SPD must be connected to the electrical system through fuses of the appropriate size and type as listed in Table 2-1.

- Cut the wires from the SPD to the electrical system as necessary to keep them as short and straight as possible.
- To maximize the SPD’s performance, twist and bind the wires together to reduce the wire’s impedance factor.
- If the system utilizes an isolated ground, then the SPD’s ground wire must be connected to the system’s isolated Ground busbar.

Wire SPD to electrical system as follows:

1. Figure 2-4 shows the SPD wired to a 3-Phase Delta system. Reference this diagram as necessary in Steps 2 thru 6.
2. Identify the SPD’s Ground and Phase wires. These wires are labeled and/or color coded as follows:
   - **Ground** = Green
   - **Phase A, B, C** = Black
3. Route wires from SPD (through conduit, if used) into the electrical panel.
4. Connect SPD’s Ground (green) wire directly to the electrical system’s Ground busbar.
5. Connect the SPD’s Phase A (black) wire to one of the fuses installed in Section 2.3. And then use (black) wire that is the same size as the SPD’s Phase wire to connect the other end of the fuse to the electrical panel’s Phase A voltage busbar.
6. Repeat Step 5 to connect the SPD’s Phase B and C (black) wires through individual fuses to the electrical panel’s corresponding Phase B and C voltage busbars.
7. Reapply power to the electrical system.

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

The SPD is **not repairable and contains no user serviceable parts**. If the SPD fails, as evidenced by at least one open SPD fuse, then the unit must be replaced. Please contact your distributor as the SPD may be under warranty.

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**1.0 Introduction**

This installation manual contains the information necessary to install Eaton Corporation’s line of I.T. Protector Medium Voltage Surge Protective Devices (SPDs) (1.0 thru 4.2 kV) for Delta power systems.

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 Innovative Technology Technical Support at 1-800-647-8877.

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**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.
2.0 Installation

Before installing the SPD, look at the catalog number on its label and refer to Section 1.2 to verify that the SPD’s voltage rating and wiring configuration matches that of the electrical system.

CAUTION

Damage to the SPD may result if it is connected to an electrical system of a higher voltage or different wiring configuration.

2.1 Conduit Installation

Follow the guidelines listed below when installing conduit between the SPD and electrical panel:

- Avoid using 90° elbows and keep the conduit run as short and straight as possible. See Figure 2-1.
- If the electrical system utilizes an isolated ground, then the SPD’s housing must be isolated from ground using insulated conduit fittings.
- When mounting the SPD outdoors, use weatherproof (corrosion resistant) conduit and fittings to maintain the enclosure’s NEMA 4X (IP66) rating.

Avoid sharp bends in wiring and longer than necessary wire lengths.

Keep wire lengths as short and straight as possible.

Figure 2-1. Conduit Installation Guidelines

2.2 Mounting

Select a mounting location for the SPD . . .

- based on the internal configuration of the electrical panel and the physical surroundings outside the panel.
- that provides easy installation of fuses and fuse holders between the SPD and electrical system.
- 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.

Once a location has been determined, mount the SPD to the nearby supporting surface using the SPD’s mounting feet and suitable fasteners. Mounting feet hole dimensions are shown in Figures 2-2 and 2-3.

2.3 Wire and Fuse Installation

Both the PTX120 and PTX240 are supplied with stranded wires that are connected to the SPD’s internal terminals. See Table 2-1 for the size of wire provided.

Install fuses (not included with the SPD) that will be wired between the SPD and electrical system as described in Section 2.4. These fuses and associated fuse holders are normally located inside the electrical panel in close proximity to the SPD’s wire-entry point. See Table 2-1 for the size and type of fuses required.

2.4 Wiring

WARNING! SHOCK HAZARD:

When working inside the electrical panel, remove system power and follow safe work practices to avoid an electrical shock hazard.

Follow these guidelines when wiring the SPD to the electrical system:

- Follow all national, state, and local electrical codes.
- Connect the SPD to the load side of the main disconnect.
- To maintain the integrity of the electrical system and the SPD’s UL classification, the

Table 2-1. SPD Wiring and Fuse Size Requirements

<table>
<thead>
<tr>
<th>Medium Voltage Models (1000 – 4200 Vac)</th>
<th>Wire Size Range</th>
<th>Circuit Interrupt Devices Required for Installation (Qty. 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTX120</td>
<td>#6 AWG (16 mm²)</td>
<td>Ferraz A240R2R for 2400 Vac or less. Ferraz A480R2R-1 for 4800 Vac or less.</td>
</tr>
<tr>
<td></td>
<td>Wire Included</td>
<td></td>
</tr>
<tr>
<td>PTX240</td>
<td>#4 AWG (25 mm²)</td>
<td>Fuses Not Included</td>
</tr>
<tr>
<td></td>
<td>Wire Included</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2-2. PTX120 Mounting Dimensions

Figure 2-3. PTX240 Mounting Dimensions