

LIGHTNING SURGE PROTECTOR FOR STANDARD SIGNAL LINE USE (high discharge current capacity)	MODEL	MMD
---	-------	------------

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.

GENERAL

■ FUNCTION & FEATURES

- Designed specifically for 4 – 20mA DC line including both 4-wire and 2-wire transmitters
- Discharge current capacity 10000A
- 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	0.01 μsec.	
Discharge current	10000A (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.

POINTS OF CAUTION

■ ENVIRONMENT

- When heavy dust or metal particles are present in the atmosphere, install M-RESTER inside proper housing and ventilate it.
- Do not install the M-RESTER where it is subjected to continuous vibration. Do not apply physical impact to the M-RESTER.
- Environmental temperature must be within -5 to +55°C in order to ensure adequate life span and operation.

■ WIRING

- The discharge element incorporated in the M-RESTER is grounded to its housing. Therefore, DO NOT do an insulation test. If you do, the element will start discharging between line and ground at the discharge voltage value.

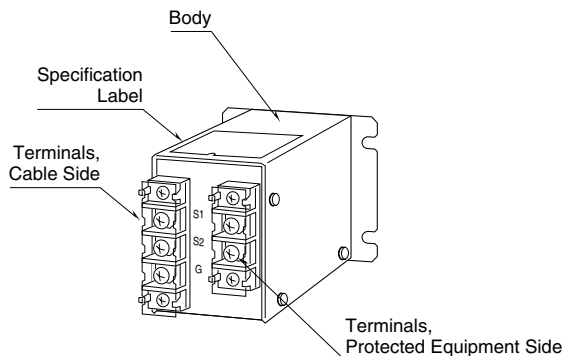
■ RATED CURRENT

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

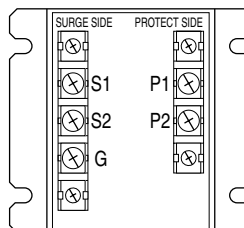
■ AND

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

COMPONENT IDENTIFICATION



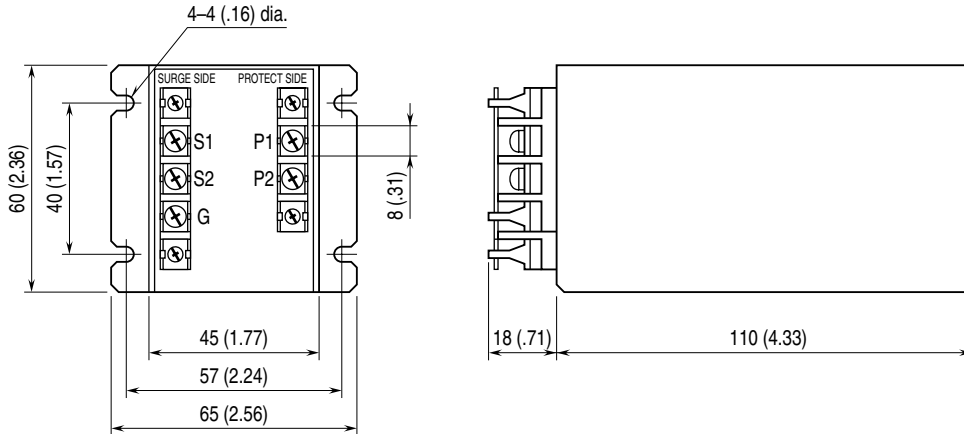
■ FRONT PANEL CONFIGURATION



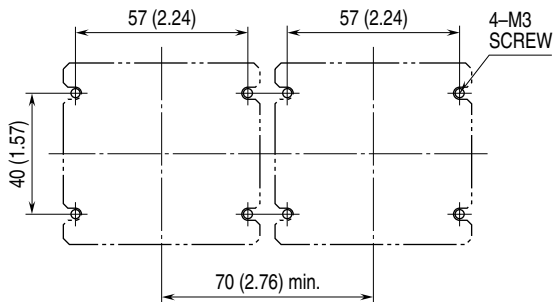
INSTALLATION

Refer to the drawings below.

EXTERNAL DIMENSIONS unit: mm (inch)



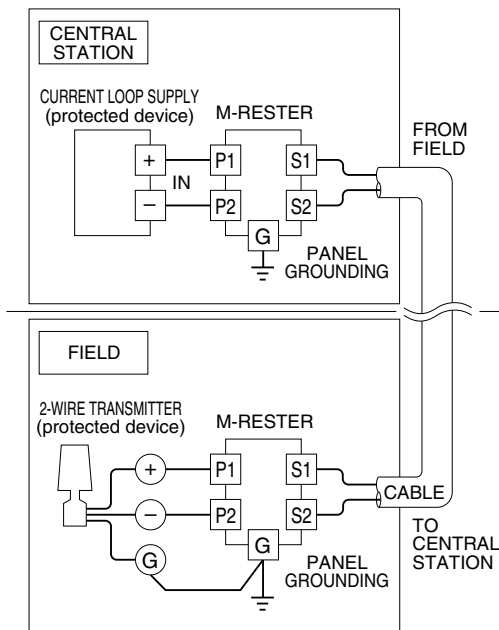
MOUNTING REQUIREMENTS mm (inch)



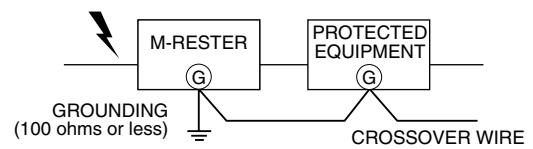
TERMINAL CONNECTIONS

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.)



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.

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 M-RESTER.