

### 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

- Specifically designed to protect level sensors, pressure sensors or their transmitters from damage caused by lightning surges
- Voltage signals 10V DC max.
- Excitation 30V DC max.
- Absorbs surges only without affecting transmitted signals.

#### ■ SPECIFICATIONS

	EXC. SIDE	SIGNAL SIDE	LINE TO GND
Discharge voltage	30V min.	10V min.	±290V min.
Max. surge voltage*	40V max.	20V max.	±650V max.
Response time	≤0.1 μsec.		
Discharge current capacity	5000A (8/20 μsec.)		
Max. load current	100mA		
Int. series resist.	10Ω ±5%		
Leakage current	≤10μA @30V DC	≤10μA @10V DC	≤10μA @±290V DC
Maximum voltage	30V	10V	—

\*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 (23 to 131°F) and relative humidity within 30 – 90% RH in order to ensure adequate life span and operation.

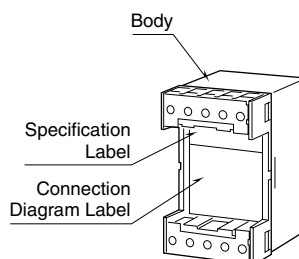
#### ■ DIELECTRIC STRENGTH TEST

- The unit will start discharging when 290V or greater voltage is applied between lines and ground. DO NOT perform dielectric strength tests with wires connected to the unit.

#### ■ AND ....

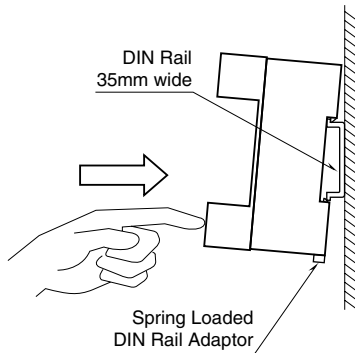
- We recommend that you keep spare M-RESTERs so that you can replace them when necessary.
- Lightning surge can enter not only through signal lines but also through power supply lines. We recommend that you also use the Lightning Arrester for Power Lines for sufficient protection.

### COMPONENT IDENTIFICATION

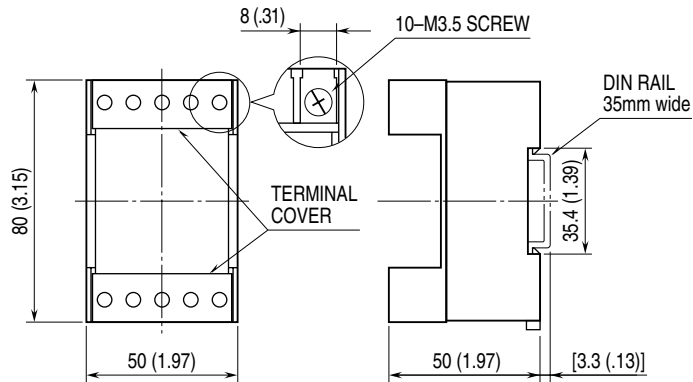


## INSTALLATION

Set the unit so that its DIN rail adapter is at the bottom.  
Hung the upper hook at the rear side of unit on the DIN rail  
and push in the lower. When removing the unit, push down  
the DIN rail adapter utilizing screwdriver (–) and pull.

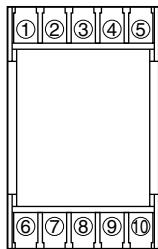


## EXTERNAL DIMENSIONS mm (inch)



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

## ■ TERMINAL ASSIGNMENT

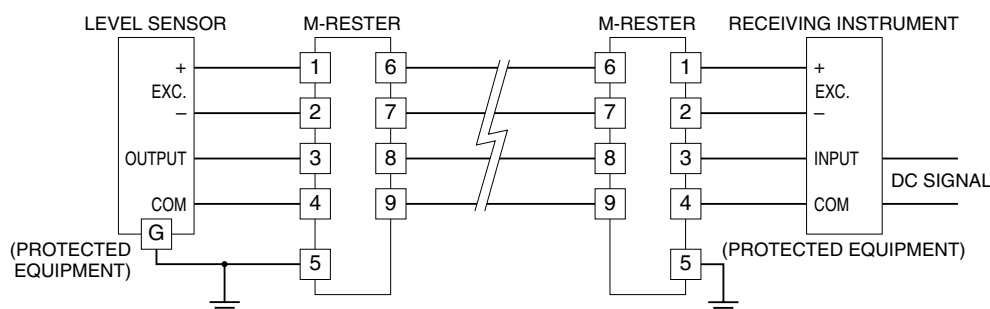


## TERMINAL CONNECTIONS

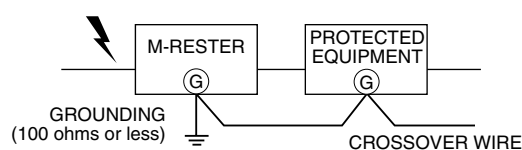
Connect the unit as in the diagram below.

Be sure to cross-wire between the ground terminal (No. 5 or 10) and that of the protected equipment.

When the M-RESTER is connected with a device which has no ground terminal such like M-System's (See figure to the right), ground the M-Rester ground terminal (No. 5 or 10) only.



### ■ GROUND



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 (No. 5 or 10) is connected to the metallic housing of protected equipment.
- Make sure that the ground terminal (No. 5 or 10) is grounded to earth.

### DISCHARGE ELEMENTS

Remove all wiring connected to M-RESTER when you test the discharge elements.

- Check resistance across the following terminals on the high resistance range of multimeter (infinite standard). When measuring across (6) – (7) or (8) – (9), connect the multimeter so that positive voltage is applied to (6) or (8) terminal.

Terminals (6) – (7), (6) – (10), (7) – (10),  
(8) – (9), (8) – (10), (9) – (10)

- Check that discharging occurs across the same terminals with a 500V DC megger. (Indicator of the megger reaches over-scale.)
- If any of the above tests shows negative, replace the M-RESTER.