TPX Panel Mount SPD - Installation & Operation Manual

Panel Mount SPD - INSTALLATION INSTRUCTIONS

For TPD parallel installed AC panel mount SPD units.

WARNING: Read and understand all instructions before beginning installation. Improper installation or misapplication of these devices may result in serious injury to installer and/or damage to electrical system or related equipment. Protective eyewear and protective clothing (for arc flash protection) should be worn whenever working around hazardous voltages. USE ONLY A QUALIFIED/LICENSED ELECTRICIAN TO INSTALL THE SURGE PROTECTION DEVICE (SPD). WHEN ENERGIZED, HAZARDOUS VOLTAGES ARE PRESENT INSIDE THE SPD. THIS DEVICE IS NOT REPAIRABLE AND CONTAINS NO SERVICABLE PARTS. IF THE UNIT SHOULD MALFUNCTION OR NEEDS REPLACED, CONTACT A QUALIFIED ELECTRICIAN. CHECK SCCR RATING OF UNIT AND SYSTEM TO ENSURE COMPATABILITY.

Note: TPD Surge Protective Device (SPD) models are designed for use with specific voltage configurations. Ensure that SPD model matches system voltage before beginning installation. If the system uses an isolated ground, connect the SPD ground to the system's isolated ground. Use nonmetallic conduit or a nonmetallic fitting to connect SPD to the isolated ground panel. Do not perform a high-pot test with the SPD connected to the electrical system. Failure to disconnect the SPD during a high-pot test will result in damage to the SPD. This SPD comes in a Nema 4 enclosure and can be installed outside exposed to the weather. There are no user serviceable parts inside the SPD. Since the SPD's are installed in parallel to the system, there is no limitation or restriction due to panel amperage or load current.

CAUTION: Ensure that the SPD model is designed for the system voltage, and that continuous system voltage never exceeds the maximum continuous operating voltage (MCOV) of the SPD.

Voltage Code	System Voltage	MCOV (RMS-VAC)
xxx-1P120	120V one phase (L1-N-G)	150 L-N
xxx-1P240	220 to 240V one phase (L1-N-G)	320 L-N
xxx-1S240	120/240V two phase (L1-L2-N-G)	150 L-N
xxx-3Y208	120/208V three phase wye (L1-L2-L3-N-G)	150 L-N
xxx-3D240	120/240V three phase high leg delta (L1-HL2-L3-N-G)	150 L-N (320 HL-N)
xxx-3Y380	220/380V three phase wye (L1-L2-L3-N-G)	320 L-N
xxx-3Y415	240/415V three phase wye (L1-L2-L3-N-G)	320 L-N
xxx-3Y480	277/480V three phase wye (L1-L2-L3-N-G)	320 L-N
xxx-240NN	240V three phase delta (L1-L2-L3-G)	320 L-G
xxx-480NN	480V three phase delta (L1-L2-L3-G)	520 L-G

Step 1. **Use a voltmeter to confirm all voltages (line, neutral, ground) before starting installation.** Confirm that a neutral-ground bond is present at the service entrance. Then, turn off electric power to the panel/disconnect/bus plug/machine or any other point that the SPD is being installed on and de-energize system as much as possible before installing the SPD. Comply with all local, state and national electrical codes when installing any SPD, and in the event of conflict between the Code and these instructions, the Code prevails.

Step 2. Confirm that the model's voltage range (found on model's data sheet) is compatible with system voltage.

Step 3. Select a location which will allow connection to the panel or disconnect while **keeping the lead wires as short as possible.** Keeping the leads as short as possible maximizes performance of this SPD. Do not make sharp 90 degree bends. The SPD can be connected to an electrical panel or a fused or non-fused disconnect switch. The SPD can be chase nipple or wall mounted. If long lead length is unavoidable, binding or twisting conductors (1 or 2 twists per foot) together using tie-wraps or electrical tape increases the protection performance of the SPD.

Step 4. Select breakers for installation of the SPD if the unit is to be installed on an electrical panel. For service entrance/high exposure installations, we recommend using spare 30 to 60 amp breakers. For sub panels, we recommend using spare 20 or 30 amp breakers. Note: This SPD contains internal protection/fusing to protect it against abnormal voltage conditions. The SPD does not require the use of external circuit interrupt devices such as fuses or breakers. But, for ease of connection and disconnect, use of breakers is recommended but not required. If you want to use a bottom right breaker, install the unit on the bottom right of the panel. Always place unit as close as possible to the breaker or other point of connection.

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Step 5. Remove an appropriate (location and size) knockout from panel. Select a knockout that is as close as possible to the breaker feeding the SPD.

Step 6. Connect green wire on SPD to the system ground bar.

Step 7. Connect the neutral wire (white), if any, on the SPD to the neutral bus.

Step 8. See below note. Connect the phase wires (black) on the SPD to the system's phase connections.

Note: For a 120/240 high leg delta system, connect the orange wire of the SPD to the system's high leg phase. CAUTION – connecting he SPD's black wire to the high leg will cause immediate destruction of the unit.

Step 9. Unless the SPD has dry relay contacts (see below if DRCs present), energize and confirm proper operation of SPD indicator lights and other monitoring features.

Indicator Light(s): LED indicator lights will illuminate when unit is installed properly and power is applied to the system. Replace the SPD if one or more lights are extinguished and the system is still powered up.

Dry Relay Contacts: Read if SPD has DRCs. DRCs are an optional feature, and if the SPD is equipped with contacts, they are prewired with AWG#22. Contacts are N/O (normally open), common, and N/C (normally closed). Contacts are rated at 1 amp continuous at 125VDC/150VAC. UL contact ratings: 30VAC at 1.0 amp, 65VDC at .46 amp, 150VAC at .46 amp.

The red wire is normally open (contact closes on alarm). The black wire is normally closed (contact opens on alarm). The "COM" wire is white and is common to both N/O and N/C contacts.

a. Assure appropriate U.S. NEC (or other applicable country code) class wire is used to coordinate with power supply wire. Follow rules of wiring class used when determining routing of alarm leads. To maintain NEMA 4 (IP66) rating use appropriate cable and watertight strain relief.

b. Connect SPD alarm contact wire(s) to Alarm Remote Module or annunciator device. Use butt splices within the panel board to connect the Form "C" leads to the user's monitoring circuits. Alternatively, install a junction box between the SPD and the panel board to connect the alarm contact wire to user's monitoring circuits. If the alarm contacts are not used, user has the option of either cutting off the leads or coiling up the leads and saving them for potential future use. Follow applicable U.S. NEC Articles (or other applicable country code) for cable type selection.

c. Apply power to system. Green phase status indicator light(s) on suppressor should glow and alarm contacts should move to normal state. If any green status indicator light does not illuminate, remove power and contact supplier.

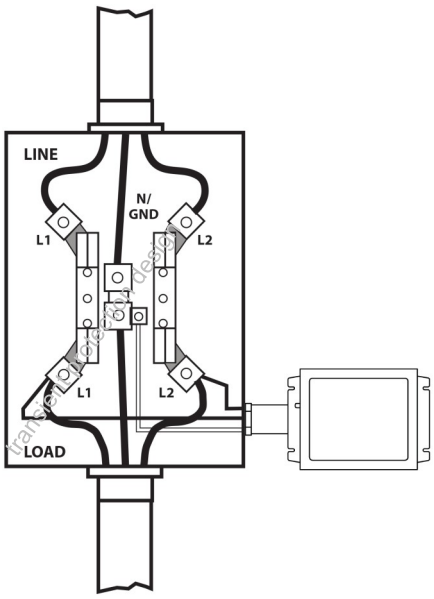
WARRANTY: During the warranty period listed on the model's data sheet and stated below, any Transient Protection Design parallel installed AC panel mount surge protector device which fails due to defect in materials, workmanship, or any transient surge event to include lightning, shall be repaired or replaced (with a same product, or a similar product if the original product is no longer available) at the expense of the manufacturer.

The SPD contains no user serviceable parts. If problems are suspected, contact your reseller to obtain a return material authorization (RMA) number. TPD has the option to repair or replace the unit, and it is the owner's responsibility to return the unit to TPD for analysis. Upon analysis of the SPD, TPD will ship a replacement unit or the repaired defective unit free of charge (installation labor and site preparations excluded).

Model TPX AC panel mount SPD: 15 years from date of purchase

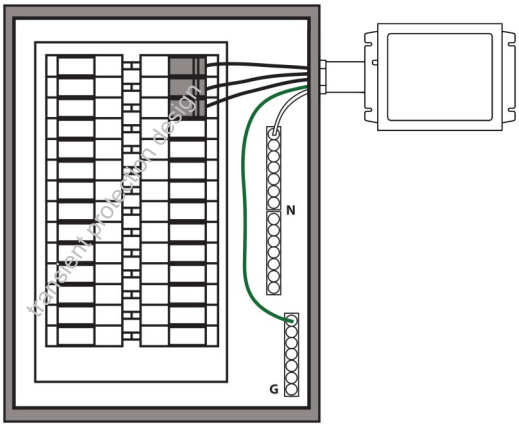
Sample disconnect install.

Install and clip lead wires as short and straight as overall possible for best installation. The shorter the wires the better the performance of the units.



Sample 3 phase installation.

Install and clip lead wires as short and straight as overall possible for best installation. The shorter the overall wires the better the performance of the unit. The TPX comes with #10 awg wire and as a Type 1 SPD can be installed to any size breaker or direct to lugs. Breakers typically allow for the cleanest and shortest installation. This unit can be mounted at the top, bottom, right or left side of the a breaker panel.



Need additional assistance? Call Technical Support at 1-717-436-2856 or visit the website at www.TransientProtectionDesign.com