

HOW TO PROTECT YOUR SENSITIVE HOME ELECTRONICS



LIPA
Long Island Power Authority

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The way we use electricity is more sophisticated than ever. Electronic equipment such as TVs, VCRs, stereos, computers, microwave ovens and digital clocks all can do more than their predecessors, but they are also more sensitive to power disturbances than the older models.

We've prepared this booklet to provide you with a guide on how to protect your home's sensitive electronic equipment from power disturbances.

WHAT LIPA CAN AND CAN'T DO TO PROTECT HOME EQUIPMENT

We Can . . .

. . . install storm resistant wire, use infrared scanning to detect weak spots in power lines before they cause problems, install radio-controlled switches to restore electricity quickly and clear tree limbs away from our power lines.

We Can't . . .

. . . totally eliminate power disturbances because the protective equipment on our electric lines work like the circuit breakers in your home and automatically cuts off the power when lightning, a tree, animal or other object comes in contact with a wire — even if it's just for a split-second.

WHAT IS A POWER DISTURBANCE?

A power disturbance occurs anytime there is a momentary power loss or change to the normal electrical supply in your home.

This can be caused by storm activity, equipment malfunctions, or when a tree, animal or other object comes in contact with an electrical line.

Power disturbances can also be caused by faulty/improper electrical circuits or wiring in your home or by overloading circuits with equipment.

TYPES OF POWER DISTURBANCES

The following describes the types of power disturbances that can affect home electronics (see page 8 for home computer information) and the protective measures that you can take to keep your equipment running trouble free.

Momentary Interruptions

Many times contact with a power line only lasts a fraction of a second and our relay system automatically restarts the flow of electricity. This wasn't a concern for homeowners for many years, but today a split-second loss of power is sometimes just enough to upset sensitive digital equipment. That's what causes microwaves, electric clocks, and VCRs to blink from time to time.

Protective Measure

*When purchasing electronic equipment that includes a digital clock or internal memory (TV, VCR, microwave, etc.) look for a model with a built-in battery back-up feature. The **battery will not run the equipment**, but it will power the clock or memory during a momentary power loss.*

Voltage Spikes

Spikes are very fast-moving periods of high voltage. A spike can be caused by lightning, large electrical-equipment switching off near your house, or appliances switching off. **Spikes cause electricity to rush through your wiring and can cause damage to unprotected equipment.**

Protective Measure

One way to protect your sensitive electronic equipment from spikes is to purchase a quality surge suppressor. It is designed to keep excess voltage from getting to and damaging your equipment. Surge suppressors are recommended for use on TVs, VCRs, and other equipment that uses a microchip. A surge protection checklist is on page 6.

Surge protection is usually built into other power protection devices such as an Uninterruptible Power System (UPS).

Electrical Noise

You cannot only hear electrical noise but see it whenever someone turns on an electric motor (such as a blow dryer) while you are watching TV. The static and white lines on your set are audible and visual displays of electrical noise.

Other causes of noise can include fluorescent lights, motorized appliances, radio transmitters and loose electrical connections. Noise is seldom damaging to most equipment, but it can be very annoying.

Protective Measure

The simplest way to solve an electrical noise problem is to turn-off the source. If you cannot eliminate the source of the noise, you can minimize its effects by plugging the source into a different circuit from your sensitive equipment. If the problem persists, you can purchase power protection devices with noise filters and/or have a licensed electrician check for loose connections.

Voltage Sags and Surges

Sometimes you may notice that your lights get dim and then bright for short periods of time. This is caused by voltage sags and surges.

Sags and surges can occur during storms, or when large electrical loads such as air conditioners, refrigerators, and dishwashers turn on (sag) and off (surge). Often these appliances affect one another because the wires connecting them are not large enough to carry the proper electric load.





Sags and surges stress appliance motors and circuits, microchips and motors in sensitive equipment causing them to wear out sooner than expected.

Protective Measure

Call LIPA's toll-free service line at **1 800 490-0075** and we'll investigate the problem. If the problem is not LIPA-related, you should:

- have a licensed electrician check your wiring and equipment, and/or
- consider purchasing a line conditioner for sags/surges, or a surge suppressor for surges only.

DIAGNOSE YOUR POWER PROBLEM

Symptom	Type of Disturbance	Cause	Potential Solution
Damage	Spike 	Lightning Birds/animals on power lines Normal operation of large-load home	<ul style="list-style-type: none"> • Have a lightning arrester installed by a licensed electrical contractor. This will protect most major appliances that DO NOT have digital displays. • Use surge suppressors or other power protection equipment to protect electronic equipment.
Flashing or Blinking	Interruption 	Lightning Accidents involving poles and lines Tree limbs falling across power lines Stormy weather	<ul style="list-style-type: none"> • Built-in battery backup feature in the appliance will preserve clock, memory or programming. • See pages 8-9 for other power protection devices.
Lights Dim or Get Bright	Sag and Surge 	Operation of major home appliances Faulty wiring	<ul style="list-style-type: none"> • Call LIPA at 1 800-490-0075. If the problem isn't LIPA-related: <ul style="list-style-type: none"> – have an electrician check wiring and/or – Install surge protector for sags and surges.
Noise on radio or TV	Noise 	Small appliance motors Loose electrical connections	<ul style="list-style-type: none"> • Use shielded cables for antenna connections. • Do not use "noisy" equipment on the same circuit as the TV/radio. • Have a licensed electrician check for loose connections. • Purchase power protection devices with noise suppression. • Contact LIPA at 1 800 490-0075.

Surge Protection Checklist

The tips below will help you select a surge suppressor that will help protect your equipment.

- ✓ A surge suppressor must protect your equipment from every connection to the outside world. If you have cable TV, the suppressor must protect incoming power as well as the cable line. Equipment attached to a telephone line should have protection for the power and telephone line.
- ✓ Most suppressors have limited energy handling capabilities for lightning and should be used in conjunction with a lightning arrester installed at your main power service entrance. If you don't already have one, have a licensed electrician install a UL-listed lightning arrester for you.
- ✓ A plug-in surge suppressor should be UL-listed and have a number on it telling you how many volts it will let through to your equipment before it begins to operate. This number will be printed next to the UL label and be listed in kV, or kilo-volts (1000 volts). Look for a number of .5kV or less for a plug-in device.
- ✓ Suppressors should also have electrical noise filtering. Look for EMI/RFI filtering information usually shown as a number. In general, the higher the number, the better the suppression.
- ✓ Suppressors should have some type of indicator (usually an LED) to show its protection is working. The better products will shut off power to the connected equipment when the device has received a surge large enough to destroy it.
- ✓ Suppressors DO NOT save energy and will not reduce your electric bill.
- ✓ A quality suppressor does not have to be expensive. Products providing adequate protection can be purchased for \$15 to \$70.



- ✓ After you have found a surge suppressor that meets your needs, you can further protect your equipment by plugging them into circuits that do not supply large electrical loads like refrigerators, freezers and air conditioners.

Equipment Inventory*

Use the following list of inventory and identify the problem(s) with your home electric/electronic equipment. Use the chart below to determine the possible cause of the problem and potential solutions.



Equipment	Damage	Blinking/ Flashing	Dim/ Bright	Noise
Television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VCR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CD Player	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tape Player	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stereo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Home Computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Answering Machine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Portable Phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Security System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Garage Door Opener	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microwave	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refrigerator/Freezer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dishwasher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Washer/Dryer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water Heater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AC/Heating (thermostats)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*This is only a partial list of equipment. Any type of electronic equipment could be affected by power disturbances.

POWER DISTURBANCES AND THE HOME COMPUTER

Personal computers and their supplemental devices (printers, modems, etc.) are especially sensitive to power disturbances. Any power disturbance can have an immediate or long-range effect on both the computer, the disk drive(s) and the data stored in them. If you are using a computer at home, you may notice the impact of power disturbances more than our other customers.

Many computer manufacturers recommend the use of an Uninterruptible Power System (UPS) or a Line Conditioner to insure that your computer and data is protected from power disturbances.

It is also important to remember that you should regularly “back-up” the data on your computer at least every 15 minutes. You may also wish to install a dedicated circuit to isolate your computer from other electrical equipment. Contact a licensed electrical contractor to help you with this.

SURGE SUPPRESSOR

A surge suppressor protects computers from spikes and surges, which account for only 17 - 20 percent of all power disturbances. Surge suppressors WILL NOT PROTECT THE OTHER 80 PERCENT OF POWER DISTURBANCES which can cause long-term or immediate damage to a computer or data.

LINE CONDITIONER

A line conditioner is designed to regulate and condition incoming voltage to within the safe limits of a computer. A line conditioner will protect your equipment from most sags and surges, but it will not protect your equipment during an outage.

UNINTERRUPTIBLE POWER SYSTEM (UPS)

A UPS uses an internal power source (batteries) to power connected equipment during outages or when the line voltage goes below or exceeds limits set in the unit. UPSs usually have between 5 and 15 minutes of battery power, which will let you “work-through” short outages or give you enough time to turn your system off in an orderly manner without damage to the equipment or data.

There are many models of UPS products across a broad price range. Generally, the more expensive UPSs have more features (line conditioners, surge and noise suppression, etc.).

When purchasing a line conditioner or UPS, remember to:

- Buy a product that is UL-listed and capable of handling the electrical load of the connected equipment.
- Make sure that the unit provides surge and noise suppression. If it does not, you will also need to purchase a surge suppressor.

If you need further information on how to protect your home computer, please call us at:

1 800 490-0075.

IMPORTANT TELEPHONE NUMBERS

Telephone inquiries: 24 hours a day, seven days a week.

Electric Service1 800 490-0075

Billing/General Inquiries1 800 490-0025
outside toll-free area(516) 755-6000

Automated Service1 800 490-0015

En Español1 800 490-0085

