

The blink of a clock

If your digital clock flashes; your point of sale device register quits; your TV or computer screen shrinks; your lights dim or flicker; your computer experiences memory of data loss; or your DVD, microwave or stove timers lose their programs; you may be experiencing a split second power disturbance.

Power disturbances have always been around, but in the early days of electrical equipment, they simply went unnoticed. Today's electronic devices are sensitive to even slight changes in voltage, so any power disturbance is now more obvious.



Many times you will not realize that power disturbances are occurring until you find the equipment in your home or business is malfunctioning.

Sources of power disturbances

Power disturbances may originate in the electrical system of your home or business, or in the utility's electrical system.

Surveys show that most power disturbances occurring in the home originate from outside the home (either directly from the utility's electrical system or indirectly from the electrical system of another customer). Whereas most disturbances that occur in business buildings originate from within that facility.

In your home or business

A number of things can happen with the electrical system in your building which can cause problems in the operation of your electronic equipment. For example, a brief decrease or increase in voltage can occur when large appliances such as refrigerators,



washing machines, air conditioners, photocopiers, power tools, water pumps, chillers and furnaces are cutting in and out. This problem can be compounded if electrical circuits in your home or business are overloaded or if the electrical grounding is inadequate.

On the utility system



Power disturbances can result from problems on the utility's system or from external problems such as weather conditions. The origins of these disturbances are varied. They are caused by tree branches striking power lines, traffic accidents, high winds, sleet, lightning, utility equipment problems, other customer equipment problems or even birds or animals. Protective devices on the power lines help protect the power system from damage during these occurrences. Automatic reclosing of utility circuit breakers restore power quickly after a temporary disturbance. While these momentary interruptions can be annoying, they can prevent extended outages at your home or business.

Equipment & data protection

Electronic equipment is not designed to handle most power disturbances. There are protective devices available to provide varying degrees of protection. However, no protective device will guarantee protection against all power disturbances (for example: a direct lightning strike).

Built-in Appliance Protection

When shopping for a programmable appliance or microcomputer, ask about its limitations. Look for equipment with a battery back-up system that will remember clock and program settings when power is lost briefly. Also, look for appliances and equipment that have protective devices built right into the unit to prevent damage during power disturbances.



No Cost Solutions

Put equipment in a safe place

1. If possible, locate sensitive electronic equipment far away from your main breaker panel or fuse box. The risk from possible voltage surges will be reduced.
2. Avoid plugging your computer or other sensitive equipment into the same circuit as a motor driven appliance such as a furnace, photocopier, freezer, dishwasher, air conditioner or refrigerator. Motor operations may cause voltage fluctuations.



3. Unplug equipment

If possible, unplug any sensitive electronic equipment when:

- experiencing frequent power disturbances
- it is not used for an extended period of time, especially if you will be away for several days
- a severe storm is approaching

Quick Tip

When working with your computer, protect your newly entered data by saving it periodically to permanent memory on your hard drive or jump drive. During severe weather conditions save data more frequently.

Some software packages will even save your new material automatically, for example every ten or fifteen minutes. Once saved, your new data cannot be erased by a temporary loss of power.



Low cost/moderate cost solutions

Use equipment surge suppressor devices

Surge protectors may protect your equipment against some disturbances in the home or office. Don't confuse these with power bars that are simply



extension cords with a circuit breaker. A power bar without surge protection, offers no protection from power disturbances.

Better surge protectors will cost between \$30 and \$400 depending on the level of protection desired and the electrical load of equipment to be protected. Surge protectors will mainly protect against over-voltage disturbances up to the design limits of the protective device. When choosing surge protection, ensure that the product is CSA approved for the level of protection desired.

Uninterrupted Power Supply Devices

Unlike a surge suppressor, which primarily protects against over-voltage events, an uninterruptible power supply (UPS) protects against power disturbances and power outages.

UPS devices at one time were only suitable for commercial use due to the physical size and cost. In recent years, the UPS device has become a very

affordable protection device for electronics. UPS devices are available in many sizes and configurations. A UPS device will provide clean, continuous power even during a power outage. A UPS device provides protection to sensitive electronics. Most UPS devices are capable of shutting down computer systems and preventing software problems.



Direct Wired Surge Suppressor Devices

Unlike plug-in surge suppression devices, a new surge suppression solution for electrical consumers is also available. A surge suppressor device that

protects the entire home or office can be installed on the main electrical panel. This surge suppressor device will protect all directly wired and plug-in items used in the home or office. This includes items such as furnace motors and controls, pumps, electronics, microwave ovens, larger appliances, etc. These devices are ideal for protection against major power disturbances such as thunder and lightning storms.

Professional advice is recommended if you are considering the purchase and installation of these devices.

Have the wiring of your building checked

Proper grounding will assist in protecting equipment against some power disturbances. However, it will not protect against power interruptions.



Power Disturbances

protecting your equipment

