

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.

POINTS OF CAUTION**■ ENVIRONMENT**

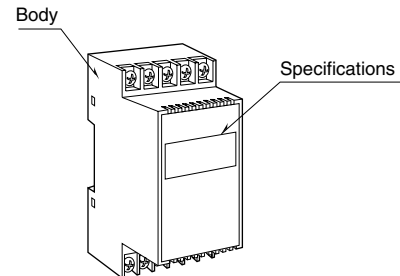
- Indoor use.
- When heavy dust or metal particles are present in the air, install the surge protector inside proper housing with sufficient ventilation.
- Do not install the surge protector where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature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

■ DIELECTRIC STRENGTH TESTING

- The surge protector will start discharging when 50V or greater voltage is applied between lines and ground. DO NOT perform dielectric strength tests with wires connected to the unit.

■ AND

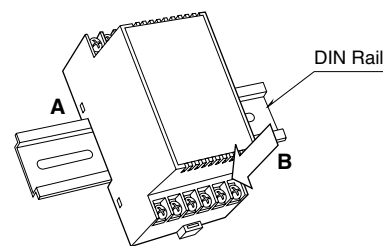
- We recommend that you keep spare surge protectors so that you can replace them when necessary.
- Lightning surge can enter not only through signal lines but also through power supply lines. We recommend that you also use the surge protectors for power line for sufficient protection.

COMPONENT IDENTIFICATION**INSTALLATION**

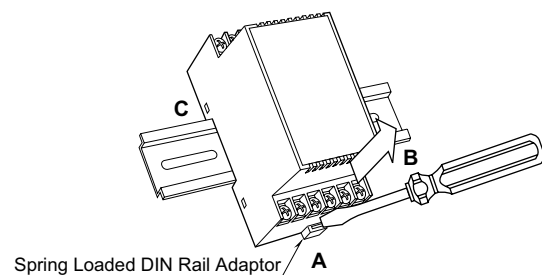
Set the unit so that its mounting adapter is at the bottom.

■ MOUNTING THE UNIT ON A DIN RAIL

- Hang the upper hook at the rear side of unit on the DIN rail.
- Push in the lower in keeping pressing the unit to the DIN rail.

**■ REMOVING THE UNIT**

- Push down the DIN rail adaptor utilizing a minus screwdriver.
- Pull out the lower part of the unit.
- Detach the upper part from the DIN rail.



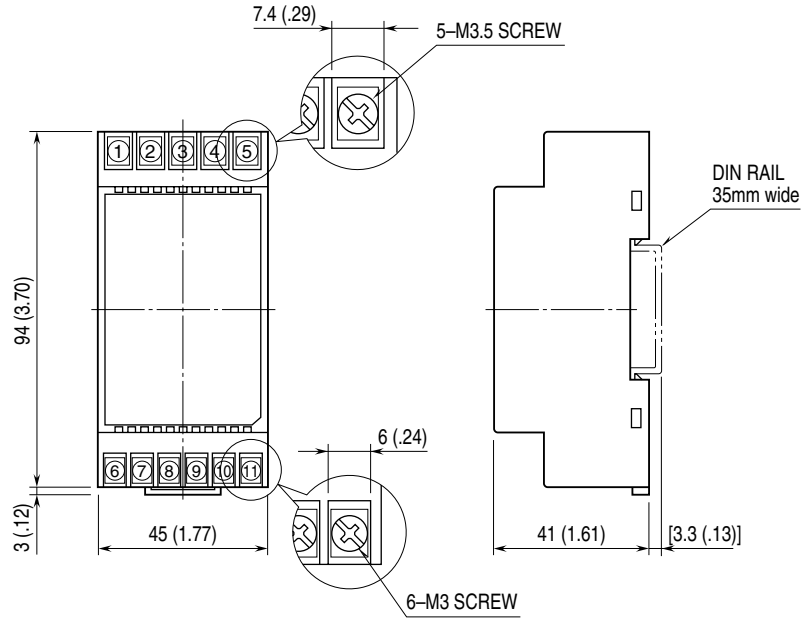
TERMINAL CONNECTIONS

Connect the unit as in the diagram below.

Be sure to cross-wire between the Ground terminal (5) and that of the protected equipment as shown below.

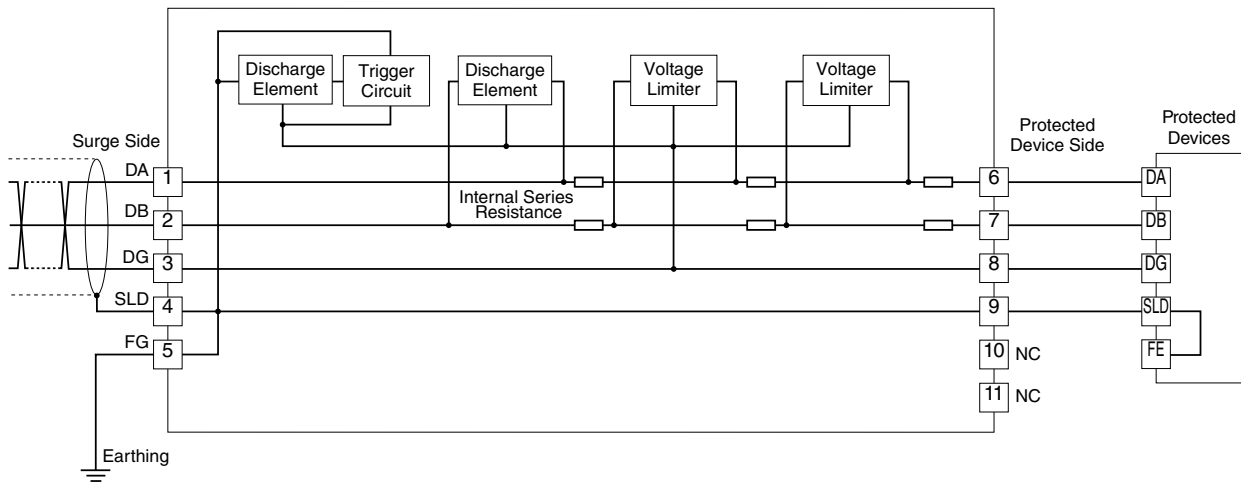
When the M-RESTER is connected with a device which has no Ground terminal such like M-System's (See figure below), ground the M-RESTER Ground terminal (5) only.

EXTERNAL DIMENSIONS unit: mm (inch)

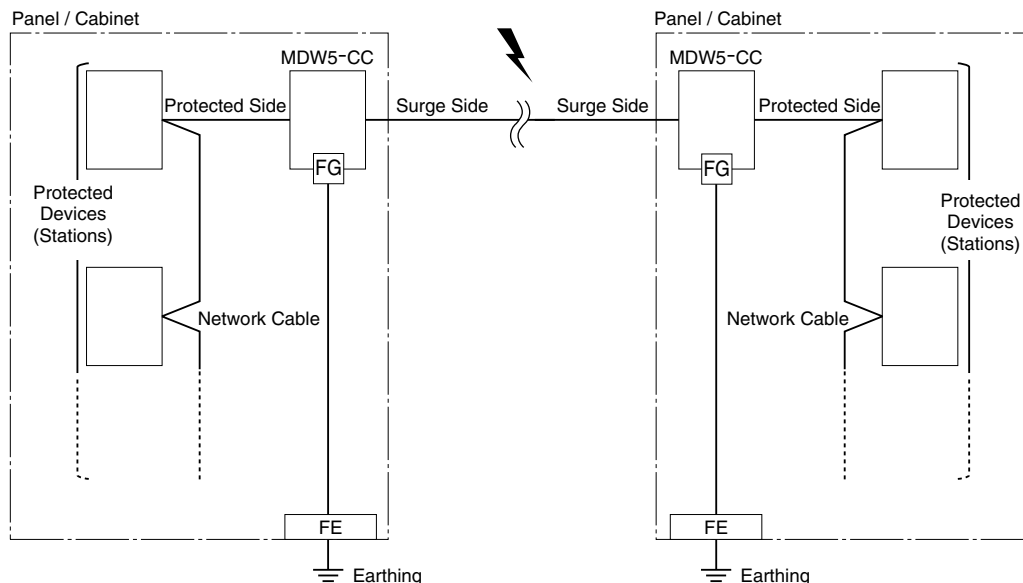


• When mounting, no extra space is needed between units.

CONNECTION DIAGRAM



■ NETWORK CONFIGURATION

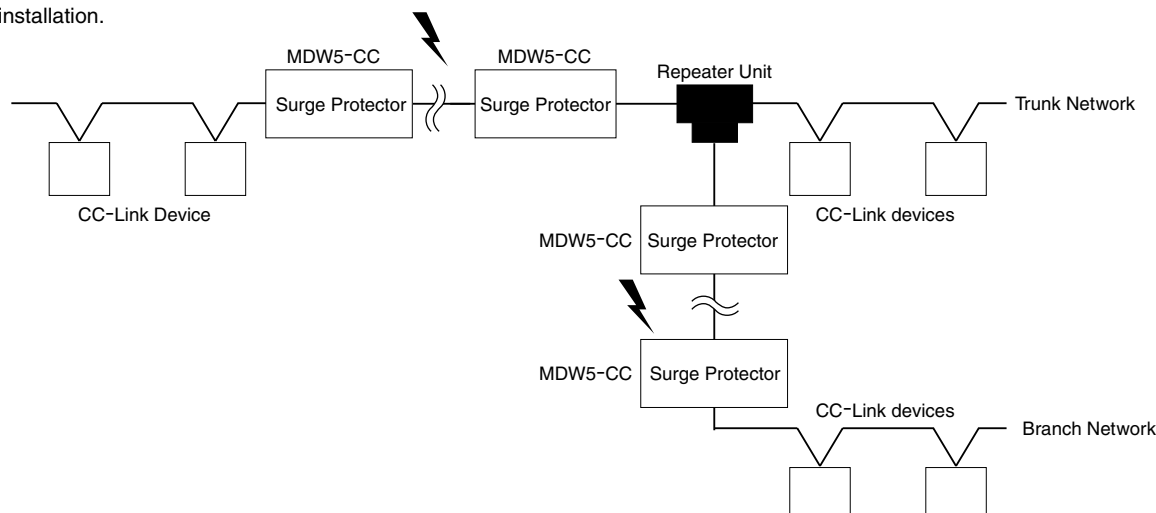


- Install the lightning surge protector in a place where it is considered lightning surge may enter (where the space between panels/cabinets are greatly separated, such as outdoor wiring).
- About total transmission speed, install 2 surge protectors as maximum per 1 network to use the maximum transmission distance.*1 Also, connecting the surge protector, serial resistance or the number of CC-Link devices capacitance, are added to the network, therefore, it is needed to reduce the maximum number of slave stations per number of surge protector's connections. Reduce until 5 the number of slave station connections per 1 surge protector. If you install 2 surge protectors, the maximum number of connections is 54.
- To keep good communication quality, leave a distance of at least 20 cm between units, and as short as possible length for the cable of the surge protector and protected devices.
- Irrespectively of transmission speed, T junction connection is not available.
- Make the wiring in concordance with Ver.1.1.0 specifications.
- Refer to "Cable Wiring Manual" issued by CC-Link Partner Association for CC-Link network details.

■ NETWORK WITH BRANCH

- When lightning surge may enter from cables more than one, use the repeater (T-Branch) units and make T-Branch network so that additional surge protectors can be installed.
- The maximum number of surge protectors for each branch is two (2).*1
- When 2 surge protectors are used on each of both trunk and branch networks (see below), 54 CC-Link devices can be installed on the each networks.
- In case of using repeater (T-Branch) unit, refer to "Cable Wiring Manual" issued by CC-Link Partner Association and manual of the unit.

*1. if the CC-Link devices used capacitance is low or transmission distance is short, there are cases that it is due to the slave stations are less than the number of the maximum connections, or to the arrester extension. In such a case, check all connection installation.



WIRING INSTRUCTIONS

■ SCREW TERMINAL

Torque: 0.8 N·m

MAINTENANCE

Check surge protector 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

- Make sure that wiring is done as instructed in the connection diagram.
- Make sure that the Ground terminal (5) is connected to the metallic housing of protected device.
- Make sure that the Ground terminal (5) is grounded to earth.

■ DISCHARGE ELEMENT

Remove all wiring connected to surge protector when you test the head element module.

- Check resistance across the following terminals on the high resistance range of multimeter (measuring current $\leq 0.25\mu\text{A}$) and confirm no conduction.

Terminals (1) – (2), (1) – (3), (2) – (3), (3) – (5)

The tester should show 8 M Ω or more at (3) – (5), 4 M Ω or more at other terminals. When measuring across (1) – (3), (2) – (3) connect the tester's probe so that the positive voltage is applied to (1), (2) respectively.

- Confirm conduction across the same terminals with a 500V DC 1000 M Ω insulation tester in the same manner as with the tester. The tester should show 1 M Ω or less.
- If any of the above tests shows negative, replace the surge protector.