3.0 Specifications

Description	Specification
Peak kA per Phase	XT50=50 kA; XT100=100 kA
Peak kA per Mode	50
Nominal Discharge Current	20 kA
Single-Phase Voltages	200, 208, 220, 230, 240, 277
Split-Phase Voltages	100/200, 110/220, 120/240
Wye System Voltages	100/175, 110/190, 120/208, 127/220, 220/380, 230/400, 240/415, 277/480
Delta System Voltages	200, 208, 220, 230, 240, 380, 400, 415, 440, 480
Input Power Frequency	47 to 420 Hz (50/60 Hz typical)
Protection Modes	Single Phase ..... L-N, N-G, L-G Split Phase ..... L-N, N-G, L-G, L-L Wye ..... L-N, N-G, L-G, L-L Delta ..... L-G, L-L
Ports	1
Specific Energy	100 kJ/Ohm
Operating Temperature	–13 to 140 °F (–25 to 60 °C)
Weight	≈2.0 lbs (1.0 kg)

4.0 Operation

4.1 Power Up and System Checkout

Apply system power. One LED should light for each phase voltage being monitored (see Figure 4-1). Single-phase electrical systems will light only one LED, split-phase systems light two LEDs, while three-phase systems light all three.

If the connected LEDs do not light, remove power, check connections, and test again. If the LEDs still do not light, contact your supplier.

4.2 Routine Operation

After system power has been applied, the SPD automatically begins to protect down-stream electrical devices from damaging voltage transients.

With all phase voltages present, if an LED turns OFF, the SPD has disconnected itself from that phase of the electrical system because one of its Thermally Protected Metal Oxide Varistors (TPMOVs) has failed. If a TPMOV fails, power will be maintained to the load; however, the load is now **unprotected**.

The XT50/100 is **not repairable** and contains no user serviceable parts. If the unit fails, as shown by at least one of the LEDs turning OFF, the unit must be replaced. Please contact your distributor as the SPD may be under warranty.

⚠ WARNING! SHOCK HAZARDS:

DO NOT use the Suppression Circuit Status LEDs as an indication of the presence or absence of system phase voltages.

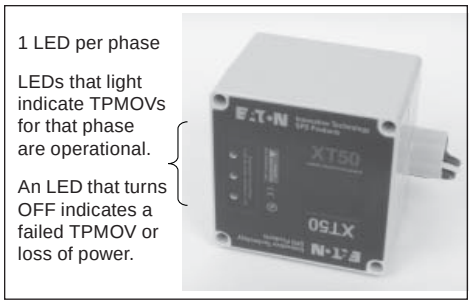


Figure 4-1. Suppression Circuit Status LEDs

Eaton Corporation
Innovative Technology SPD Products
1000 Cherrington Parkway
Moon Township, PA 15108-44312
USA
http://www.Eaton.com

For Technical Support please call:
1-800-647-8877

Powering Business Worldwide

Eaton Innovation Technology®
XT50/100 Surge Protective Device
Installation & Operation

Instruction Manual
IM01005014E
Rev. 2 – August 2008

1.0 Introduction

This manual describes how to install an XT50 or XT100 Surge Protective Device (SPD) in parallel (shunt) across the AC supply of the following types of electrical systems:

- Single Phase
- Split Phase
- Phase Wye (Star)
- Phase Delta (no Neutral)

The SPD is designed to be installed on service entrance, branch panels, and/or individual equipment disconnects, and functions to protect sensitive electronic equipment from damaging voltage transients. The connecting wires do not carry supply current. Instead, they carry only short-duration currents that are associated with a transient event.

These instructions do not cover all details, variations, or combinations of the equipment, its storage, delivery, installation, checkout, safe operation, or maintenance. If you require further information regarding a particular application or installation that is not covered in this manual, please contact Eaton's Power Quality Technical Support at 1-800-647-8877.

1.1 Safety Precautions

A licensed/qualified electrician must complete all instructions described in this manual in accordance with the U.S. National Electrical Code, state and local codes, or other applicable country codes. All electrical codes supersede these instructions.

⚠ WARNING! SHOCK HAZARDS:

Improper installation can cause death, injury and/or equipment damage. Follow all warnings and cautions. Completely read and understand the information in this instruction manual before attempting to install or operate this equipment.

Improper wiring could cause death, injury, and/or equipment damage. Only licensed/qualified electricians who are trained in the installation and service of electrical devices are to install and service this equipment.

Use appropriate safety precautions and equipment for arc flash protection.

During normal operation, hazardous voltages are present inside the SPD.

When servicing the SPD, follow all safe work practices to avoid electrical shock.

⚠ CAUTION

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.

1.2 Catalog Numbering System

XT 50 - 3Y201

Per Phase Peak Surge Current (kA)
50
100

Configuration & Voltage Ranges (Vac)
1P201 = Single-Phase – 200, 208, 220, 230, 240, 277
1S101 = Split-Phase –100/200, 110/220, 120/240
3Y101 = Three-Phase Wye (Star) –100/174, 110/190, 120/208, 127/220
3Y201 = Three-Phase Wye (Star) –220/380, 230/400, 240/415, 277/480
NN201 = Three-Phase Delta –200, 208, 220, 230, 240
NN400 = Three-Phase Delta –380, 400, 415, 440, 480

In this example, Catalog Number XT50-3Y201 identifies an XT model with the following features and ratings:

- Surge Current Rating of 50 kA peak per phase
- Three-Phase Wye Wiring Configuration
- Voltage Range of 220/380 through 277/480 Vac

2.0 Installation

Refer to Section 1.2 and look at the label on the SPD to verify that the SPD's voltage rating and wiring configuration matches that of the electrical system. Use an AC voltmeter to measure the system's line voltage to ensure that the correct model of SPD is being installed. Damage to the SPD may result if it is connected to an electrical system of a higher voltage or different wiring configuration.

2.1 Mounting

The SPD can be mounted directly to the electrical panel, or mounted to a wall using the enclosure's internal mounting holes or optional external mounting feet.

IMPORTANT!

- Choose a mounting location for the SPD that provides the shortest and straightest possible wiring (lead length) from the SPD to the electrical system connections. Excessive lead length and sharp bends will degrade SPD performance.
- If the electrical system uses an **isolated ground**, the SPD must be isolated from ground using insulated conduit fittings.
- When using conduit, avoid using 90° elbows and keep the conduit run as short and straight as possible.

2.1.1 Conduit Installation

Mount the SPD directly to the electrical panel using a 3/4" chase nipple as shown in Figure 2-1.

When mounting the SPD outdoors, use weatherproof conduit and fittings to maintain the enclosure's NEMA 4X rating. See Figure 2-2.

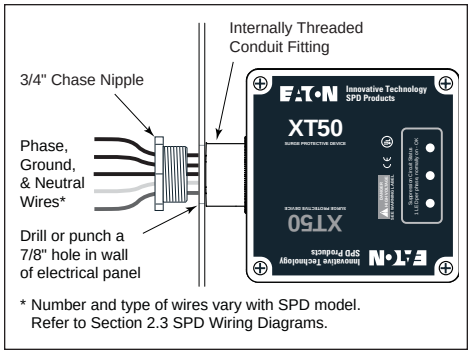


Figure 2-1. 3/4" Chase Nipple Mounting

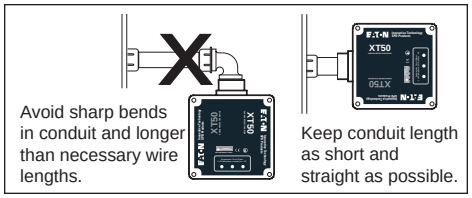


Figure 2-2. Conduit Installation

2.1.2 Wall Mounting

Mount the SPD directly on a wall using the SPD's internal mounting holes as follows:

1. Gain access to the internal mounting holes by first removing the SPD's four front cover screws, and then removing the front cover. See Figure 2-3.
2. Place the SPD against the wall and mark the locations of the four mounting holes.
3. Attach the SPD to the wall using #8 hardware.
4. Reinstall the front cover.

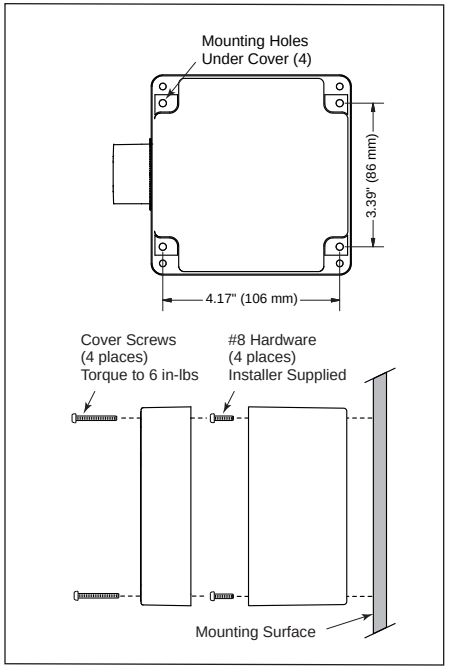


Figure 2-3. Wall Mounting Using Internal Mounting Holes

2.1.3 External Mounting Feet (Optional)

Optional External Mounting Feet w/screws (Cat. # MNTGFTX) can be used to mount the SPD to a wall without removing the front cover as shown in Figure 2-4.

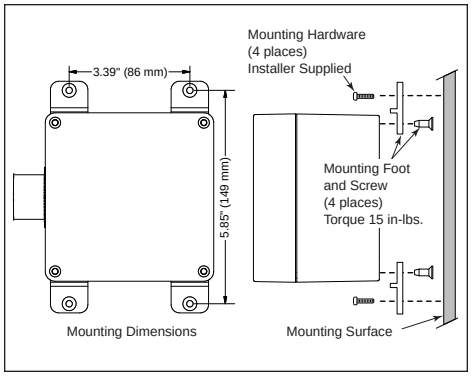


Figure 2-4. Wall Mounting Using External Mounting Feet

2.2 Wiring

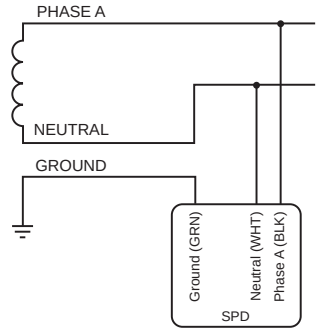
IMPORTANT!

- Be sure to follow all national, state, and local electrical codes when making wiring connections.
- When connecting the wires from the SPD to the electrical system, cut the wires as necessary to keep them as short as possible.
- To maximize the SPD's performance, twist and bind the wires together to reduce the impedance of the wire (one twist/inch).
- If the system utilizes an isolated ground, the SPD's ground wire must be connected to the system's isolated ground bus.

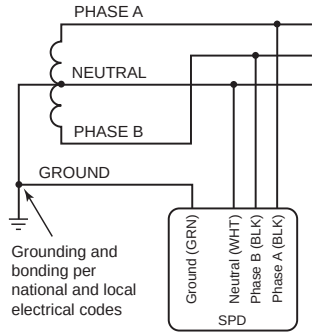
1. Locate the electrical system's applicable wiring diagram in Section 2.3. Reference this wiring diagram as necessary in Steps 2, 3, and 4.
2. Connect the SPD's ground wire (green) to the system's ground connection.
3. Connect the SPD's neutral wire (white) to the system's neutral connection (not required for 3-phase delta systems – NN201, NN400).
4. Connect the SPD's phase A, B, and C wires (black) to the system's corresponding phase A, B, and C connections according to applicable national, state, and local electrical codes.

2.3 SPD Wiring Diagrams

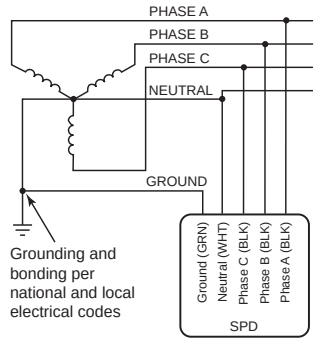
Single Phase (1P201)



Split Phase (1S101)



3-Phase Wye (Star) (3Y101, 3Y201)



3-Phase Delta (No Neutral) (NN201, NN400)