

Surge protective devices



Innovative Technology

Surge protection solutions



EATON

Powering Business Worldwide

Surge protection

Protect your equipment, resources and investments

Surges are high-energy, short-duration voltage events. Also referred to as transients, impulses or spikes, these electrical disturbances can damage or destroy sensitive microprocessor-based equipment.

The most common source is internal devices powering on and off. These devices include:

- Motors
- Transformers
- Photocopiers
- Fluorescent lighting ballasts
- Light dimmers
- Variable frequency drives and more

They can also be generated externally by events like lightning, grid switching or electrical equipment in adjacent buildings.

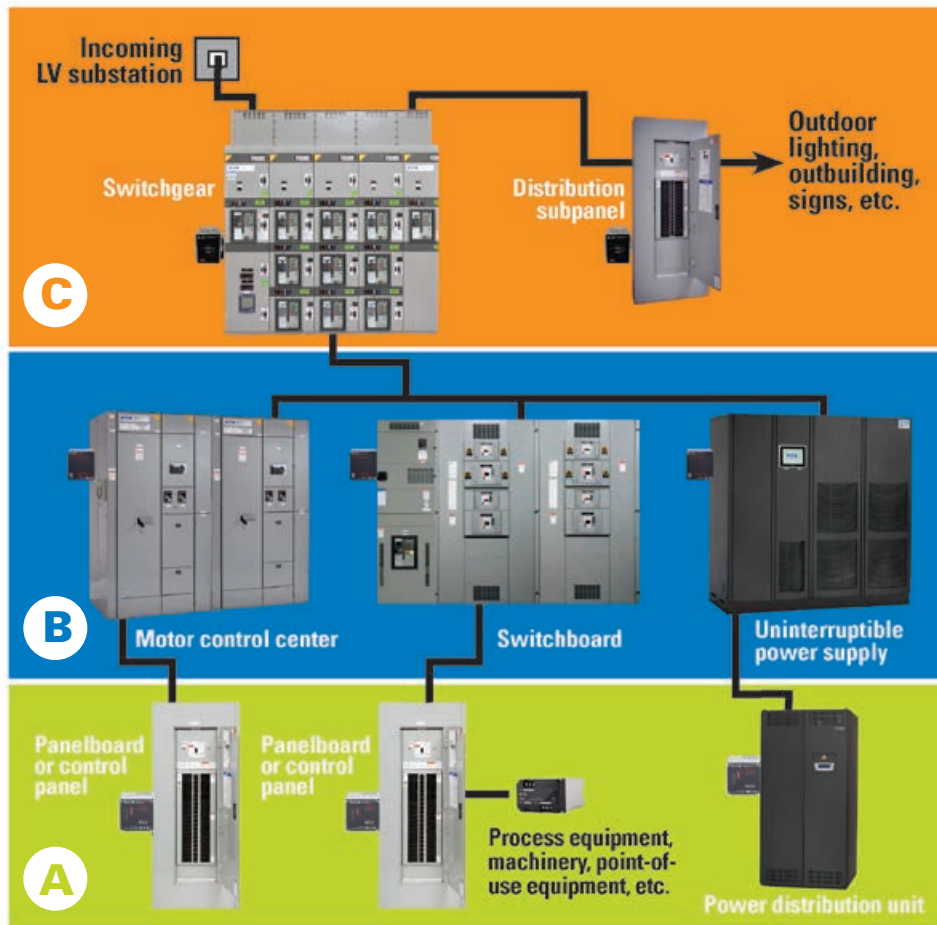


Having a strategy to protect against the damage caused by surges isn't a luxury—it's a necessity. While seemingly innocent, these events can wreak serious havoc on inadequately protected facilities. Choosing a surge suppression manufacturer with a reputation for quality products and services is vital to safeguarding your investments.

Innovative Technology System Shield solution

The best way to prevent downtime due to an electrical surge is to develop and execute a facility-wide System Shield™ protection strategy. This ensures that all mission-critical electronic systems are shielded to prevent disruption, damage and destruction caused by surges.

Here are the main areas in your electrical distribution system that may be at risk for surge events and therefore require protection.



System Shield is a proven, effective method for total facility protection. This layered approach protects all electrical and electronic equipment—from powerful motors to sophisticated lighting controls and sensitive computer-based controllers—from damage caused by electrical surges.

C Service entrance

- Subject to high-power, externally generated transients caused by lightning, power company grid switching, power system faults, severe weather and neighboring facilities.
- Surge devices, such as the Protector Series, installed here provide the first line of defense—minimizing transients to levels that can be safely eliminated by B- and A-level protection.



B Distribution panels

- Subject to a mix of externally generated impulse transients and internally generated switching/ringing transients caused by motors, HVAC, manufacturing and office equipment, etc.
- Surge devices, such as the Equalizer 2 Series, installed here provide an added layer of defense against internally and externally generated transient activity.



A Critical equipment protection, branch panels and point-of-use

- Subject to internally generated ringing transients caused by load switching that can affect critical equipment, lighting controls and industrial control systems.
- Surge devices, such as the XT Series, installed here help prevent immediate equipment damage and micro-processor failure over time.



Installing appropriately rated surge protection at each location throughout your facility provides a layered defense solution—and helps ensure complete protection of critical equipment.

Innovative Technology surge protective devices

Eaton offers a range of innovative, reliable surge protection solutions to protect against the damaging effects of power transients.



Eaton Innovative Technology surge products

Our Innovative Technology solutions are designed specifically to help solve your most difficult electrical challenges—enhancing safety, reliability and protection for sensitive electronic equipment.

Not sure where to start? Our local surge experts can recommend the right surge protective devices to fully protect your facility. The breadth of options and configurations available ensures there's a solution that will work for your electrical application.

Since 1980, Innovative Technology products have provided solutions for the most difficult electrical transient problems across all business sectors.

Standards and certifications

All Eaton Innovative Technology surge devices are designed and tested in accordance with the latest versions of:

- ✓ UL 1449
- ✓ UL 1283
- ✓ IEEE C62.41.1
- ✓ IEEE C62.41.2
- ✓ IEEE C62.43
- ✓ IEEE C62.45
- ✓ IEEE C62.48
- ✓ IEEE C62.62
- ✓ ISO 9001

Protector Series

The Protector Series provides surge protection under the harshest electrical conditions. Available in a range of voltages and configurations, these devices offer maximum flexibility and are engineered to meet strict guidelines for durability and protection—all backed by a 20-year warranty with online registration.



Eaton's Innovative Technology Protector Series



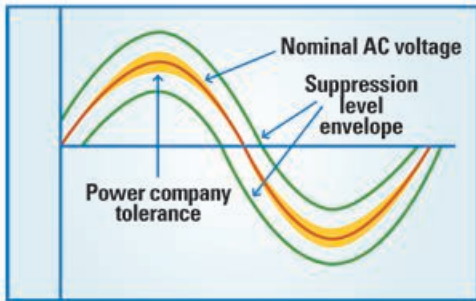
What you get:

- **Robust solution:** Obtain a lasting solution with its symmetrical current distribution and high current density capabilities.
- **Enhanced protection:** Extend equipment life with Eaton's Active Tracking Network (ATN) and Threshold Suppression Network (TSN).
- **Simplified monitoring:** Continuously monitor device and electrical system status with LED indicators. Per-phase diagnostics and dry relay contacts help address problems proactively and maximize uptime. Optional surge counter shows addressed transient activity.
- **Rugged weatherproof enclosure:** For installation in the most demanding industrial and commercial environments through the use of NEMA 4 and NEMA 4X enclosures.
- **Maximum flexibility:** Ease installation with the ability to mount the device in any position. If necessary, the cover can be rotated 180 degrees to improve label readability.

Active Tracking Network (ATN)

This UL 1283-listed EMI/RFI filter network provides the industry's best suppression of switching-generated ringing and high-energy impulse-generated transients. As a result, critical and sensitive loads receive the highest level of protection.

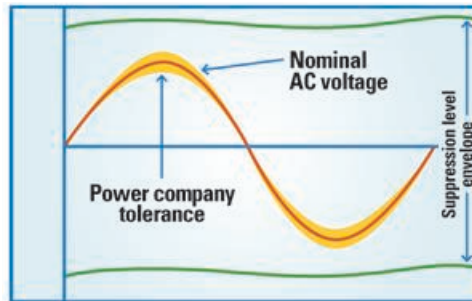
ATN



Threshold Suppression Network (TSN)

The Innovative Technology Protector Series offers the best suppression of high-energy impulse-generated transients and the widest range of application compatibility. We use large diameter metal oxide varistors to mitigate high-energy impulses.

TSN



Feature	PTE		PTX	
	Standard	Available option	Standard	Available option
Advanced encapsulation technology to extend the device's life and prevent adverse effects from environmental factors	✓		✓	
LEDs and dry relay contacts to monitor suppressor status	✓		✓	
Redundant, matched metal oxide varistors (MOVs)	✓		✓	
Suppression monitoring and recording technology (S.M.A.R.T.) monitors critical system functions and provides surge counter to record event history in non-volatile memory		✓		✓
Integral circuit breaker to take the device offline with minimal impact to facility operation (available with internal or external operating handle)		✓		✓
Active Tracking Network (ATN), providing up to 40 dB of EMI/RFI filtering attenuation	✓			
Threshold Suppression Network (TSN), offering the best suppression of high-energy, impulse-generated transients	✓		✓	

Equalizer 2 Series

The Equalizer 2 (EQ2) Series provides high-quality transient voltage surge suppression for commercial and light industrial applications. Field-proven with unsurpassed durability and reinforced by a 15-year warranty with online registration, the Equalizer 2 Series is available in a variety of configurations and current capacities—providing the optimal choice for cost-effective, high-quality power system protection.

What you get:

- **Unsurpassed durability:** Industry maximum nominal discharge current rating of 20 kA.
- **Flexible sizing:** Extend the life of equipment with high-energy capable surge paths available in 50 kA to 200 kA per phase peak surge current.
- **Robust protection:** Suppress switching-generated transients in nanoseconds and filter disruptive line noise with optional Active Tracking Network. Ensure reliable operation with a rugged NEMA 4X enclosure.
- **Advanced diagnostics:** Quickly obtain power system and surge device status with integrated, highly visible LED indicators and optional dry relay contacts.



Innovative Technology Equalizer 2 Series SPD



Feature	Standard	Available option
Surge protection using thermally protected MOV technology	✓	
Tri-colored LED protection status indicators for each phase	✓	
Tri-colored LED protection status indicators for neutral-ground protection mode	✓	
NEMA 4X enclosure	✓	
Audible alarm		✓
Form C relay contact		✓
Active Tracking Network (ATN), providing up to 40 dB of noise attenuation from 10 kHz to 100 MHz		✓

The compact and rugged design of the Equalizer 2 allows for installation as close as possible to distribution equipment, which maximizes retrofit applications and protection.

Equalizer 2 devices utilize a proprietary tri-colored LED monitoring system to continually display the status of the protective components.



XT Series

The XT Series provides transient voltage surge suppression for commercial, point-of-use and original equipment manufacturer (OEM) applications. XT Series is available in a variety of configurations and surge current capacities of 50 kA and 100 kA per phase.

What you get:

- **High-density design:** Get high surge capacity protection in a small footprint with Eaton’s high surge current design.
- **Enhanced equipment protection:** Protect electrical investments from abnormal conditions with robust, thermally protected metal oxide varistors.
- **Circuit diagnostics:** Simplify maintenance and troubleshooting with per-phase status LED indicators.
- **Rugged construction:** Maximize reliability in harsh environments with NEMA 4X enclosures shielding against water, dust and contaminants, decreasing the risk of unplanned downtime.



Innovative Technology XT Equalizer Series surge protective device



Feature	Standard
Surge protection using thermally protected MOV technology	✓
NEMA 4X enclosure	✓
LED protection status indicators	✓



Critical Load Series

The Critical Load Series provides enhanced protection at point-of-use against the full spectrum of transient disturbances. With superior line filtration incorporating both capacitance and inductance (ITPH, ITPV Series), these devices are highly effective against low- and high-energy transients and prevent immediate equipment damage—as well as microprocessor-failure over time.

What you get:

- **Integrated surge and noise suppression:** Suppress line noise and transients at point-of-use to ensure critical equipment is fully protected.
- **Increased equipment protection:** React instantly to changes in voltage, regardless of phase angle or polarity.
- **Best-in-class technology:** Achieve higher levels of suppression, reliability and life expectancy compared to other line filters.
- **Flexible installation:** Find the right solution for your equipment protection needs with multiple mounting configurations and optional DIN rail mounting. AC and DC models are available with up to 80 kA peak surge current capacity ratings.

Why choose Eaton for surge protection?

Eaton Innovative Technology Master Distributors, supporting Eaton's Innovative Technology products, are factory-trained in applying surge suppression to solve transient voltage issues. Their experience spans virtually every industry and application. These surge protection experts can also provide a comprehensive, facility-wide audit, including system layouts, load equipment mixture and transient surge exposure levels. An on-site audit of your specific needs is an unparalleled service in the surge protective industry, and provides you with the peace of mind that your surge protection solution is properly safeguarding your critical equipment.

To find an Eaton Innovative Technology Master Distributor in your area, visit Eaton.com/itvss and click on the "Locate a Master Distributor" link.

Surge selection guide

Product Series	L-N Protection Mode	L-G and N-G Protection Modes	L-L Protection Modes	Per Phase kA Range	ATN Filtering Attenuation	Nominal Discharge Current (I _n)	Short-Circuit Current Rating (SCCR)	Alarm Contacts (Option)	Audible Alarm (Option)	Surge Counter (Option)	Warranty (Years)	Integrated Disconnect (Option)	Enclosure Options (NEMA Types)
PTE	Yes	Yes	Yes	48-400	40 dB	20 kA ²	200 kA	Yes	Yes	Yes	20 ⁴	Yes	4 and 4X
PTX	Yes	Yes	Yes	48-400	No	20 kA ²	200 kA	Yes	Yes	Yes	20 ⁴	Yes	4 and 4X
EQ2	Yes	Yes	Yes	50-200	40 dB	20 kA	200 kA	Yes	Yes	No	15 ⁴	No	4X
XT	Yes	Yes ¹	Yes	50-100	No	20 kA ³	100 kA	No	No	No	5	No	4X

¹ 100 kA units only

² 48 kA, 65 kA, and 80 kA per phase units rated 10 kA I_n

³ 480L, 600D, and 600Y units rated 10 kA I_n

⁴ With online registration

Learn more about our Innovative Technology offerings at Eaton.com/itvss

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

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