



# THOR SYSTEMS, INC.

## SURGE APPS SA-021: SURGE PROTECTION NOT IN BUDGET

*(Guidelines and application tools to promote improved Power Quality)*

3621 Saunders Avenue  
Richmond, VA 23227-4354

### Surge Protection is not in the Budget

Consulting engineers, facility and service managers who specify and request surge protection for improving operating efficiency by improving electrical power quality are often told the monies required are “not in the budget.” THOR SYSTEMS has often been asked how we justify the investment and we respond the investment may well be in the budget, disguised in the Maintenance and Miscellaneous Expense categories, which often account for as much as 1% to 3% of total corporate revenues. Redistributing these expenses (typically 30% to 70% reduction) will provide the monies to invest in surge protection. After the initial payback period, often six months or less, all of these reduced expenses will become bottom line **operating profits**--year after year.



**Ref. Standards:**  
 UL 1449 4<sup>th</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: 2010 IEEE  
 C62.72: 2007 IEEE  
 NEC 2014  
 NFPA 70  
 MIL-STD 220A

We would like to help you identify the potential expenses which could be converted to future profits and address how Surge Protection can be a trade-off between the cost of repair, equipment replacement, service interruption, and the investment in reliable power protection. In order to consider Surge Protection an “investment” it is important to analyze how power quality impacts Operating and Miscellaneous Expenses on a daily basis.



Switchgear

#### HOW TO IDENTIFY EXPENSES/SAVINGS

Estimate the savings; add the costs from the categories below. Implementing THOR SYSTEMS’ site specific recommendations can yield a 30% to 70% reduction of these costs.

CORPORATE EXPENSES	
<p><b>Category: Maintenance Expenses</b></p> <ul style="list-style-type: none"> <li>▪ Switchgear/distribution; emergency/mission critical power equipment; motor controls; motor rewinding or replacements</li> <li>▪ Building management/lighting controls systems</li> <li>▪ Telecommunications equipment</li> <li>▪ Office equipment (computers/servers, printers, copiers, etc.)</li> <li>▪ Elevators and escalators</li> <li>▪ Security/fire detection and suppression equipment</li> <li>▪ HVAC systems</li> </ul>	<p><b>Category: Miscellaneous Expenses</b></p> <ul style="list-style-type: none"> <li>▪ Lost operating efficiency</li> <li>▪ Shortened equipment longevity</li> <li>▪ Poor equipment/system availability</li> <li>▪ Late product deliveries</li> <li>▪ Unnecessary equipment lock-ups/reboots/restarts</li> <li>▪ Material losses due to production equipment reboots/restarts</li> <li>▪ Increased inventory to bridge process interruptions</li> </ul>
BENEFITS OF SURGE PROTECTION FOR REDUCING CORPORATE EXPENSES	
<p><b>Improvements in:</b></p> <ul style="list-style-type: none"> <li>▪ Business continuity and operating efficiency</li> <li>▪ Equipment/system availability and longevity</li> <li>▪ Customer relations by improving on-time deliveries</li> <li>▪ System and equipment connectivity</li> <li>▪ Return on investments generating ongoing savings and profits year on year</li> </ul>	<p><b>Reductions in:</b></p> <ul style="list-style-type: none"> <li>▪ Labor, overtime, and maintenance costs</li> <li>▪ Equipment downtime</li> <li>▪ Equipment repair and replacement</li> <li>▪ Production time and material losses caused by unnecessary reboots/restarts</li> </ul>



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THOR SYSTEMS offers a wide range of high performance surge protection systems and site-specific solutions. These products--designed to improve operating efficiency, eliminate downtime, protect mission critical equipment and processes--are among the most technologically advanced in the surge protection industry.



Chiller

THOR SYSTEMS' solutions are installed in critical locations, i.e. protecting electrical service entrances and distribution systems.

THOR SYSTEMS' commitment goes beyond the manufacture of the product. The company is dedicated to ensuring proper **site evaluation** and appropriately sizing/recommending Surge Protective Devices (SPDs) for **electrical distribution** and **data/communications** equipment, as well as implementing and commissioning these products.

THOR SYSTEMS' surge protection solutions will increase your operating profits by enhancing your power distribution system through the detection and elimination of power quality problems.

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.

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).



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



**THOR SYSTEMS Series TSn100**

### Ref. Documents:

- SA-001 Introduction: Why Thor Systems?
- TSI 0119 Site Risk Assessment Spreadsheet
- TSI 068 3G Product Overview
- TSI 092 Case Study/Mfg
- TSI 107 Design/Build Spec
- 3G TSr Product Spec Sheet
- 3G TSn Product Spec Sheet