TDX100M & TDX200M Series
Surge Protection Device

The **TDX100M** and **TDX200M** Series of Surge Protection Devices (SPD) are designed to provide protection to service panels, load centers or where the SPD is directly connected to the electronic device requiring protection. Maximum protection will only be achieved if the SPD is properly installed. Please read the following installation instructions carefully and follow the instructions.

⚠DANGER DANGER: Electrical shock or burn hazard. Installation of this SPD should only be made by qualified personnel. Failure to lockout electrical power during installation or maintenance can result in fatal electrocution or severe burns.

⚠CAUTION CAUTION: Check to make sure system voltages do not exceed the SPD voltage requirement and the correct SPD voltage/model has been selected.

⚠CAUTION CAUTION: This unit must be installed in accordance with the National Electrical Code (ANSI/NFPA-70) and applicable local codes.

⚠CAUTION CAUTION: Ungrounded power systems are inherently unstable and can produce excessively high line-to-ground voltages during certain fault conditions. During these fault conditions any electrical equipment, including an SPD, may be subjected to voltages which exceed their designed ratings. This information is being provided to the user so that an informed decision can be made before installing any electrical equipment on an ungrounded power system.

NOTICE: Do not cut wires until the SPD is mounted and minimum wire lengths have been verified. All connection leads should be cut to minimum possible length; never coil or push aside excess length.

Installation Instructions

1. **Verify system voltage** by measuring L-N, L-G, L-L and N-G of the system. Confirm that the SPD is correctly rated for the system to which it is to be connected by comparing the measured voltages to the SPD voltage ratings shown on the product side rating label. The measured voltage should match the nominal operating voltage of the product, the maximum continuous operating voltage (MCOV) specifications must not be exceeded.

2. **Identify proper location for the SPD.** Locate the unit as close as physically possible to the panel being protected and as close to the electrical connection as possible so as to avoid excess lead lengths and the need for sharp bends in the wires. Mount top and bottom SPD flanges securely. Use appropriate cable glands to preserve the SPD/panel NEMA enclosure rating.

Use appropriate cable glands to preserve the SPD/panel NEMA enclosure rating.

Suitable for use on a Circuit Capable of Delivering Not More Than 200,000 rms symmetrical Amperes

3. **Connect proper ground.** An insulated grounding conductor that is identical in size and insulating material and thickness to the grounded and ungrounded circuit supply conductors, except that it is green with or without one or more yellow stripes, is to be installed as part of the circuit that supplies the TDX. The TDX is supplied with 914mm (3ft) long of #10AWG, in accordance with Table 250-122 of the National Electrical Code, for this purpose. The housing of the TDX unit is bonded to the grounding

WARNING:
1. nVent products shall be installed and used only as indicated in nVent product instruction sheets and training materials. Instruction sheets are available at www.nVent.com and from your nVent customer service representative.
2. nVent products must never be used for a purpose other than the purpose for which they were designed or in a manner that exceeds specified load ratings.
3. All instructions must be completely followed to ensure proper and safe installation and performance.
4. Improper installation, misuse, misapplication or other failure to completely follow nVent's instructions and warnings may cause product malfunction, property damage, serious bodily injury and/or death, and void your warranty.

SAFETY INSTRUCTIONS:
All governing codes and regulations and those required by the job site must be observed.
Always use appropriate safety equipment such as eye protection, hard hat, and gloves as appropriate to the application.

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conductor for equipment safety ground purposes as per National Electrical Code. The grounding conductor is to be grounded to earth at the service equipment or other acceptable building ground such as the building frame in the case of a high-rise steelframe structure. Attach the grounding conductor to the panel's ground bus for proper operation. Wire length should be minimized to improve performance. There is no minimum wire length requirement.
Note: For isolated ground systems, bond the grounding conductor from the TDX unit to the nonisolated equipment ground, not the isolated equipment ground.

4. **Connect neutral conductor.** The TDX units are supplied with #10AWG leads. The white Neutral conductor is 914mm (3ft) long. Wire length should be minimized to improve performance. There is no minimum wire length requirement. Measure and trim the neutral conductor to be as straight and short as possible. Connect the neutral conductor of the TDX to the neutral lug on the panel.

5. **Connect phase conductors.** The phase wires are labeled L1, L2*, L3. While the orientation is not critical to the operation, it ensures the indication of the TDX matches the relevant phase. With the POWER OFF, connect each black phase lead. Upstream over current protection is not required for the TDX product, and over current protection is integral to the product**. It is required to install the TDX downstream or on the load side of the main supply fuse.

* Note: SPDs connected to High Leg Delta systems have one of the phase wires identified by an orange (or yellow) marking. This lead must be connected to the High Leg phase of the power system.

** Note: In Australia, New Zealand and some other countries it is not permitted to omit over-current protection.

The TDX units are supplied with #10AWG leads. Phase conductors are 610mm (2ft) long. Wire length should be minimized to improve performance. There is no minimum wire length requirement.

6. **Connect Remote Monitoring.** PhotoMOS relay contacts are located behind the lower mounting plate (end opposite from AC connection gland). To make a connection to the remote contact terminals, temporarily remove the mounting plate, and install an insulated (nylon*) conduit gland (1/2" / 12.7mm) that:
a. Preserves the SPD/panel NEMA enclosure rating*.
b. Does not foul the internal PCB or components.

Wire to alarm terminals through gland and replace mounting plate. Permissible wire size is #24-16 AWG (0.2 - 1.5mm$_2$)

Remote Status Indicator Dry Contacts are rated at a peak load voltage of 600VAC, a max continuous load current of 0.05A, and max 0.15A peak load current.

The terminals are in a high impedance state while the TDX unit is operating with full capacity. The terminals change to a low impedance state (~50-100 ohms) if power is removed or the SPD displays reduced surge capacity.

* conduit gland must be watertight with UL 94-V2 rating.

NOTE: Some earlier models had these contacts arranged using Form C dry contacts (N/O, N/C & Common) are located behind the lower mounting plate (end opposite from AC connection gland). In the "Normal" (operational state) of the TDX, the relay is energized and Terminal 1 and Terminal 2 open, and Terminal 1 and Terminal 3 closed. In the event of a module(s) failure, loss of power to the TDX or operation of a fuse(s), the relay contacts will change state and Terminal 1 will be connected to Terminal 2, and Terminal 1 and Terminal 3 will open.

7. **Nearby Attachment-Plug Receptacles**
Any attachment-plug receptacles in the vicinity of the TDX unit are to be of a grounding type, and the grounding conductors serving these receptacles are to be connected to earth ground at the service equipment or other acceptable building earth ground
such as the building frame in the case of a high-rise steel-frame structure.

8. **Connector and Lugs**
Pressure terminals or pressure splicing connectors and soldering lugs used in the installation of the TDX unit shall be identified as being suitable for the material of the conductors. Conductors of dissimilar metals shall not be intermixed in a terminal or splicing connector where physical contact occurs between dissimilar conductors unless the device is identified for the purpose and conditions of use

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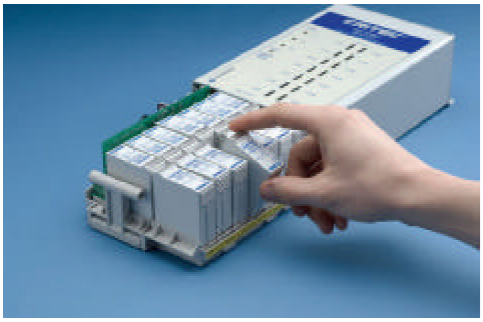
9. **Activate unit.** When the power is applied, the RED diagnostic lights will indicate that the unit is operational and protection is being provided. If the status lights do not illuminate, please recheck any supply fuse as well as the phase, neutral and ground connections.

10. **Flush Panel Mounting**. For flush panel mounting, please order the flush cover plate and follow the instructions supplied.

11. **Alarm Conditions.** The “Protection Status” indicator LED will extinguish and the audible alarm will sound if the surge capacity is reduced. This may also occur if power is lost to particular phases. Please check the individual protection modules, power connections and supply fuses if this condition occurs. If power is being correctly supplied to all phases and the alarm condition remains, certain field replaceable modules need immediate replacement.

Step 1: Remove power from the product, and temporarily remove the end mounting plate

Step 2: Slide out the internal “tray” using the handle located behind the end mounting plate. Replace any failed surge protection module with the correct module type. (Note: must replace with identical part number and voltage rating, contact your local ERICO representative for replacement module ordering advice.)



Step 3: Check condition of the internal cartridge fuses, located under the internal “tray” as shown below. Continuity can be checked with a simple multi-meter, it is not necessary to remove the fuse to test. If fuse shows an “open-circuit” condition, please replace, as shown over page, using fuse type ERICO part number TDXFUSE. (Note: must replace with identical part number and voltage rating, contact your local ERICO representative for replacement part ordering advice.)

Step 4: Slide in the internal “tray”, and reattach the end mounting plate.

12. **Problem Diagnostics.** If problems continue after checking the electrical connections, internal cartridge fuses, or field replacement modules, contact your local ERICO representative.

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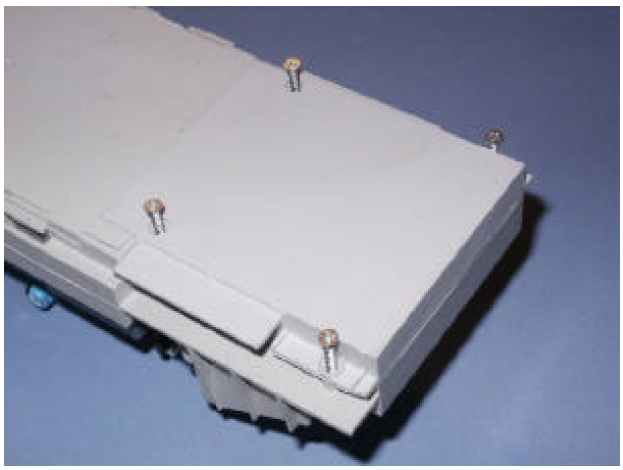
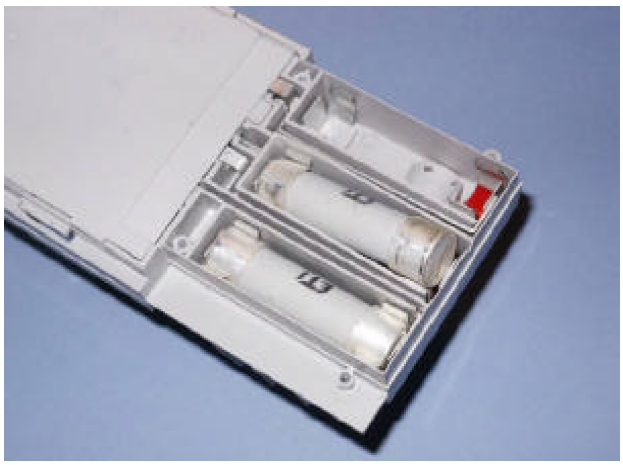
13. **Fuse Removal**

Step 1: Open the unit, and remove the tray.

Step 3: Use a large flat blade screwdriver to turn the appropriate fuse ejector a quarter turn (90 degrees).



Step 2: Turn over, and remove the four screws holding the fuse cover in place. These screws are tight – use correct screwdriver size to avoid damaging screw head.



Step 4: The screw ejector lifts one end of the fuse, which may now be removed. Use of screw ejector mechanism avoids damaging the plastic tray.

Replacement Fuse

Replacement fuse for UL Listed TDX models, ERICO type fuse, part number TDXFUSE must be used, contact your local nVent ERICO representative for replacement part ordering advice.

In Australia, the AS1768 and AS4070 standards recommend the use of a **63A HRC cartridge fuse** in this application. The fuse should be rated at least **500Vac** and have a **51 mm length x 14 mm diameter** (note that this is a standard European size, but is not the most commonly used size in Australia).

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