

## Protecting Appliances, Equipment and Electronics

There are several devices available that may help alleviate the effect of voltage variations on your electric appliances.

### Surge Suppressors

The simplest and least expensive solution, suppressors limit the size of voltage spikes to a level safe for most electronic devices. In addition, they are easily installed between the equipment and the wall outlet. Surge Suppressors will not protect your equipment from low/high voltage or outages.

### Choosing the Right Surge Suppressor

- If you have a computer with a modem, choose a surge protection device that protects both the modem and computer. Not all electronic equipment needs a surge protection device. Printers don't need this protection; in fact, printers are often the source of power disturbances, especially laser printers.
- Make sure the suppressor is Underwriter's Laboratory (UL) listed for compliance with its #1449 standard.
- Choose the appropriate voltage rating for the equipment you want to protect. Only four listed voltage levels (330, 400, 500, and 600) are applicable to 120-volt plug-in models. In general, the lower the rating, the better the protection and the higher the price.
- The surge protector must have three modes of protection: line to neutral, line to ground and neutral to ground.
- A "whole-house" surge protector may be purchased and installed on the circuit panel. While this device provides good protection against lightning strikes, it should not be used in place of smaller surge suppression devices at the outlets. Most spikes occur inside your building, already past the "whole-house" protection device. The best protection is a combination of both the "whole-house" protection and the protection at the outlet.

**Note:** A surge protection device will burn out over time depending on the severity and number of voltage spikes it must protect against. Top-of-the-line surge protection models include devices such as "chokes" to further reduce impulses and noise. These models cost more but last longer. It is valuable to have indicator lights verifying that the unit is protecting downstream equipment and has not burned out. Without the indicator lights, you have no idea whether or not the unit is still operational.

## **Uninterruptible Power Supply (UPS)**

An uninterruptible power supply, or battery back-up, supplies power to the equipment it is protecting for short periods of time during an interruption. It provides instant, but temporary, protection from power interruptions.

UPS systems are often used to protect computers, data centers, medical and other electrical equipment where an unexpected power interruption could cause injury, data loss or serious business disruption.

The systems operate for a short time, allowing you to safely power down the equipment or switch to a standby generator. The length of time that uninterrupted power is maintained depends upon the size of the battery in the UPS and the size of the load being supplied. Systems come in sizes ranging from units that will back up a single computer to those which will power entire buildings.