

Surge protection devices
Innovative Technology

Innovative and reliable surge protection solutions

EATON

Powering Business Worldwide

Eaton Innovative Technology SPD products



Innovative Technology® products are a part of Eaton's electrical business, which helps deliver state-of-the-art customer solutions for today's most crucial electrical transient problems.

Prevent disruption, damage and destruction

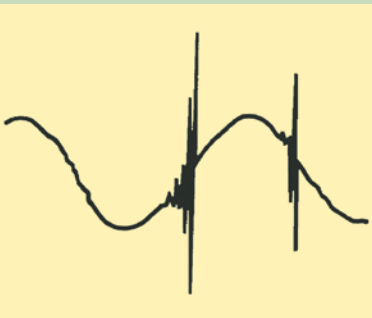
Your power distribution system and attached load equipment are under constant attack from various types of power line disturbances. Transient voltage surges are the most severe, common and immediate danger to sensitive electrical and electronic equipment. The cumulative effects of these events can cause semiconductor degradation, equipment destruction, control process disruption and circuit board damage.

The cost of equipment repair and replacement, according to *Businessweek*, is an estimated \$39 billion per year. All mission-critical electronic systems should be shielded to prevent disruption, damage and destruction.

Enhance safety, reliability and protection

Eaton offers a full range of innovative, reliable surge protection solutions to protect against the damaging effects of power transients. Our Innovative Technology Series of surge protection solutions is designed specifically to help solve your most difficult electrical challenges—enhancing safety, reliability and protection for sensitive electronic equipment.

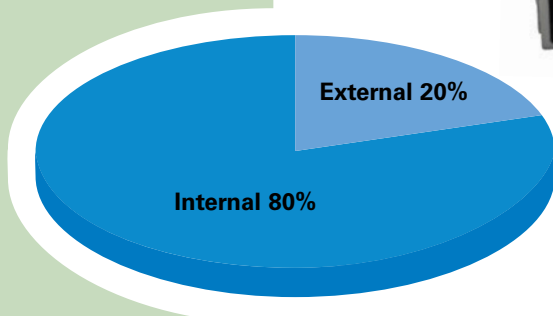
Eaton offers a competitive warranty for Innovative Technology SPD products.



Typical voltage impulse waveform



Eaton Innovative Technology SPD products



Facility surge sources

How to protect equipment, resources and investments

What are surges?

A surge is a random, high-energy, short-duration voltage event. Also referred to as transients, impulses or spikes, these electrical disturbances can damage or destroy sensitive microprocessor-based equipment.

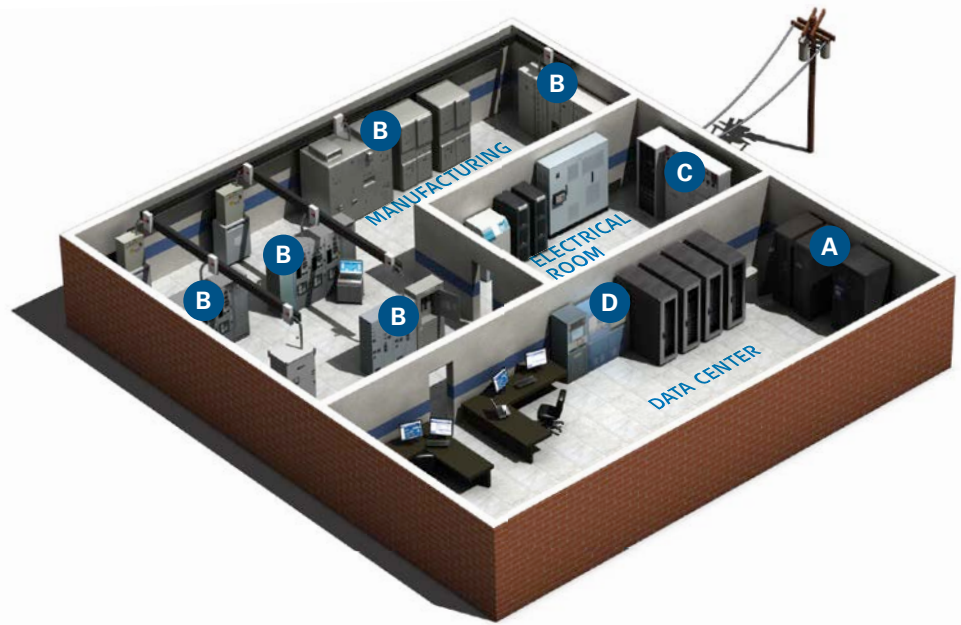
SPD is not a luxury. It's a necessity.

Choosing a surge suppression manufacturer with a reputation for quality products and services is vital to ensuring that your investments in valuable systems, hardware and operations are safeguarded.

The System Shield™ solution

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

Typical surge protection locations



C Service entrance

Eaton Innovative Technology PTX Series

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 suppressors installed here provide the first line of defense—minimizing transients to levels that can be safely eliminated.



B Distribution panels

Eaton Innovative Technology PTE or EQX Series

Distribution panel

Subject to a mixture of externally generated impulse transients and internally generated switching/ringing transients caused by equipment such as motors, HVAC and manufacturing and office equipment. Surge devices installed at these locations provide an added layer of defense against internally and externally generated transient activity.



A Branch sub/panels, and point-of-use

Eaton Innovative Technology XT or EQX Series

Branch panel

Subject to a large amount of switching/ring wave transients generated by a wide variety of sensitive critical load equipment, office equipment, lighting controls and commercial and industrial systems. SPDs installed at branch panel locations are designed to address ringing transient characteristics via the Active Tracking Network (ATN).



D Critical equipment protection/point-of-use

Eaton Innovative Technology ITPH, ITPV, ITCF, ITCN Series

Critical equipment protection

Providing the upmost in equipment protection, Eaton Innovative Technology line filters and surge protectors provide a hybrid filter that can react instantly to changes in voltage, regardless of phase angle or polarity. In comparison to other line filters, this technology provides a higher level of suppression, reliability and equipment protection.

Protector Series



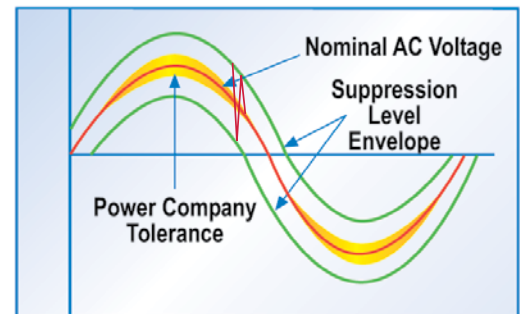
The Innovative Technology Protector Series is a premier line of surge protective devices (SPDs) designed to provide protection under the harshest electrical conditions. Available in a wide range of voltages and configurations, these products offer maximum flexibility and are engineered to meet strict guidelines for durability and protection—all backed by a 20-year warranty.

Features and benefits

Feature	Benefit
Robust solution	Obtain a lasting solution with the Innovative Technology Protector Series' symmetrical current distribution and high current density capabilities. Fault current tested at 200 kAIC and surge current tested to in excess of rated per mode peak surge current, per ANSI/IEEE® C62.41, and ultra-low junction impedance connection points. 20-year warranty.
Enhanced protection	Suppress both switching-generated ringing and high-energy impulse-generated transients with the Eaton Active Tracking Network (ATN) to extend equipment life. Additionally, the Eaton Threshold Suppression Network (TSN) offers the best suppression of high-energy impulse-generated transients and the widest range of application compatibility.
Simplified monitoring	Continuously monitor SPD and electrical system status with highly visible LED indicators. Per-phase diagnostics and dry relay contacts help address problems proactively and maximize uptime. Optional surge counter indicates transient activity that the SPD has addressed.
Adaptable construction	Allow for weatherproof installation in the most demanding industrial and commercial environments with NEMA® Type 4 enclosures. This fully encapsulated technology provides a high dielectric and ultimate protection from adverse environmental conditions.
Maximized flexibility	Ease installation with the ability to mount the SPD in any position. If necessary, the cover may be rotated 180 degrees to improve readability of the label.

Active Tracking Network (ATN)

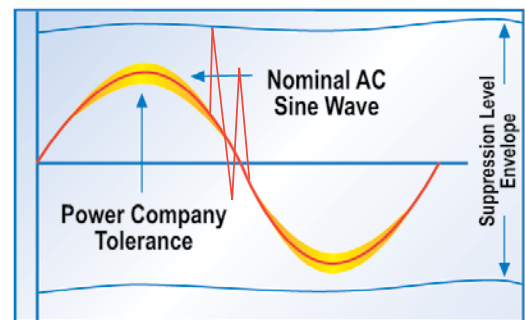
This UL® 1283 listed EMI/RFI filter network provides the industry's best suppression of both switching-generated ringing and high-energy impulse-generated transients. As a result, critical and sensitive loads are provided with the highest level of protection.



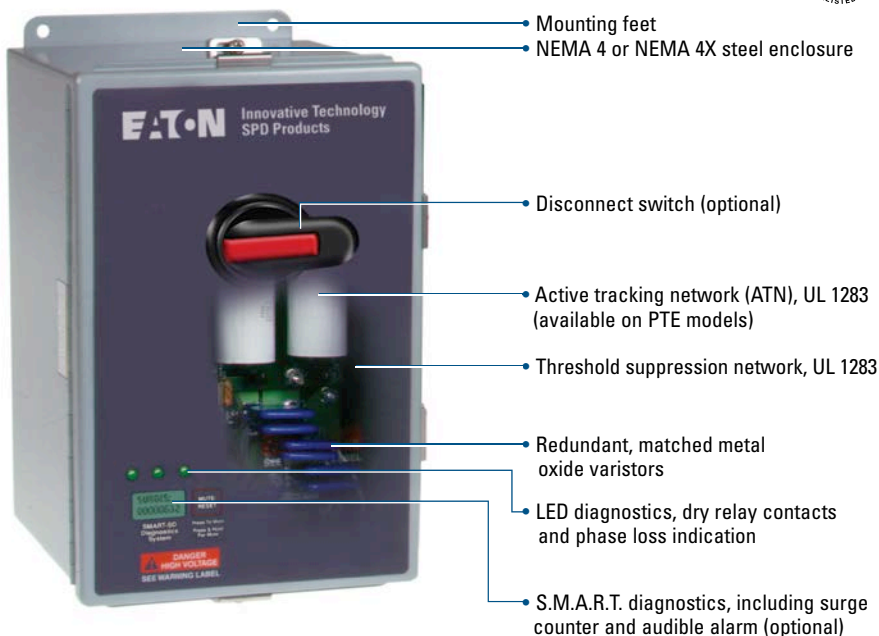
ATN performance curve

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 performance curve



Eaton's Innovative Technology Protector Series

Standard options

Advanced encapsulation technology

Extends product life and prevents adverse effects from environmental factors.

- Maintains consistent long-term performance
- Protection from extreme environmental elements
- Protection against vibration and movement—high tensile strength
- High dielectric strength
- Environmentally friendly

Diagnostics

LEDs and dry relay contacts monitor suppressor status.

Optional features

S.M.A.R.T.—Suppression Monitoring and Recording Technology

S.M.A.R.T. delivers comprehensive monitoring of critical system functions, including real-time audible and visual reporting of unit status, phase/protection loss and transient events (alarm with reset and mute). The dual-function surge counter provides non-volatile event history recording and is high-, medium- and low-sensitivity programmable.

Internal circuit breaker

Eaton MCCB model FDC 30 A.



Integral disconnect switch

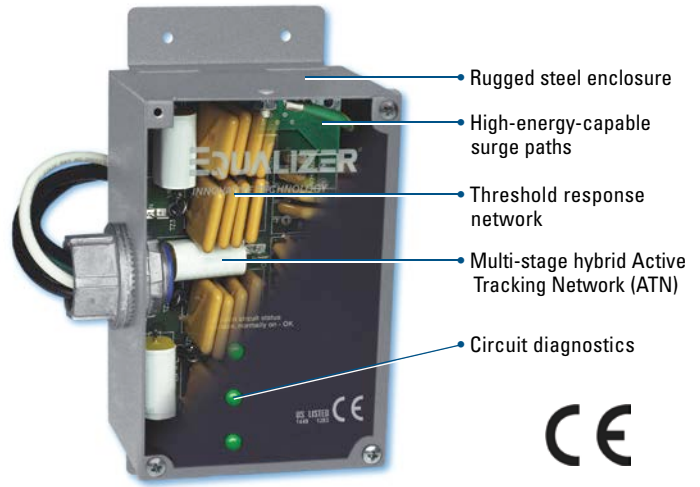
The integral disconnect switch allows the unit to be taken offline with minimal impact to facility operation. It includes a 100 kAIC-rated circuit breaker so that the unit can be installed without external circuit interrupt for maximum application flexibility.



Equalizer Series



The Innovative Technology Equalizer SPDs provide high-quality transient voltage surge suppression for industrial and commercial applications. Field-proven with unsurpassed durability, reinforced by a ten-year warranty, the EQX line is available in a variety of configurations and current capacities, from 40 kA to 160 kA per phase—providing the optimal choice for cost-effective, high-quality power system protection.



Innovative Technology Equalizer Series SPD



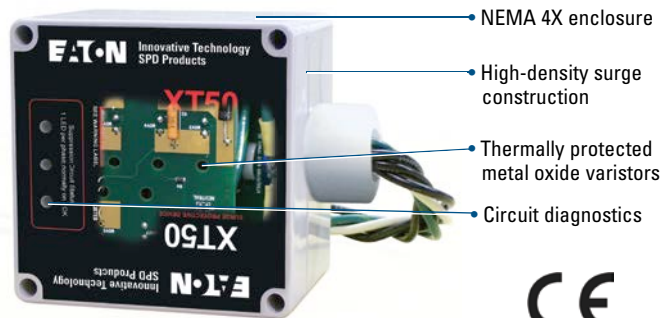
Features and benefits

Features	Benefits
Unsurpassed durability	Extend the life of equipment with high-energy capable surge paths available in 40 kA to 160 kA per phase peak surge current.
Robust protection	Suppress switching-generated ringing transients with nanosecond response time, and filter disruptive noise with the Eaton ATN EMI/RFI filter. Ensure reliable operation with a rugged steel enclosure, threaded conduit fitting and integral mounting feet.
Advanced diagnostics	Quickly obtain power system and surge device status with integrated, highly visible LED indicators and dry relay contacts.

XT Series



The Innovative Technology XT Series SPDs provide high-quality transient voltage surge suppression for light industrial, commercial, point-of-use and OEM applications. The series is the industry's first UL 1449 Third Edition-listed product to achieve a best-in-class of 20,000 A nominal discharge current, and is available in a variety of configurations and surge current capacities of 50 kA and 100 kA per phase.



Innovative Technology XT Series SPD



Features and benefits

Features	Benefits
Enhanced equipment protection	Protect electrical investments from abnormal conditions with robust, thermally protected metal oxide varistors.
High-density design	Provide high surge-capacity projection in a small footprint, engineered with a high surge current printed circuit board and configurations available with 50 kA and 100 kA per phase peak surge rating.
Circuit diagnostics	Quickly obtain per-phase status with highly visible LED indicators to simplify maintenance and troubleshooting.
Rugged construction	Maximize reliability in harsh environments with NEMA Type 4X enclosures that shield against water, dust and contaminants to decrease the risk of unplanned downtime.

Critical Load Series

The Innovative Technology Critical Load protection products enhance protection against the full spectrum of transient disturbances and are engineered to filter the entire sine wave. As a result, the devices are effective against low- and high-energy transients to prevent immediate equipment damage and microprocessor failure over time.



Features and benefits

Features	Benefits
Integrated surge and line suppression	Suppress noise and transients prevalent throughout the power distribution system to help ensure that critical equipment is always operating in peak condition.
Increased equipment protection	React instantly to changes in voltage regardless of phase angle or polarity. In comparison to other line filters, this technology provides a higher level of suppression, reliability and life expectancy.
Enhanced personnel safety	Mitigate the risk of arc flash and shock hazards with factory-sealed assembly that reduces contact with live electrical components.
Flexible installation	Easily identify 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.

I.T. critical load protection products

Specifications	ITPH	ITPV	ITCF	ITCN
Current range	3 A to 20 A	1 A to 5 A	10 A to 60 A	30 A
DIN mounting	Yes	Yes	Optional	Optional
Filtering	Yes	Yes	Yes	No
Peak kA per phase/mode	60/30	40/20	80/40	80/40
UL voltage protection rating	330/400	330/400	500/500	500
Options	Alarm contacts		Alarm contacts, UL 497A comm line	

Residential Protection Series

Innovative Technology residential protection

Sensitive electronic products throughout a home are subjected to transients generated by home sources such as HVAC systems, garage door openers, laundry machines and other electrical loads, as well as by external sources such as lightning, outages and utility switching.

Protect all of your home electronics with Eaton Innovative Technology surge protection.

General features

- Protection for AC, cable and telephone lines
- Surge current ratings from 20 kA to 75 kA
- Easy installation
- Quick connection terminals
- Comprehensive, whole house protection



Note: CE, CSA® and UL on AC unit only.

Additional resources

Innovative Technology surge product features

Product Series	L-N Protection Mode	L-G and N-G Protection Modes	Per Phase kA Range	EMI/RFI Filtering Attenuation	Nominal Discharge Current (I _n)	Short-Circuit Current Rating (SCCR)	Alarm Contacts	Audible Alarm	Surge Counter (Option)	Warranty (Years)	Disconnect (Option)	Enclosure Options (NEMA Types)
PTE	Yes	Yes	48–400	40 dB	20 kA ②	200 kA	Yes	Yes	Yes	20 ⑤	Yes	4 and 4X
PTX	Yes	Yes	48–400	No	20 kA ②	200 kA	Yes	Yes	Yes	20 ⑤	Yes	4 and 4X
EQX	Yes	Yes	40–160	30 dB ④	10 kA	100 kA	Yes	No	No	10 ⑤	No	1
XT 50/100	Yes	Yes ①	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 Optional.

⑤ With online registration.

Eaton—SPD pioneers

Eaton is leveraging more than 30 years of surge protection expertise to protect electrical data, telecom circuits and electronic equipment from the effects of lightning-induced voltages, external switching transients and internally generated electrical transients. Each product is independently tested and backed by the largest engineering and technical support in the industry.

Innovative Technology distributors—SPD experts

Independent distributors who sell Eaton Innovative Technology products are factory-trained and have extensive experience in applying surge suppression to solve transient voltage issues; their experience spans virtually every industry and application. Your Eaton Innovative Technology representative can provide you with a comprehensive, facility-wide audit, including system layouts, load equipment mixture and transient surge exposure levels. This on-site audit of your

individual needs is a service that has no equal in the SPD industry, and assures you that your surge protection solution provides optimal equipment protection.

To find an Eaton Innovative Technology Master Distributor in your area, please visit <http://www.eaton.com/itvss> and select the “Locate a Master Distributor” link on the right side of the screen.

Standards and certifications

All Eaton I.T. surge devices were designed and tested in accordance with:

IEEE C62.41.1

IEEE C62.41.2

IEEE C62.43-2005

IEEE C62.45-2002

IEEE C62.48-2005

IEEE C62.48-2005

IEEE C62.62-2010

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