

# Installation Instructions

## TDX50 Series

This CRITEC TDX50 Surge Protection Device (SPD) is a high-performance Transient Voltage Surge Suppressor (TVSS), designed to provide protection for sensitive electronic loads connected to distribution panelboards or switchboards or where the SPD is directly connected to the electronic device. Maximum protection will only be achieved if the SPD is properly installed. Please read the installation instructions carefully and follow the instructions.



**DANGER:** *Electrical shock or burn hazard. The installation of this TVSS device should be made by qualified personnel. Failure to lockout electrical power during installation or maintenance can result in fatal electrocution or severe burns.*



**CAUTION:** *Check to make sure line voltage does not exceed TVSS voltage requirement.*



**CAUTION:** *This unit must be installed in accordance with the National Electrical Code (ANSI/NFPA-70) and applicable local codes, and must be installed on the load side of the main over-current protection.*



**CAUTION:** *Do not install on ungrounded electrical systems.*

**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 line 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 (MCOV) maximum continuous operating voltage specifications must not be exceeded.
2. **Identify proper location for SPD.** Locate as close as physically possible to panel being protected. Mount top and bottom SPD flanges securely. Mount as close to the electrical connection as possible avoiding excess distance and avoiding the need for sharp bends in the wires. (Note: Refer to installation diagram on SPD.) Use appropriate conduit fittings to preserve the SPD/panel NEMA enclosure rating.
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 filter. 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 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 earth ground such as the building frame in the case of a high-rise steel-frame 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 non-isolated equipment ground, not the isolated equipment ground.

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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 SPD to the neutral lug on the panel.
  5. **Connect phase conductors.** All connection leads should be cut to minimum length; never coil or push aside excess length. Multiple phase devices may be connected without regard to phase A, B, C. With the POWER OFF, connect each black phase lead via:
    - a. 30 Amp circuit breakers. Use a multi-pole circuit breaker, do not connect to individual single-pole breakers for each line.
    - b. or 30 Amp fused disconnected switch.
    - c. or if installed in compliance with Article 240-21, the NEC "tap rule", over-current protection may be omitted\*.
- \* Note: In Australia, New Zealand and 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. **Nearby Attachment-Plug Receptacles**  
Any attachment-plug receptacles in the vicinity of the filter 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.
  7. **Connector and Lugs**  
Pressure terminals or pressure splicing connectors and soldering lugs used in the installation of the filter 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.
  8. **Activate unit.** When power is applied, diagnostic light(s) will indicate that each phase is protected. If light(s) do not illuminate, recheck fusing, the phase, neutral and ground connections.
  9. **Flush Panel Mounting.** For flush panel mounting please order flush cover plate and follow supplied instructions.
  10. **Problem Diagnostics.** If problems continue after checking the electrical connections, contact your local ERICO representative.
  11. **No Neutral.** For 480V Motor Control applications with no neutral, use the TDX50 277/480, but **do not** connect the neutral conductor (white conductor). The neutral conductor should be capped/insulated

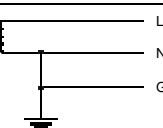
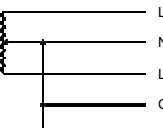

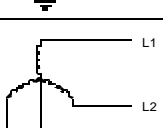
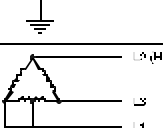
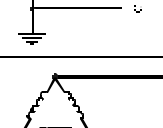
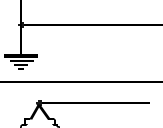
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### IMPORTANT

- 1) Correctly identify the power system the Surge Protection Device (SPD) is to be installed upon.
- 2) Ensure the SPD is compatible with the system in use.

**WARNING. Several "Delta" and "No-neutral" power systems exist and are often confused. Failure to correctly identify and use the correct SPD may cause an electrical shock or burn hazard.**

DESCRIPTION	CONFIGURATION	TYPICAL VOLTAGE	SPD																
Single Phase 1Ø 2W+G		<table border="1"> <tr> <td></td> <td><b>120V</b></td> <td><b>240V</b></td> </tr> <tr> <td>L-N</td> <td>120V</td> <td>240V</td> </tr> <tr> <td>L-G</td> <td>120V</td> <td>240V</td> </tr> </table>		<b>120V</b>	<b>240V</b>	L-N	120V	240V	L-G	120V	240V	120V TDX50 120 240V TDX50 240							
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L-N	120V	240V																	
L-G	120V	240V																	
Single Phase (Split) 1Ø 3W+G		<table border="1"> <tr> <td></td> <td><b>120/240V</b></td> </tr> <tr> <td>L-L</td> <td>240V</td> </tr> <tr> <td>L-N</td> <td>120V</td> </tr> <tr> <td>L-G</td> <td>120V</td> </tr> </table>		<b>120/240V</b>	L-L	240V	L-N	120V	L-G	120V	120/240V TDX50 120/240								
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Three Phase Wye 3Ø Wye 4W+G		<table border="1"> <tr> <td></td> <td><b>120/208V</b></td> <td><b>277/480V</b></td> <td><b>347/600V</b></td> </tr> <tr> <td>L-L</td> <td>208V</td> <td>480V</td> <td>600V</td> </tr> <tr> <td>L-N</td> <td>120V</td> <td>277V</td> <td>347V</td> </tr> <tr> <td>L-G</td> <td>120V</td> <td>277V</td> <td>347V</td> </tr> </table>		<b>120/208V</b>	<b>277/480V</b>	<b>347/600V</b>	L-L	208V	480V	600V	L-N	120V	277V	347V	L-G	120V	277V	347V	120/208V TDX50 120/208 277/480V TDX50 277/480 347/600 TDX50 347/600
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Three Phase Wye 3Ø Wye 3W+G (No Neutral)		<table border="1"> <tr> <td></td> <td><b>208V</b></td> <td><b>480V</b></td> <td><b>600V</b></td> </tr> <tr> <td>L-L</td> <td>208V</td> <td>480V</td> <td>600V</td> </tr> <tr> <td>L-G</td> <td>120V</td> <td>277V</td> <td>347V</td> </tr> </table>		<b>208V</b>	<b>480V</b>	<b>600V</b>	L-L	208V	480V	600V	L-G	120V	277V	347V	208V TDX50 120/208 <sup>(1)</sup> 480V TDX50 277/480 <sup>(1)</sup> 600V TDX50 347/600 <sup>(1)</sup>				
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Three Phase High Leg Delta 3Ø Δ 4W+G		<table border="1"> <tr> <td></td> <td><b>240V</b></td> </tr> <tr> <td>L-L</td> <td>240V</td> </tr> <tr> <td>L1-N</td> <td>208V</td> </tr> <tr> <td>L2-N</td> <td>120V</td> </tr> <tr> <td>L3-N</td> <td>120V</td> </tr> </table>		<b>240V</b>	L-L	240V	L1-N	208V	L2-N	120V	L3-N	120V	Use TDX150 or TDX100 Series						
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L-L	240V																		
L1-N	208V																		
L2-N	120V																		
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Three Phase Grounded Delta 3Ø Δ 3W+G ("Grounded B Phase")		<table border="1"> <tr> <td></td> <td><b>240V</b></td> <td><b>480V</b></td> </tr> <tr> <td>L-L</td> <td>240V</td> <td>480V</td> </tr> <tr> <td>L1-G</td> <td>240V</td> <td>480V</td> </tr> <tr> <td>L2-G</td> <td>240V</td> <td>480V</td> </tr> <tr> <td>L3-G</td> <td>0V</td> <td>0V</td> </tr> </table>		<b>240V</b>	<b>480V</b>	L-L	240V	480V	L1-G	240V	480V	L2-G	240V	480V	L3-G	0V	0V	Use TDX150 or TDX100 Series	
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L1-G	240V	480V																	
L2-G	240V	480V																	
L3-G	0V	0V																	
Three Phase Ungrounded Delta 3Ø Δ 3W+G		<table border="1"> <tr> <td></td> <td><b>240V</b></td> <td><b>480V</b></td> </tr> <tr> <td>L-L</td> <td>240V</td> <td>480V</td> </tr> <tr> <td>L-G</td> <td>0- 240V</td> <td>0-480V</td> </tr> </table>		<b>240V</b>	<b>480V</b>	L-L	240V	480V	L-G	0- 240V	0-480V								
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### **TDX Series 10 Year Limited Warranty.**



This Product has a limited warranty to be free from defects in materials and workmanship for a period of ten (10) years from the date of dispatch from the Manufacturer. This warranty includes, but is not limited to, damage due to over-voltages, damage due to an abnormally high number of surges and damage due to direct or indirect lightning strikes.

THE PURCHASER ACKNOWLEDGES THAT LIGHTNING IS A NATURAL EVENT WITH STATISTICAL VARIATION IN BEHAVIOR AND ENERGY LEVELS WHICH MAY EXCEED PRODUCT RATINGS, AND THAT 100% PROTECTION IS NOT OFFERED AND CANNOT BE PROVIDED FOR. IN ADDITION, THE PURCHASER ACKNOWLEDGES THESE RISKS AND HAS DETERMINED THAT THEY ARE ACCEPTABLE FOR THE APPLICATION OF THE PRODUCT. THE PURCHASER IS SOLELY RESPONSIBLE FOR ENSURING THAT THE PRODUCT IS INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AMERICAN NATIONAL STANDARD ANSI/IEEE C62.41.2 AND ALL RELEVANT NATIONAL ELECTRICITY AND SAFETY STANDARDS.

The Manufacturer's liability is limited to the repair or replacement of the product (at the Manufacturer's sole option) which, in the Manufacturer's judgment, has not been abused, misused or altered. The supply of replacement Products may be conditional upon the Manufacturer performing a site power quality audit and implementation by the Purchaser of any resultant recommended corrective measures.

EXCEPT AS STATED IN THE FIRST PARAGRAPH ABOVE, THE MANUFACTURER MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AND SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

The scope of this warranty does not provide for claims against the Manufacturer for consequential damages or loss of operations or service or profits. This warranty does not indemnify the Purchaser from any consequential claims by a third party for damages or loss of operations or service or profits. The giving of, or failure to give, any advice or recommendations by the Manufacturer shall not constitute liability.

Customers should contact their nearest Manufacturer's agent to obtain a Return Material Authorization (R.M.A.) which must be clearly marked on the outside of the shipping container as well as on the unit being returned. It should then be forwarded, freight brokerage, and duty prepaid, to: ERICO, Inc. 34600 Solon Road • Solon, Ohio • (440) 248-0100 along with a note describing the problem. Proof of purchase should also accompany the request for warranty repair or replacement. Return freight is customer collect.