

## It's lightning season! Protect your valuable electronic equipment

*Summer storms often bring lightning that can wreak havoc with your home's valuable electronic devices and data. That's why you should take steps now to protect your home from lightning strikes and other unavoidable electrical events.*

Several elements combine to form the most effective protection for your home's electronics and electrical systems. The most important component is a functional service ground, which is an integral part of your home's electric service equipment. (See "Your home's first line of protection" on back for more details.)

In addition, we strongly recommend that you safeguard your electronic data with an **uninterruptible power supply (UPS)**, and that you protect all your electronic equipment with **surge protectors**.

UPS devices and surge protectors are available at hardware and home improvement stores, and are easily installed by just about anyone. As technology has improved, it is now possible to find these two devices combined into a single affordable device.

### How UPS devices work

A UPS is a battery that maintains a continuous supply of electric power (to connected equipment) by supplying power if utility power is not available or a voltage dip occurs.

A UPS is inserted between the source of power and the equipment it is protecting. When a power failure or dip in the electric flow occurs, the UPS will effectively switch from utility power to its own power source almost instantaneously. This is especially important in the summer with the increased frequency of lightning and the increased use of air conditioners.

Large appliances such as air conditioners and refrigerators require a lot of energy to switch on and turn off components like compressors and motors. This switching creates sudden, brief demands for power, which upsets the steady voltage flow in the electrical system. These variations can be severe enough to damage components immediately or gradually over time, and they occur regularly in most household electrical systems.

UPS units can be small enough to back up a single computer or large enough to back up an entire business. They help to avoid damage and data loss. As prices have fallen, UPS units have become an essential piece of equipment for personal computers, entertainment systems and more.

There are two key ratings to be aware of when choosing a UPS unit. The first is the load rating, expressed as both volt amps and watts; the load typically should not exceed 80% of the load rating. The second is runtime: do you want enough time to safely turn everything off if an outage occurs, or do you want to be able to operate your electronic equipment during an extended outage?

For more UPS facts, visit [www.computer.howstuffworks.com/question28.htm](http://www.computer.howstuffworks.com/question28.htm). We recommend doing some research to determine the best protective equipment for your needs.

See story on back for how surge protectors work.

### Substation upgrades complete

We recently completed substantial upgrades at our substation by replacing mechanical meters and relays with state-of-the-art solid-state equipment. The work was especially challenging since it was completed while keeping the town's power on.

Due to the difficulty of the work, you may have noticed a few blips to your electric service in May, but we were able to avoid any extended outages. The new relays will help us to provide better protection for the transformers, which are our most valuable assets. The new meters will provide us much more information and are much easier to use than our old mechanical meters.

## SURGE PROTECTORS

### Get the urge to beat the surge

A power surge is a sudden, temporary increase in current or voltage. Normal voltage for residential use in the United States is 120 volts, with an acceptable range of 114 to 126 volts. If the voltage varies from this range, it can cause damage to appliances and equipment. A surge protector is designed to prevent a surge from damaging or destroying electronic devices.

Surge protectors send surplus voltage to ground. In other words, they try to stop the voltage from going over 126 volts. Surge protectors are not fail-safe. One large surge can destroy the protector and you may not know that your equipment is no longer protected.

We recommend, at the minimum, a power strip with a UL rating of 1449, a good warranty, and an audible alarm. We strongly discourage buying a basic surge protector without these minimum features.

If you choose a power strip with an indicator light, place it where the light is visible, and make sure it is lit every time you sit down at your computer or turn on the device you are protecting. If the light is out, your surge protector has done its job and has given its life to save whatever is plugged into it. **Now that the light is out, it is no longer a surge protector;** it has become an extension cord and needs to be replaced.

You should also protect the telephone lines and coaxial cables entering your home – contact your service providers for advice.

Due to the nature of electricity, no utility can guarantee an absolutely stable and consistent power supply. Although we strive to provide reliable power at the lowest cost every day, there will be inconsistencies in the power supply that we have no control over.



Truck Foreman Jay Willets installs a fuse

### Why do surges occur?

High-powered electrical devices operating within the home cause most power surges. As mentioned in the article on the front, every time a compressor or motor switches on and off in your home, there is a power dip and surge. The most familiar source of surges is lightning, though it is actually one of the least common causes. When lightning strikes near a power line, telephone line or coaxial cable, the electrical potential can be measured in millions of volts. If a surge is caused by a lightning strike it is likely that any surge protector will be overpowered.

### Your home's first line of protection

Thinking of electrically protecting your home? The most important item is your home's "service ground." Without it, excess voltage can damage appliances or, in extreme cases, cause a fire. The service ground wire connects directly from the electric service box to the ground by way of a "ground rod" or, in older homes, via the water pipe. Be sure that your ground has not been removed or become loosened. A licensed electrician can determine the adequacy of your ground by measuring its resistance and make any necessary adjustments.