



Why Uninterruptible Power Supply Systems Need Surge Protection

Uninterruptible Power Supply (UPS) systems are used as power back-up for a predetermined length of time, allowing the time for orderly equipment shutdown or saving of files and data. In many cases, the duration of the shutdown is to allow for a secondary power source, such as a generator, to come online and provide an alternate power source until the utility power is safely restored. The UPS system supplies electrical power during a power interruption.

A UPS system consists of a number of electronic circuit boards and computer chipsets that monitor the utility power for both frequency and voltage. When these components sense the loss of either, the system immediately starts supplying back-up power.

Ref. Standards:
 UL 1449 4th Ed.
 UL 1283 5th Ed.
 C62.41.1: 2002 IEEE
 C62.41.2: 2002 IEEE
 C62.45: 2002 IEEE
 C62.62: 2010 IEEE
 C62.72: 2007 IEEE
 NEC 2014
 NFPA 70
 MIL-STD 220A



UPS System

While the UPS is normally used as a source of electrical power back-up for critical equipment, it only makes sense to protect those critical *electronic controls* that actually facilitate the UPS to function.

Most specifications for a UPS application mandate a level of surge protection be built into the system. Manufacturers comply with that request by providing a small Metal Oxide Varistor (MOV), which is typically not robust enough to handle the surge initiated by the anomaly that originally induced the outage. This could be a lightning strike, a utility shift, or an accident involving a nearby power pole – all of which can be of a relatively high magnitude.



Electronic Controls

If the distribution system has a generator back-up, there may be additional surges created when the transfer switch activates

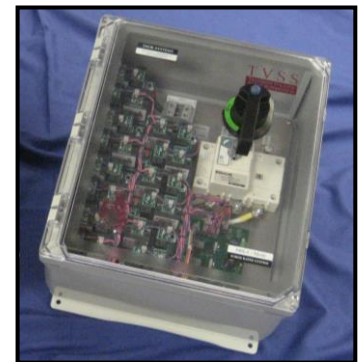
and transfers the power from utility to the generator. All of these transient events will be going through the UPS system that is feeding your critical loads.

To prevent the additional expense and need for unwarranted service calls on the UPS system, a properly sized Surge Protective Device (SPD) connected to the input of the UPS can be a wise and relatively inexpensive investment.

Thank you for your interest in THOR SYSTEMS. We would like to become an information resource for surge protection applications. THOR SYSTEMS offers products and services that provide protection from the more *obvious external* to the more *frequent internal* transient voltage sources.



THOR SYSTEMS Series TSn100



THOR SYSTEMS Series TSrc300
 With Disconnect NEMA 4X Enclosure,
 Clear Hinged Lexan Cover

Our consistent focus on improved product performance and increased value to the customer is conveyed by our products' transparent cover enclosures, showcasing the TILE Architecture, unique component configurations, and providing per mode status indication.

Ref. Documents:

SA-001 Introduction: Why Thor Systems?
 TSI 068 Product Overview
 TSI 107 Design/Build Spec
 3G Tsr Product Spec Sheet
 3G TSn Product Spec Sheet

Should you have any questions, please feel free to contact us (804.355.1100) or visit our Web site, www.ThorSystems.us.