



## Quick reference fact sheet for low voltage surge protection Equipment care bulletin

HSB Canada, part of Munich Re, is a technology-driven company built on a foundation of specialty insurance, engineering, and technology, all working to drive innovation in a modern world, to keep you ahead of risk.

The following is a quick reference fact sheet for surge protection of low-voltage electrical distribution systems. For more detailed information, please refer to HSB's [Guideline for Providing Surge Protection at Commercial, Institutional, and Industrial Facilities](#).

- Electrical surges, or transients, are a leading cause of equipment failure.
- Surges can come from the outside (lightning, utility operations) or from within a facility.
- It is critical that a facility have a good, low-resistance grounding system to protect against surges.

- Employ a “Zones of Protection” approach for maximum protection against electrical surges:

**Zone 1:** Install a surge protection device (SPD), also known as a transient voltage surge suppressor (TVSS) on the electrical service entrance equipment to protect against surges generated from outside the facility.

**Zone 2:** Install SPDs at each distribution panel supplying critical or sensitive electronic equipment. This will provide protection against internally generated surges.



**Zone 3:** Install SPDs locally at each piece of equipment requiring protection.

- Understand the technical ratings of SPDs:

**System Voltage**

120 V, 240 V, 480 V, 600 V, etc.

**Circuit Configuration**

Single or Three phase, Delta or Wye connection, etc.

**Clamping Voltage**

Voltage exposed to protected equipment; generally, the lower the better.

**Surge Current**

Amount of current the SPD can safely divert to ground.

**Application**

Service Entrance, Distribution panel, or for local equipment use Standards

- Tested to UL 1449 and ANSI/IEEE C62.41

- Data Line Protection: SPDs should be installed on all systems susceptible to electrical transients, including phone/fax lines, cable or satellite systems, and local area networks (LAN).

- Installation:

- SPDs should be installed as close to the equipment being protected as possible.
- Cable lengths should be short and straight.
- A solid connection to the system grounding conductor is essential.

- The surge protectors should be equipped with operation indicators.

- Use a Professional Engineer experienced with surge suppression technology for design and coordination of the protection scheme.

Use a licensed electrician for installation of SPDs on service entrance and distribution panels.