

## Surge Protection Facts

IF YOU WANT TO KEEP YOUR BIG SCREEN TV COMPUTER, STEREO AND VIDEO GAMES WORKING READ THIS.

- Florida is known as the lightning strike capital of the world.
- Power surges are mainly comprised of short bursts of electricity. They are extremely unpredictable and are caused by conditions that exist both inside and outside your home or business.
- Surge sources inside your home may come from units such as your refrigerators, freezers, air conditioners, treadmills, irrigation pumps or virtually any electric motor turning off and on. Various home office equipment such as shredders may also contribute to the surge problem. There are many more surge sources in businesses, depending on your business.
- Electrical appliances, especially electronic equipment, are particularly susceptible to power surges. The result is partial damage or even complete destruction of circuit boards within the appliance or device.
- Some other sources of power surges include faulty wiring, problems with the utility company's equipment, downed power lines and of course lightning. The grid of transformers and power lines that bring electricity from a power generating plant to the outlets in our homes or offices is extraordinarily complex. There are dozens of possible points of failure, and many potential errors that can cause an uneven power flow. Power surges and spikes are an unavoidable occurrence but they can be reduced or the damage they cause can be minimized with the use of proper surge protectors.

### Additional Surge Information

Industrial, Commercial & Residential facilities all need Surge Protection Devices (SPD). Today surge protection, also called surge suppression, is more important than ever because electronic products operate at very low voltages. These low operating voltages make electronics susceptible to surges. Surge suppressors are designed to protect electronics from the dangers of surges by diverting excess electricity to ground.

From Jacksonville to St. Augustine and beyond, regardless of the surge problems, in your home or business, American Electrical Contracting, Inc. will be able to identify and resolve the problem.

All surge suppressors are not the same and the higher price does not mean a better product. Many low priced, store bought products, offer little protection and specifications for which there are no surge standards, like joules. Additionally, there are high priced products that perform no better than low priced products but come in attractive boxes and look impressive. Some of these products have over 12 outlets in one strip. At the end of this article you will see why this is not an optimal design when building surge protection. The question is how do you know what to get installed to properly protect your products? (See UL1449) The answer is simple, ask American Electrical Contracting, Inc. Our products are UL listed and our expertise is making sure they are properly installed. We do NOT sell surge protectors retail. We offer surge solutions consisting of installation of the appropriate devices to protect your cable, phone lines, breaker panel & your outlets.

The ultimate way to protect your valuable products from surges is to protect your circuit breaker panel with a whole house surge protector. Both your cable and phone line comes into your home from outside and also need protection. Additionally, you must protect the devices currently plugged into your wall outlet by plugging them into a "point of use" surge protector and plugging that surge protector into the wall. As stated above, surges are caused by conditions both inside and outside your home or business. Protecting both the panel and devices provides the cumulative effect of cascading protection, offering protection regardless of the surge point of origin. Additionally, in many cases, this layout is what the surge protection manufacturer requires for their warranty to be valid.

That being said, remember nothing stops lightning, especially a direct hit. However, good surge protectors, like Sycom's, self sacrifice and try to protect the devices that are attached to them. Sometimes saving money in the short run costs you money in the long run. Think about that before you get those nice expensive TV's mounted by an unlicensed electrician that does not fully understand surge protection. Remember video game consoles have a hefty price tag & surges will hit them too.

The 3 specifications that truly matter for surge products are:

- Clamp Level -- At what voltage does the suppressor turn on and divert the voltage to ground. (the lower this number the better) Sycom clamps at 150 volts line to ground. Any voltage over 150 volts will be diverted to ground.
- Response Time -- less than 5 nanoseconds is good. A slower response time could mean the surge got to your equipment because your surge device did not respond fast enough. (Here the lower the number the better)
- Surge capability -- How strong is your unit -- this is a good way to compare different manufacturers. (Here a higher number is better) Units rated at 150,000 amps like Sycom are excellent. Units with surge capability lower than 150,000 amps are still good but do not offer the maximum protection available. Additionally, there are different levels of protection for depending on the device type. The specification above is very good for devices that electricity passes through. Different specifications would apply to devices like a coaxial cable protectors where clamping at 130 volts is good, with a reaction time of less than 100ns combined with a surge capability of 5000 amps. These specs are great because coaxial cable carries a signal like video & audio not voltage.

Last but most important is your ground connection. A solid ground is required, with low impedance (resistance). This simply means that when there is an inrush of electricity, that inrush (surge) is quickly clamped and diverted to ground because electricity always seeks the path of least resistance. Without a good ground connection your surge products will

have little use.

Remember this when you look at point of use surge protection (power strips) with 10 or more outlets. If excess electricity has to be diverted to ground through an excessive number of outlets, with one path to ground, the ground will be flooded with excess electricity. Thus, some of that excess will go right into the devices you are trying to protect. Think about 3 lanes of cars exiting via that single lane off ramp. Watch that traffic backup onto the expressway. Now multiply those 3 lanes to 10 or more and you get the picture. While this is a technically simplified explanation, it establishes a sound foundation in understanding the importance and requirements for surge suppressors.

### Commercial & Industrial Surge Protection

In the Commercial and Industrial markets American Electrical Contracting, Inc. provides Power Quality Analysis, Preventative / Predictive Maintenance and Surge Protection.

As you may expect, there are strong technical similarities to the residential markets. However, the problems and solutions are different because the voltages and connected loads in industry are different. If your bulbs blow a lot sooner than they should, surges could be the cause. If you are losing motors and other equipment a head of their expected useful life, this could also be due to surges. Working with various leaders in the TVSS (Transient Voltage Surge Suppression) industry, American Electrical Contracting will analyze your issue(s) and create a proposal to solve your specific problems

Our services go beyond surge suppression to the "Electrical Health" of your building and equipment. Using proven practices designed for commercial and industrial applications we provide a thorough analysis that will prolong the life of your equipment, reduce down time and improve the safety of your facility.

Contact your American Electrical Electrician today and find out which solution(s) is best for you.

Sycom -- Putting our energy into surge protection

Square D -- We're the world's first power and control specialist...

V-Blox Power Protection Energy Optimization System for ultimate surge suppression.

Atlantic Scientific -- Surge protection you can depend on!