

Surge Protection

Introduction

In today's industrial environments, expensive equipment is relied on every day to meet customers' needs. Downtime on machines costs time, money, and resources to bring equipment back on line.

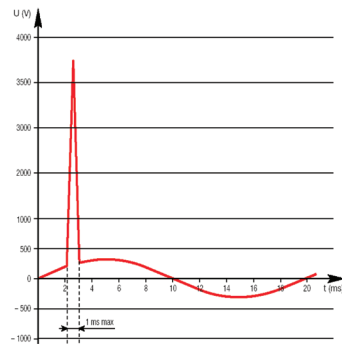
Most surge-related events originate from within a customer's own facility. And, nearly 80% of all surge problems are attributed to power disturbances from the facility's own equipment.

What does a voltage surge look like?

A voltage surge is voltage level that is short in duration and can be several times greater than the system's normal operating AC RMS or DC voltage level.

Any facility with motors stopping and starting, light load panels frequently being turned on and off, and other potential power disturbances, is at risk for damage caused by a surge spike.

With a minimal investment sensitive control equipment, or an entire facility, can be protected from surge events.



Question 1: What does SPD stand for?

- A. Surge Power Disconnect
- B. Solar Polarity Device
- C. Surge Protection Device
- D. **Surge Protective Device**

A Surge Protective Device is a device that contains at least one nonlinear component and is listed to limit surge voltages and divert surge current.

Question 2: A UL approved Type 1 Surge protective device is:

- A. A permanently connected SPD
- B. Can be installed between the secondary service transformer and the line side of the service equipment overcurrent device, as well as the load side, including watt-hour meter socket enclosures
- C. Intended to be installed without an external overcurrent protective device, or
- D. **All of the above**

Mersen's Surge-Trap® NEMA Type 1 and 2 surge protective devices are NEMA devices for ANSI/UL 1449 Type 1 and 2 applications, indoor and outdoor use, and provide UL96A lightning protection plus a variety of other features and benefits to meet customers' needs. These SPDs provide surge protection options for all locations in a facility in the smallest footprints available. They meet the requirements for UL 1449 4th edition and feature Mersen's industry-leading TPMOV technology inside. True "no-fuse" devices, they do not require additional fuse components or overcurrent protection.



Question 3: Is it possible to use surge protective devices to protect solar installations?

- A. **Yes**
- B. No

Solar installations benefit significantly from dedicated SPD protection as the fault current depends on the sun's position, the number of strings, and the panel design. With many SPDs, if the rating of the device is too low, the system is at risk of the SPD disconnecting prematurely. Alternatively, if the rating of the SPD is too high, the SPD may not disconnect at all.

An advantage of Mersen's Surge-Trap PV products is they feature TPMOV technology inside. This technology allows the surge protective device to protect the system independently from the short circuit current. This is because TPMOV technology protection incorporates thermal protection of the MOV. Once the MOV meets a specific thermal temperature, the device disconnects before the short circuit appears. As a result, there are selectivity issues with upstream overcurrent protection within the installation.

To help our customers gain more in-depth knowledge of our products, Mersen offers online and in-person training programs as well as a full series of courses through the Mersen Knowledge Center. To find out more, visit the [Mersen Knowledge Center page](#).