



LIGHTNING ELIMINATORS

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Lightning Eliminator's Surge Suppression FAQ

How do surge protectors work?

Surge Protectors are designed to reduce and divert potentially damaging short-duration voltage spikes safely out of the system to ground. This is similar in concept to pressure relief valves that protect water heaters from overpressure.

What should I look for when selecting a surge protection device (SPD)?

Any Surge Protective Device that you consider for AC power must be listed to UL1449 5th Edition. All manufacturers UL listings are available for review on the UL website. Be careful not to confuse SPD listed products with Secondary Surge Arrestors (aka Lightning Arrestors). Secondary Surge Arrestors have a clamping voltage much too high to protect sensitive electronics.

When comparing surge protectors it is important to consider both the surge current capacity and clamping voltage to determine the performance of the surge protector. Please reference "*What is Surge Current Capacity?*" and "*What is Clamping Voltage?*"

What is Surge Current Capacity?

Surge current capacity is the maximum amount of surge current that a surge protector can suppress for a single surge event. This level is used to indicate the protection capacity of a particular surge protector. For example, in a high exposure area (like Florida) with a high likelihood for lightning, a larger surge current capacity might be desired. But, be aware that surges have natural limitations and that larger surge current capacity tends to add redundancy rather than the implied ability to handle an extremely large surge. For example, an entire lightning strike cannot go through wire; much like a fire hose has difficulty shooting through a soda straw. Realistically, surge protectors do not need to be sized for entire lightning strikes. But, there are valid reasons for adding excess surge current capacity for redundancy reasons.

The surge protection industry uses kiloamperage (kA) as a measure of the products' surge current capacity. All **Lightning Eliminators & Consultants, Inc. (LEC) SPDs** list the kA rating for the surge capacity. kA ratings at or above 10kA (10,000 amperes) are generally acceptable.

What is Clamping Voltage?

Clamping voltage, also referred to as let through voltage or the Voltage Protection Rating (VPR), is the amount of voltage a surge protector permits to pass through it to the attached load (ex: a TV) during a surge event. Clamping voltage is a performance measurement of a surge protector's ability to attenuate a surge, or more simply, to reduce the surge to a manageable level. For example, a surge protector might limit a 6,000V surge so that only 600V is 'visible' to the load. The clamping voltage is 600V. This performance value is confirmed by Underwriters Laboratories during tests conducted while evaluating a surge protector for listing.

I've never had equipment damaged by electricity-why do I need this?

LEC SPDs are designed for those who would like peace of mind and protection for their sensitive electronics. You may not need it. However, it is possible you have had equipment damage and don't know it. Many "mysterious" computer problems such as contaminated or irretrievable files are actually due to electrical surges. Also, breakdowns and replacements of electronic equipment due to what you think of as "normal" wear and tear may actually be due to internally or externally caused surges.

How often do these disturbances occur?

Because we use so many things like refrigerators, pumps, heating and air conditioning systems all the time, disturbances happen frequently. A 17-month



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study done by IBM in 49 cities across the country found that an average of 128.3 disturbances happened in each monitored facility, every month. Most were surges that did not cause immediate damage, but which could wear down equipment over time.

Aren't my circuit breakers enough?

Common AC circuit breakers don't react quickly enough to protect sensitive electronic equipment. LEC SPDs react in less than a billionth of a second. Also, it's important to note that Ground Fault Circuit Interrupter (GFCI) circuit breakers are not surge protectors and therefore do not provide surge protection. They protect against shock hazard.

Aren't my plug strips enough?

No. The large surges that cause the most damage to equipment enter the home from the outside. These large surges are caused by electric utility operations and/or lightning in the area. Plug strips are not designed to handle these large surges. In fact, some of the less expensive plug strip can fail but still allow power, and power surges, to pass through to your equipment. Installing the LEC SPDs at the Breaker Panel, incoming phone line and incoming coax line, will protect your entire home against these large damaging surges and extend the life of your plug strips and connected equipment.

If I have service entrance protection on my home do I need plug strips?

Yes, if you want complete protection for your sensitive electronic equipment. The LEC SPDs prevent

large surges from entering the home but research shows 70% of the power surges experienced in the home are generated inside the home. Power surges are generated inside the home every time the compressors in your refrigerator or air conditioner turn on. These lower level power surges disrupt and reduce the lifespan of your electrical and electronic equipment.

Will these devices prevent my clocks from blinking?

No. A surge protector cannot eliminate blinking clocks. Blinking is caused by momentary sags or outages, which are solved by the use of a UPS unit or buying electronics with built-in battery back-up.

I found a "power factor correction device" that claims to save money on my power bill & provide surge protection. What is the difference between your product & theirs?

Any Surge Protective Device that you consider must be listed UL 1449 3rd Edition. This is not only for performance but also for safety reasons. If the product has not been evaluated specifically for UL 1449 3rd Edition then important end-of-life (failure mode) testing has not been performed to determine if the product will fail passively (safely) and the product may explode when subject to a fault condition and put you at risk for an electrical fire.



Facility Guard



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