

SURGE PROTECTION OVERVIEW

Solutions for high energy
surges and transient
disturbances



888.987.8877 • surgesuppression.com
16041 Flight Path Drive • Brooksville, FL 34604

SSI[®]
An ILSCO[®] Company

SSI IS YOUR SURGE PROTECTION SOLUTION!

Definitive surge protection for Commercial, Industrial and Residential Applications.

Any system in a residence or commercial property that is powered by electricity is vulnerable to fluctuations in power. This means everything from office equipment to kitchen appliances all require protection from voltage spikes.

While severe weather, lightning, & fluctuations in utility power, such as grid switching, are often considered the main culprits of a power disturbance, the overwhelming cause is actually a transient voltage surge that stems from within the home or building.

Triggers of transient surges can range from the stopping & starting of motors, appliances, & electronics, to even the simple flipping of a light switch. Keep electrical devices & equipment operating unaffected from voltage spikes or transient voltage surges with layered surge protection.

We've been safeguarding electrical equipment for over 30 years.

By specializing only in the manufacture of surge protective devices, Surge Suppression, LLC is able to fully focus its energies into creating the highest quality lines of products.

Being able to dedicate all research & development efforts into one sector of the power quality industry has enabled SSI to quickly build market share & provide quality products the market demands.

SSI manufactures multiple lines of SPDs for both AC & DC power systems as well as data & telecommunication systems from 5 to 7200 volts. With application experience across a full spectrum of industrial, commercial & government sectors; SSI has the capability to address the entire gamut of power quality issues that arise in today's increasingly technological environments.

This makes our portfolio a great solution for all types of facilities: industrial manufacturing, commercial offices, healthcare facilities, institutional buildings, government buildings & campuses, hospitality, retail spaces & single or multifamily residences.



SSI offers a broad array of standard product lines, across all applications, markets for customer driven solutions and full system coverage.

SSI SURGE PROTECTION DEVICES (SPDs)

Designed to protect... built to last.

ADVANTAGE®

Advantage® Panel Protection SPDs are the ultimate in protection. Advantage® offers true 10 mode discrete protection*, a nearly unlimited selection of options, every common North American voltage configuration and surge current ratings from 100 to 900 kA per phase.



25 YEAR WARRANTY

*For 3 Phase Wye Systems



10 YEAR WARRANTY
SpecPro™ 4-mode

15 YEAR WARRANTY
SpecPro™ 7-mode

SpecPRO™

SpecPRO™ Panel Protection SPDs offer outstanding Commercial and Industrial all mode surge protection in your choice of either 4 or 7 modes of discrete protection*. SpecPRO™ offers the same option set as our Advantage products, every common North American voltage configuration, & surge current ratings from 30 to 600 kA per phase.

*For 3 Phase Wye Systems

SURGE Tracker™

Surge Tracker™ Panel Protection SPDs offers Residential, Commercial and Industrial surge protectors with true all mode protection and our most popular options. Surge Tracker provides quality protection for our value-driven customers.



5 YEAR WARRANTY

Advantage®	SpecPRO™	Surge Tracker™
\$\$\$	\$\$	\$
High-end price	Mid-market price	Competitive price
Hard Construction Spec	Soft Construction Spec	Never Specified, Substitute Product. Counter sales
10 modes	4 or 7 modes	2, 4, or 7 modes
up to 900 kA/ph	up to 300 or 600 kA/ph	up to 50, 100 or 200 kA/ph
25 year warranty	4 mode- 10 year warranty 7 mode- 15 year warranty	5 year warranty

See warranty full warranty details at: <https://www.surgesuppression.com/product-info/warranty-info>

SSI SURGE PROTECTION DEVICES (SPDs)

Designed to protect... built to last.



Enclosure Types

INDOOR

NEMA 1, 12, 13 Most Common

- Not unusual to see NEMA 3, 3R, 4, 4X used indoors as well

OUTDOOR

NEMA 3R, 4, 4X Most Common

- 4X Commonly Plastic/Poly/ABS/Fiberglass/Composite, Stainless Steel of various types

SPECIALTY

NEMA 6, etc.

- High performance for tough outdoor applications, waterproof, ice and corrosion resistant

Accessories & Options

Highly Detailed And Many Selections To Choose From:

- Visual Diagnostics (Indicator Lights – Internal or Remote)
- Audible Alarms
- Mounting Options & Configurations
- Dry Relay/Form C Contacts
- Surge Counters
- Customer Requested One-offs
- Integrated Disconnects



Benefits of Electrochemical Design & Fusing **ADVANTAGE® SpecPRO™**

- **Two types of fusing –**
Our Advantage™ and SpecPRO™ SPDs incorporate two types of fusing to assure the safest, most reliable products in the industry.
- High dielectric strength of the encapsulant allows for more compact circuit designs
- Extended life
- Not effected by extreme environmental conditions
- Protects against vibration and shock damage
- Environmentally friendly - HMIS value = 0 (non-toxic)
- Patented, board mounted over-current fusing on each phase

WHY CHOOSE SSI?

Specializing in the manufacture of surge protective devices for over 30 years.

MADE IN USA



Made in the USA

Our Advantage and SpecPro devices are made in the USA to deliver the quality and performance our customers demand, along with industry leading delivery times.



Return On Investment

Protect your equipment and save money - with SSI Surge Protective Devices. *Our products often provide a payback of less than 6 months.* Whether protecting amusement parks, casinos, US Military Bases, manufacturing facilities, mining operations, retail stores, office buildings or homes, SSI offers the best value in surge protection. Call us today for a site survey of your facility to determine just how much SSI can save you.



Fast Delivery - Ships in 3-6 Business

At SSI we understand that speed matters. That's why we provide our customers with the shortest lead times in the surge industry. While our competitor's standard shipping time is four to six weeks, our customer's orders typically leave our facility in five business days or less. It's just one of the ways we work harder to provide you with the best products, customer service and delivery. Fast delivery, it's our promise to you.



ADVANTAGE®

- 25 Year Limited Warranty
- Patented internal phase-level over-current fusing
- Component level thermal fusing
- Ten Modes of Protection (3 Phase WYE Circuits)
- 90 kA to 900 kA Per Phase Peak Surge Current
- Standard EMI/RFI filtering
- Optional Frequency Responsive Circuitry TM removes virtually all ring wave transients
- Nominal Discharge Current (in) Rating: 10 kA/20 kA
- ANSI/UL 1449 listed



SpecPRO™

- 10-15 year warranty*
- Patented internal phase-level over-current fusing
- Component level thermal fusing
- Standard EMI/RFI filtering
- Optional Frequency Responsive Circuitry TM removes virtually all ring wave transients
- Nominal Discharge Current (in) Rating: 10 kA/20 kA
- ANSI/UL 1449 listed

*based on specific model



SURGE Tracker™

- 5 year warranty
- NEMA 4X exterior rated enclosure
- Industry leading let-through voltage performance
- Optional advanced electrical noise filter (UL 1283)
- Available in either 50 kA, 100 kA, or 200 kA peak surge current
- ANSI/UL 1449 listed

OUR SERVICES Properly trained and qualified service technicians ensure that our clients are provided for at every turn

In addition to award-winning power quality product lines, Surge Suppression, LLC has the service capabilities to work hand-in-hand with its clients throughout each step of the client-vendor relationship:

Carefully calibrated site surveys

Intricately designed systems ensuring full-facility protection

Routine system maintenance

Expansion and consulting services



HOW CAN WE HELP YOU?

Substitution request

- Provide competitive part numbers if possible
- Provide a budget if possible to win the job
- Provide specs on new jobs to make sure all requirements are met & quoted

Minimum requirements

- System voltage
- Panel amp rating or spd size requested
- Location (indoor/outdoor)



Customer Care and

Technical Support Contact: 888-987-8877



Customer Care:

webmaster@surgesuppression.com

SURGE PROTECTION 101

SSI SPDs are designed to respond fast and virtually eliminate surges, providing greater protection to downstream equipment and machinery.



Surge Protection

Surges & spikes can be generated internally or externally, & only a solid protection system will ensure the most effective power quality. Only 20% of damaging surges come from external sources like lightning; the other 80% comes from within the facility. A common source for surges generated inside a building is a device that switches power on & off.

For example, every time a motor cycles on and off, very fast, high frequency events called Ring Wave Transient Voltage Surges are produced in the electrical system. Over time they do cumulative, and often unseen damage to sensitive medical equipment, drives, motors and the microprocessors prevalent in today's digital environment.

Ring Waves are often ignored since they require dedicated technology to be properly mitigated. SSI's proprietary Surge Protective Devices (SPDs) have been designed to reduce the 20% of external events like lightning while our Advanced Filtering Technology effectively mitigates the other 80%. Our customers experience return on investment in as few as 6 months.

Surge Protection Devices (SPDs)

What is the primary purpose of a surge protective device? It is simply to reduce the transient voltage surge energy (let through voltage) to a level that is not damaging to the load equipment. In today's electrical environments that means lower let through voltages.

Transient voltage surges occur every day in every electrical environment, where they are causing damage. Sometime this damage is catastrophic, but mostly it is cumulative. Either way, it is often dismissed as "normal wear & tear" on equipment or just the "cost of doing business!"

Transients damage sensitive electronics & microchips contained in residential & commercial equipment such as...

RESIDENTIAL

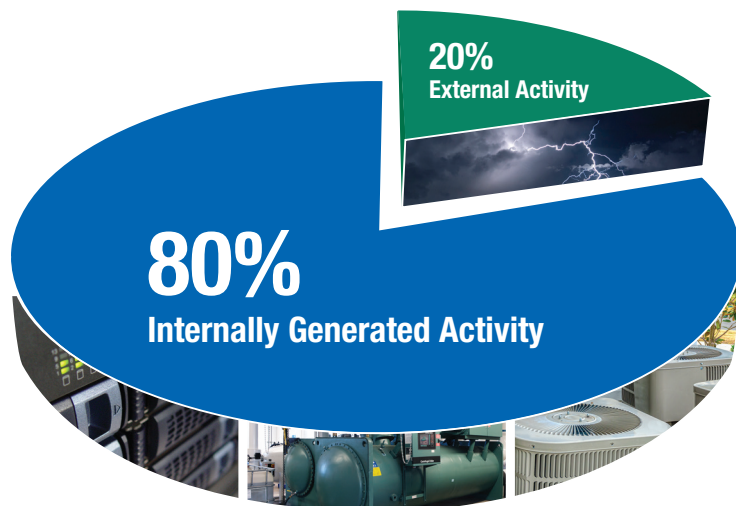
- TVs
- Mobile devices
- Ranges & Refrigerators
- Washer/Dryers
- Microwaves
- HVAC systems
- Water heaters

COMMERCIAL

- IT Equipment
- LED lighting
- Security
- Robotics
- Motors
- Controllers
- Fire detection

WHERE DO SURGES COME FROM?

Surges & spikes can be generated internally or externally.



- **EXTERNAL EVENTS** are both planned and unplanned. Others are spontaneous and uncontrolled.
- **INTERNAL EVENTS:** Everyday operation of typical equipment inside your facility creates electrical surge activity that causes cumulative damage!

Figures based on nationwide averages

Source: General Electric "Current Scene," a bulletin of circuit protection technology

Transient voltage surges occur every day in every electrical environment, where they are causing damage. Sometime this damage is catastrophic, but mostly it is cumulative. Either way, it is often dismissed as "normal wear and tear" on equipment or just the "cost of doing business!"

INTERNAL SOURCES

- Motors Switching "On" & "Off"
- Production Machines
- Welders
- Copier Machines
- Fluorescent Lighting
- AC Chillers
- Robotics
- Capacitor Banks
- Laser Printers
- Variable Frequency Drives

EXTERNAL SOURCES

- Lightning
- Utility Switching
- Power Outages
- Utility Relay Operation
- External Capacitor Banks
- Animals
- Fallen Trees

SPDs connect to load centers and limit transient voltages by diverting or limiting surge currents



TECHNICAL INFORMATION

The SSI team has in-depth technical expertise in both SPD and power quality services.

2017 CODE UPDATE 700.8 "A listed SPD shall be installed in or on all emergency system switchboards and panelboards"

	Automatic Transfer Switches		Smoke Alarms/Detectors		Fire Alarm Systems
	Public Egress/Evacuation Sites		Emergency Warning Systems		UPS Systems
	Egress Illumination		Remote Operated Doors		Emergency Communications
	Fuel Cell Power Systems		High-Rise Elevators		




- Fire alarms
- Individual circuit protection
- PLC Cabinet




- Service entrance, distribution & sub panels
- Disconnects
- Elevators
- Automatic Transfer Switch


2020 CODE UPDATE All new and renovated homes are **required** to be protected by Listed and Approved **Type 1** or **Type 2** Surge Protective Devices



Type 1 - Permanently connected Surge Protective Device. Protects against external and internal surges. May be installed **inside** or **outside** the home.



Type 2 - Permanently connected Surge Protective Device installed in or next to, breaker box. Protects against **internal** and **external** surges.



Type 3 - Point of use Surge Protective Device. **Must be used in conjunction with Type 1 or Type 2 SPD** to meet 2020 code requirements.

EXTRA PROTECTION

Use Type 1, 2 and 3 SPDs for the best level of protection

WHY SURGE, WHY NOW? New and replaced service equipment supplying dwellings are now required to be protected by listed **Type 1 or Type 2 Surge-Protective Devices**. These protect electrical devices and appliances that may not be protected by point-of-use SPDs. **It is estimated that the average home has \$15,000 worth of equipment that can be damaged by surges.**

Electrical System Surge Protection

- In addition to the installation of a surge protective device at the service entrance, it is recommended that surge protective devices rated for Category B (the Distribution and Production area) or Category A (the Point of Use area), as specified in IEEE C62.41.2, be applied to downstream electrical switchboards and panelboards
- And on panelboards of separately derived power systems that service connected information technology equipment (ITE), signaling, television, and other forms of electronic load equipment - IEEE Std 1100-2005, Emerald Book, Section 8.6.4

CUSTOMER TESTIMONIALS

"Until this past year, summer storms have caused immeasurable electrical casualties to the installed equipment maintained by our company due to lightning strikes. *Since installing the Surge Suppression Incorporated units at the end of 2010, [we have] experienced a dramatically increased system uptime, only experiencing one suppressor failure and zero installed equipment failures due to lightning strikes."*

— ASSISTANT SITE MANAGER
OF GROUND SUPPORT EQUIPMENT
Maintenance Provider at Orlando
International Airport

"We decided to put your product throughout the system after doing a cost benefit analysis which showed a handsome payback many times over... *I would certainly recommend Surge Suppression Incorporated to any other municipality or company for that matter. Simply stated, it's the truth."*

— GERALD BEATTY,
Foreman, Electrical
Maintenance Water Operations, MLGW

"I have been furnishing SSI TVSS units for over three years on different projects and have had nothing but success with your products. *The versatility, size, acceptance and competitive attitude of SSI and its products are second to none.* I will continue to work with your people knowing I am supplying a product that can be relied upon."

— JOSEPH G. REHAL,
INTERNATIONAL ENGINEER
Kelly & Hayes Electrical Supply

"*Conclusion: SPD is a great investment on any and all systems and ships represented in this study. The Return-On-Investment ratios are all positive... SPDs are low cost items with tremendous savings potential in terms of maintenance on the systems they protect."*

— U.S. NAVY Analysis of Pre/Post
Installation of Surge Suppression
Systems on 23 Surface Ships