

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:

Surge protector (1)

■ MODEL NO.

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

■ INSTRUCTION MANUAL

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

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 PROFIBUS-PA network
- No interruption of transmission signal by unplugging the head element module

■ SPECIFICATIONS

	LINE TO LINE	LINE TO EARTH	SHLD TO EARTH
Max. continuous operating voltage (Uc)	±30V min	±160V min	±160V min
Voltage protection level (Up) @2kV (1kA)	±60V max	±600V max	±600V max
Leakage current	≤5µA @±27V	≤5µA @±160V	≤5µA @±160V
Capacitance @1 MHz	≤1500 pF	≤100 pF	≤100 pF
Response time	≤4 nsec.	≤20 nsec.	≤20 nsec.
Max. discharge current (Imax)	5000A (8 / 20 µs)		
Nominal current (In)	500mA		
Internal series resistance	≤3.3Ω including return		
Max. line voltage	±27V		

POINTS OF CAUTION

■ ENVIRONMENT

- When heavy dust or metal particles are present in the air, install the surge protector inside proper housing with sufficient ventilation.
- Do not install the surge protector where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- 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.

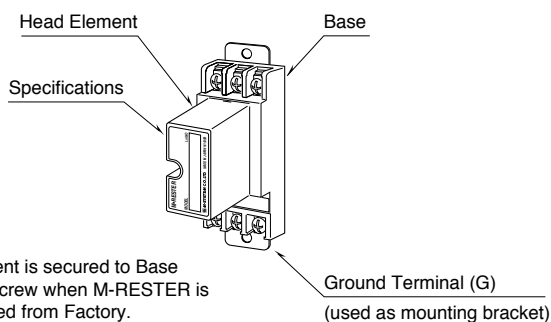
■ DIELECTRIC STRENGTH TEST

- Loosen the screw located at the left-center of the element and remove the element module from the base before conducting a dielectric strength testing. Otherwise the element will start discharging at a voltage exceeding the max. continuous operating voltage (Uc), which can cause insulation failure of the module. Be sure to return the element and fasten securely after the test.

■ AND

- We recommend that you keep spare surge protectors 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 surge protectors for power line for sufficient protection.

COMPONENT IDENTIFICATION



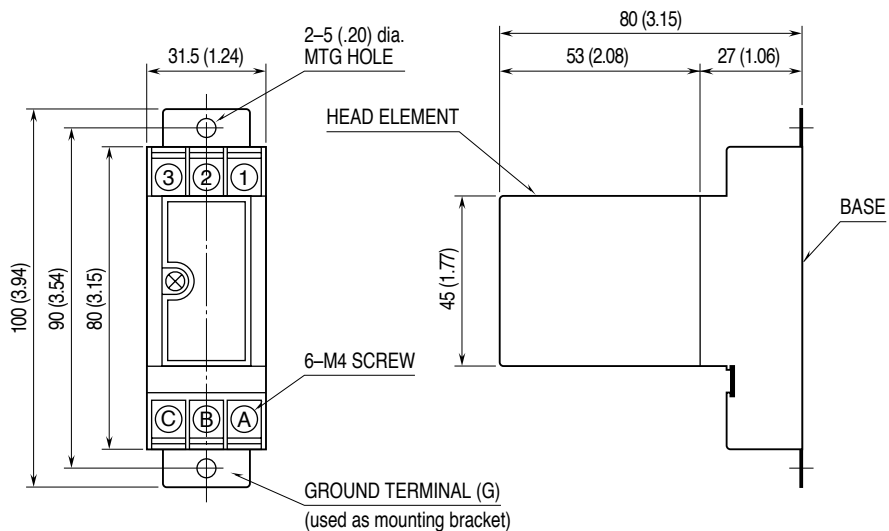
INSTALLATION

In order to separate the head element from the base, loosen the screw located at the left-center of the element.

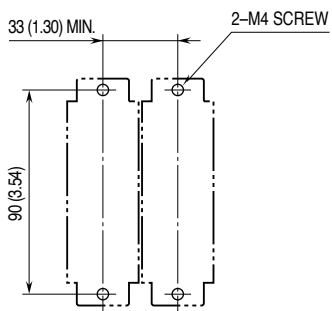
■ WALL MOUNTING

Refer to the drawings below.

■ EXTERNAL DIMENSIONS unit: mm (inch)



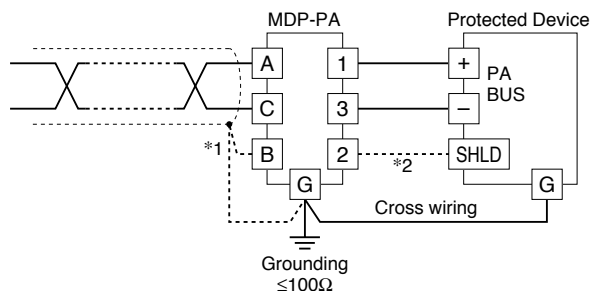
■ MOUNTING REQUIREMENTS unit: mm (inch)



TERMINAL CONNECTION

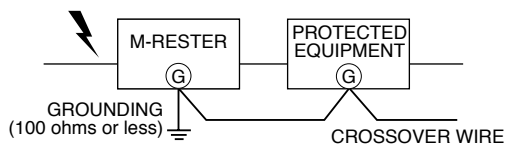
Connect the unit as in the diagram below.

Be sure to cross-wire between the Ground terminal (G) and that of the protected equipment. When the surge protector is connected with a device which has no ground terminal such like M-System's (See figure below), ground the M-Rester Ground terminal (G) only.



- *1. Cross wire to the surge protector's G terminal when grounding the shield wire. If the shield wire is not to be grounded, connect it to B terminal.
- *2. Follow instructions provided with the protected device whether 2 terminal should be connected or not. However, if the shield terminal of the protected device is not isolated from PA BUS, DO NOT connect 2 terminal to the protected device.

■ GROUNDING



MAINTENANCE

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

We recommend that you check your surge protector 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

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

DISCHARGE FUNCTION

The M-Rester Tester is available for a preliminary checking of the surge protector's head element.

Approximate testing procedure without using the Tester is explained as below.

- 1) Remove all wiring connected to the surge protector when you test the element module.
- 2) Check resistance across the following terminals on the high resistance range of multimeter and confirm no conduction. The meter shows $\geq 10\text{M}\Omega$.

Terminals (A) – (G), (B) – (G), (C) – (G)

- 3) Check that discharging occurs across the same terminals with a 500V DC 1000M Ω insulation tester. (The tester shows $\leq 20\text{M}\Omega$.)

If any of the above tests shows negative, replace the protector.

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.

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