



# THOR SYSTEMS, INC.

## SURGE APPS SA-005: MODULAR VS NON-MODULAR SPDs

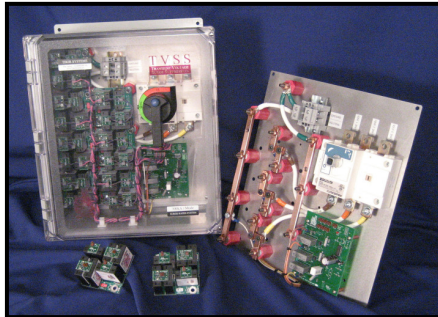
(Guidelines and application tools to promote improved Power Quality)

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### Modular vs. Non-modular SPDs: Which & Why

In this day of modern electronics, it is estimated that business and residential properties lose at least \$26 billion in equipment, goods, and downtime each year due to poor power quality. There are solutions that can reduce those losses appreciably: Install quality hard-wired Surge Protective Devices (SPDs).

SPDs are available in two basic types, Modular and Non-modular. The difference is determined by the ability to remove and replace single modules which protect a phase or a mode without having to remove the entire protective assembly. If an SPD indicates a visual or audible notification of component failure, a *Modular* based system allows quick replacement of a *spare module*--much like replacing a blown fuse. However, a similar condition within a *Non-modular* device would require replacement of the *entire SPD*.



**Field Replaceable Modular SPD**

**Applications:** Service Entrance, Main Distribution, ATS & Critical Equipment



**Compact, Non-field Replaceable SPD**

**Applications:** Distribution, Sub-distribution, & Branch Circuit Panels (Lower Ampacity, 15A to 400A)

#### MODULAR DEVICES

- Modular devices are specifically applied for the more harsh service entrance, main distribution, and where protected equipment criticality is a vital consideration.
- Modular devices that experience component failures can quickly return surge protection to full rated capacity, limiting the amount of time critical equipment is unprotected.

#### NON-MODULAR DEVICES

- Non-modular designs are typically applied for lower ampacity distribution, sub-distribution, and branch circuit panels.
- Non-modular devices normally will have a smaller frontprint and, in many cases, a lower expense. These devices may have limited options available (i.e., monitoring features, larger protective capacities).

#### THE SOLUTIONS

There is a case to be made for the merits of each type of device, which would be determined by the customer needs or engineer specifications. With the proliferation of electronic components used in every modern electrical device, a quality SPD of either Modular or Non-modular design should be installed to enhance optimum system/equipment availability and increased longevity. Contact THOR SYSTEMS for assistance in determining the best product application for your specific needs.

#### Ref. Standards:

UL 1449 3<sup>rd</sup> Ed.  
UL 1283 5<sup>th</sup> Ed.  
C62.41.1: 2002 IEEE  
C62.41.2: 2002 IEEE  
C62.45: 2002 IEEE  
C62.62: 2002 IEEE  
C62.62: 2000 IEEE  
C62.72: 2007 IEEE  
NEMA  
NEC 2011  
NFPA 70  
FIPS 94  
MIL-STD 220A

Thank you for your interest in THOR SYSTEMS, INC. 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.

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.

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

#### Ref. Documents:

SA-001 Introduction: Why Thor Systems?  
SA-002 Bottom Feed SPDs  
SA-004 3G Site Shield Risk Assessment  
TSI 068 3G Product Overview  
TSI 107 3G Design/Build Spec  
3G TSr Spec Sheet, Series TSr Products  
3G TSn Spec Sheet, Series TSn Products