

<b>LIGHTNING SURGE PROTECTOR FOR STANDARD SIGNAL LINE USE</b> (high speed/high discharge current capacity)	MODEL	<b>MMDH</b>
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## BEFORE USE ....

Thank you for choosing M-System. Before use, please check contents of the package you received as outlined below. If you have any problems or questions with the product, please contact M-System's Sales Office or representatives.

### ■ PACKAGE INCLUDES:

Lightning surge protector.....(1)

### ■ MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

### ■ INSTALLATION / INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, and basic maintenance procedure.

**LIMITATION APPLICABLE TO M-RESTER**

The M-RESTER will protect electronics equipment from damage caused by lightning by absorbing most of the surge voltages.

However, M-RESTER may not be effective against certain extremely high voltages caused by a direct or almost direct hit by lightning.

M-RESTER must be installed according to this installation / instruction manual.

## POINTS OF CAUTION

### ■ ENVIRONMENT

- Indoor use
- When heavy dust or metal particles are present in the air, install the unit inside proper housing and ventilate it.
- Do not install the unit where it is subjected to continuous vibration. Do not apply physical impact to the unit.
- Environmental temperature must be within -5 to +55°C (23 to 131°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

### ■ DIELECTRIC STRENGTH TEST

- The discharge element incorporated in the M-RESTER is grounded to its housing. Therefore, **DO NOT CONDUCT A DIELECTRIC STRENGTH TEST.** If you do, the element installed across the line and ground will start discharging.

### ■ RATED CURRENT

- Be sure that the rated current of protected equipment does not exceed the maximum load current specification of the MRESTER.

### ■ AND ....

- We recommend that you keep spare M-RESTERs so that you can replace them when necessary

## GENERAL

### ■ FUNCTION & FEATURES

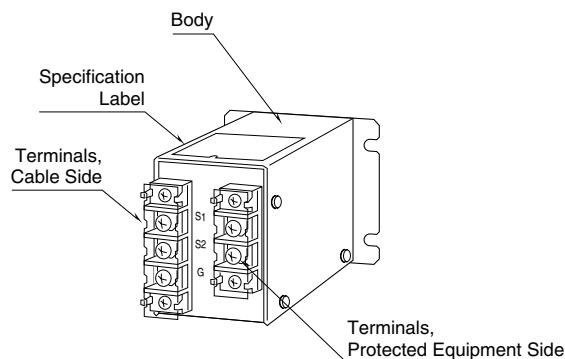
- Designed specifically for 4 – 20mA DC line including both 4-wire and 2-wire transmitters
- Discharge current capacity 20000A
- Absorbs surges only without affecting instrumentation signal

## SPECIFICATIONS

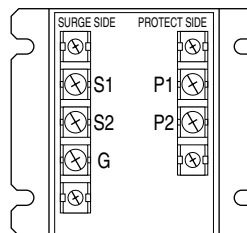
	BETWEEN LINES	LINE TO GND
Discharge voltage	±40V min.	±290V min.
Max. surge voltage*	±50V max.	±800V max.
Leakage current	≤5µA @±30V DC	≤5µA @±140V DC
Response time	4 nanosec.	
Discharge current	20000A (8 / 20 µsec.)	
Maximum load current	0.1A	
Internal series resistance	≤0.4Ω including return	
Maximum line voltage	±30V	

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

## COMPONENT IDENTIFICATION



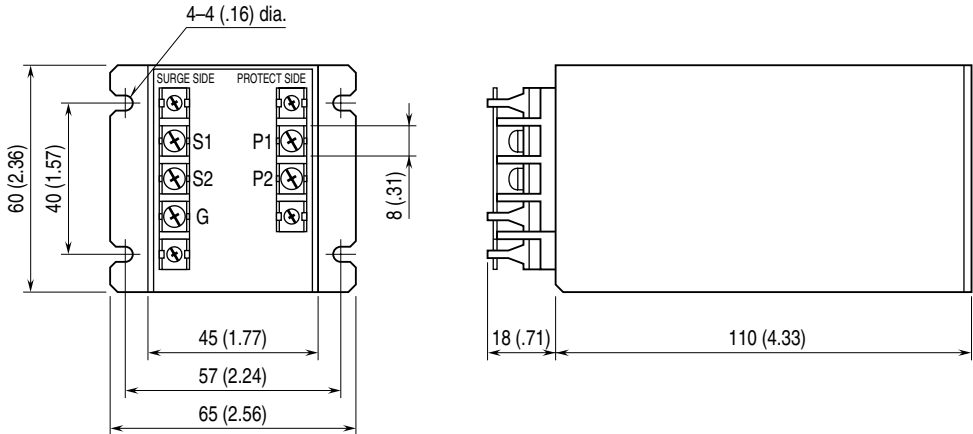
### ■ FRONT PANEL CONFIGURATION



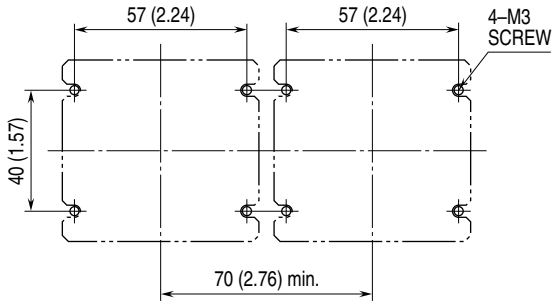
# INSTALLATION

Refer to the drawings below.

## EXTERNAL DIMENSIONS unit: mm (inch)



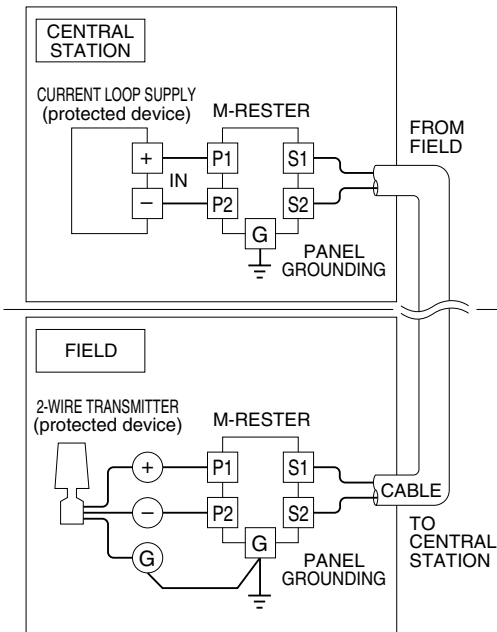
## MOUNTING REQUIREMENTS mm (inch)



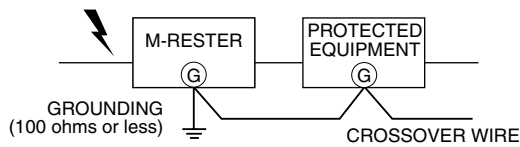
# TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

Be sure to cross-wire between the Ground terminal (G) and metallic housing of the protected equipment. (100Ω max.)



## GRONDING



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.

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## MAINTENANCE

Check M-RESTER periodically. Many cases of lightning are ignored, and even lightning at a far distance often causes inductive surges.

We recommend that you check your M-RESTER about twice a year, before and after the rainy season. Check whenever you experience a strong lightning occurrence.

Checking procedure is explained in the following:

### ■ CHECKING

#### WIRING

- Make sure that wiring is done as instructed in the connection diagram.
- Make sure that the Ground terminal (G) is connected to the metallic housing of protected equipment.
- Make sure that the Ground terminal (G) is grounded to earth.

#### DISCHARGE FUNCTION

Remove all wiring connected to M-RESTER and test its discharge capability as follows:

- Check resistance across the following terminals (infinite standard).

Terminals (S1) – (S2), (S1) – (G), (S2) – (G)

- Check that discharging occurs across the following terminals with a 500V DC megger. (Indicator of the megger reaches over-scale.)

Terminals (S1) – (S2), (S1) – (G), (S2) – (G)

- If any of the above tests shows negative, replace the MRESTER.