

<b>LIGHTNING SURGE PROTECTOR FOR TELECOMMUNICATION LINE USE</b>	MODEL <b>MD-TL</b>
---	--------------------

**BEFORE USE ....**

Thank you for choosing M-System. Before use, check the package you received as below.

If you have any problems or questions on the product, please contact M-System's Sales Office or representatives.

**■ PACKAGE INCLUDES:**

Lightning surge protector (body + base socket) ..... (1)

**■ MODEL NO.**

Check that model No. described on model No. label is exactly what you ordered.

**■ INSTALLATION / INSTRUCTION MANUAL**

This manual describes necessary points of caution when you use this product, 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**

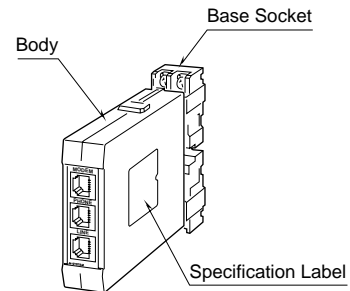
- Designed specifically for telecommunication equipment

**■ SPECIFICATIONS**

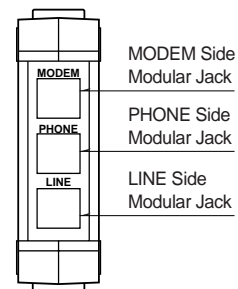
	BETWEEN LINES	LINE TO GND
Discharge voltage	±270V min	±350V max.
Max. surge voltage*	±650V max.	±900V max.
Leakage current	≤100µA @±160V DC	≤100µA @±160V DC
Response time	≤0.1 µsec.	
Discharge current	1000A (8 / 20 µsec.)	
Maximum load current	500mA	
Internal series resist.	approx. 0.1Ω including return	

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

**COMPONENT IDENTIFICATION**



**■ FRONT PANEL CONFIGURATION**



## INSTALLATION

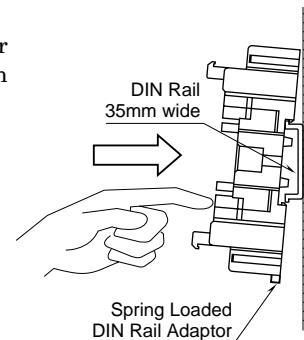
Pull out the body in pressing the clamps located at the top and bottom of the unit for separating it from the base socket.

### ■ DIN RAIL MOUNTING

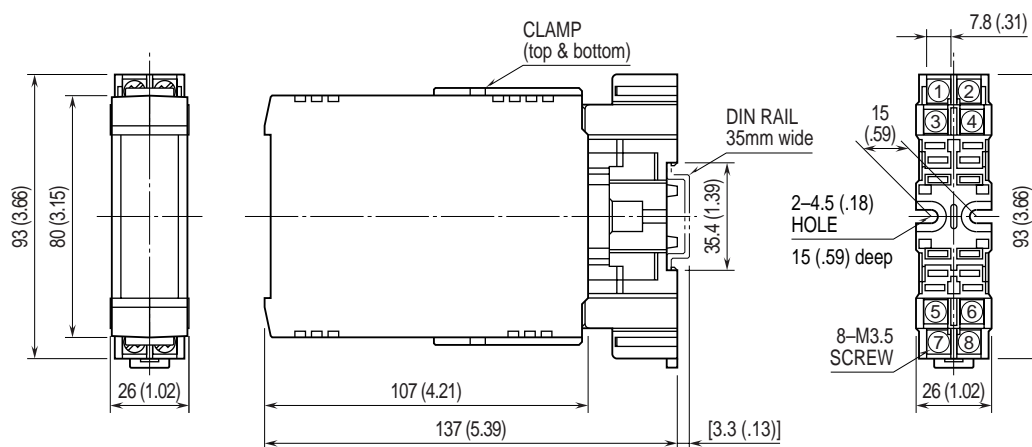
Set the base socket so that its DIN rail adapter is at the bottom. Hung the upper hook at the rear side of base socket on the DIN rail and push in the lower. When removing the socket, push down the DIN rail adapter utilizing screwdriver (-) and pull.

### ■ WALL MOUNTING

Refer to the drawings in the figure below.



### ■ EXTERNAL DIMENSIONS mm (inch)



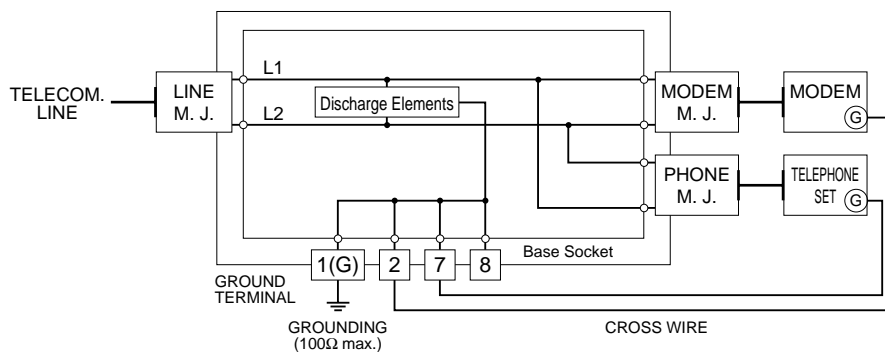
•When mounting, no extra space is needed between units.

## TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

Be sure to cross-wire between Ground terminal of the protected equipment and the ground terminal (1) of the MD-TL.

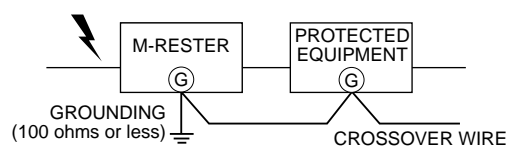
### ■ CONNECTION DIAGRAM



Be sure to cross-wire between G terminals of modem / telephone set and the terminals 2 & 7 of the MD-TL.

### ■ GROUNDING

A cross-over wire between M-RESTER and ground or metallic housing of equipment is required for protection.



## POINTS OF CAUTION

### ■ GENERAL

- Before you remove the body from its base socket or mount it, or connect/disconnect leadwires to the M-RESTER, turn off the input signal to the M-RESTER for safety.

### ■ 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  $+55^{\circ}\text{C}$  ( $23$  to  $131^{\circ}\text{F}$ ) and relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

### ■ 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.

## 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

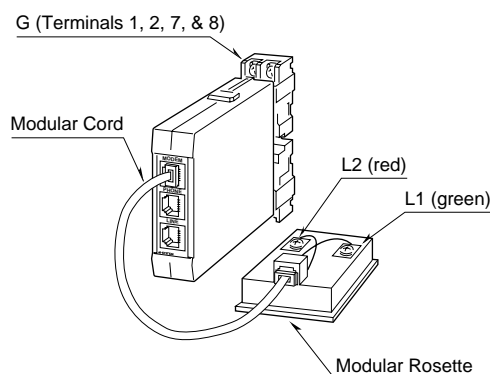
#### WIRING

- Make sure that wiring is done as instructed in the connection diagram.
- Make sure that Ground terminal (1) is connected to the metallic housing of protected equipment.
- Make sure that Ground terminal (1) is grounded to earth.

#### ELEMENT MODULE

##### • Preparation

- 1) Remove all wiring connected to M-RESTER.
- 2) Connect a modular cord between the modular jack port for MODEM and a modular rosette. Remove the cover of the rosette.



- **Shortcircuit Test for the Internal Discharge Element**  
Check resistance across the following terminals on the high resistance range of multimeter (infinite or greater than  $100\text{M}\Omega$  standard).

Terminals (L1) – (L2), (L1) – (G), (L2) – (G)

- **Discharge Test for the Internal Discharge Element**  
Check that discharging occurs across the same terminals with a 500V DC meggar. (Indicator of the meggar shows less than  $20\text{M}\Omega$ .)

Then replace the modular cord to PHONE port and to LINE port to do the same test across the L1 and L2.

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

### M-SYSTEM WARRANTY

M-System warrants such new M-System M-Rester which it manufactures to be free from defects in materials and workmanship during the 12-month period following the date that such M-Rester was originally purchased if such M-Rester has been used under normal operating conditions and properly maintained, M-System's sole liability, and purchaser's exclusive remedies, under this warranty are, at M-System's option, the repair, replacement or refund of the purchase price of any M-System M-Rester which is defective under the terms of this warranty. To submit a claim under this warranty, the purchaser must return, at its expense, the defective M-System M-Rester to the below address together with a copy of its original sales invoice.

THIS IS THE ONLY WARRANTY APPLICABLE TO M-SYSTEM M-RESTER AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. M-SYSTEM SHALL HAVE NO LIABILITY FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES OF ANY KIND WHATSOEVER.

M-System Co., Ltd., 5-2-55, Minamitsumori, Nishinari-ku, Osaka 557-0063 JAPAN, Phone: (06) 6659-8201, Fax: (06) 6659-8510, E-mail: info@m-system.co.jp