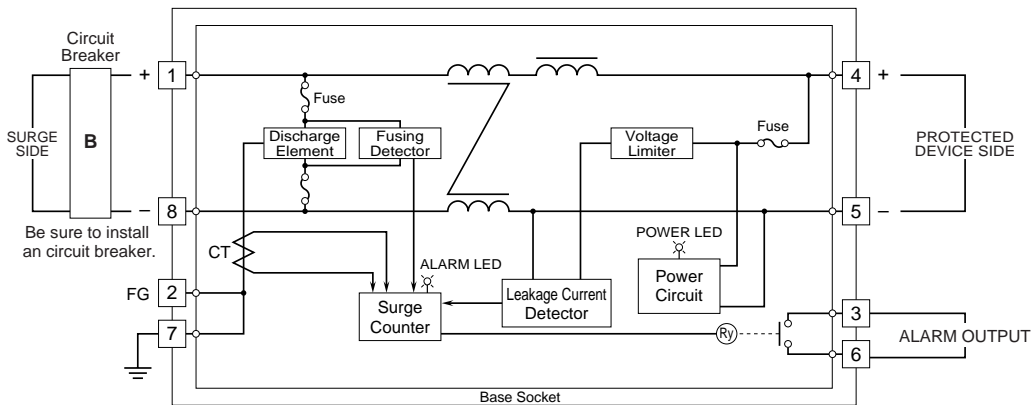


GROUNDING

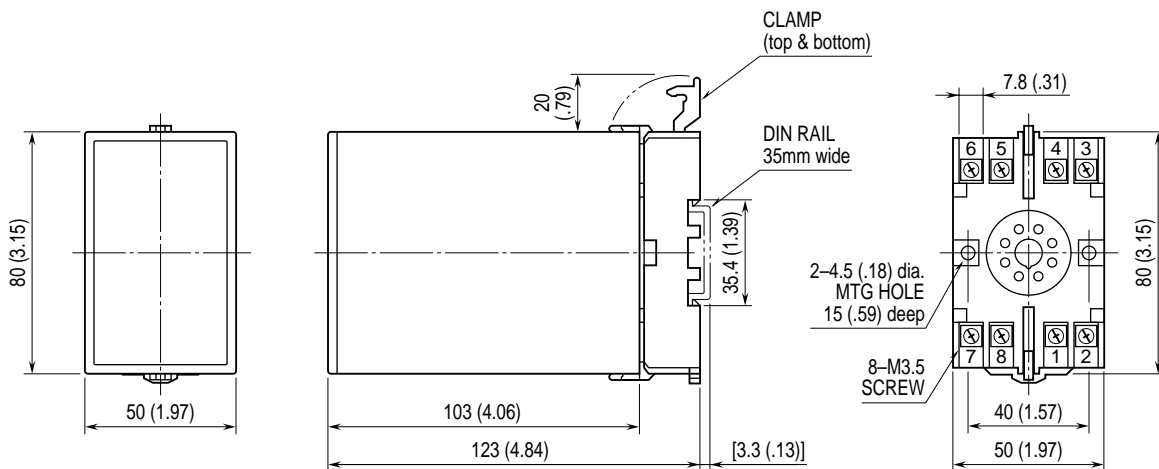


A crossover wire between M-RESTER ground and ground or metallic housing of equipment is required for protection. If the protected equipment has no ground terminal, ground the M-RESTER only.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENT mm (inch)



•When mounting, no extra space is needed between units.