

Understanding Power Quality in Your Home

We rely on an uninterrupted flow of electricity to power our home electronics. From computers to stovetops, these appliances can be extremely sensitive to even the slightest disturbance. Understanding Power Quality can help keep your electronics running at peak performance.



LIPA Power Quality

Today more and more of the comforts and conveniences in our homes rely on high tech electronic equipment. Everything from heating and air conditioning to home entertainment systems and fast access to the Internet depends on the flow of uninterrupted and reliable electric power. Yet, all utilities experience power fluctuations, and even though LIPA is very reliable, we find that sometimes even the most subtle electric power disturbances can disrupt, or even damage, the equipment we rely so heavily upon. With a basic understanding of what to look for and how to protect equipment from most power variations, high-tech electronic processes can be improved and the likelihood of experiencing damage or disruption can be reduced.

How do I know if I have a problem?

Most modern electronic equipment can withstand minor power fluctuations. However, stricter design standards by equipment manufacturers make even slight variations noticeable, such as flashing digital clocks.

Some symptoms of Power Quality issues may include:

- equipment not performing to manufacturer's specifications
- periodic computer lockups and data errors
- lights flickering

What could have caused the problem?

Some problems can be complicated. But most often causes are easily explained. They include:

- design of the home's wiring system
- home electrical equipment affecting other equipment
- starting of large motors (water pumps, air conditioners, home power tools)
- natural causes, such as lightning
- short circuits on the power line caused by animal contacts or trees making contact

How can I fix the problem?

What can I do if I've had LIPA check the service to my home and found no irregularities on the distribution system supplying my home?

The table on the next page may help...

Question	Solution
Do I have multiple large motors and sensitive equipment on a single circuit?	Have your electrician run dedicated circuits for all large and sensitive equipment.
Do my motors have special “soft-start kits” to reduce the large starting current?	Have retrofit “soft-start kits” installed on motors by contractors to reduce noticeable lags in voltage – lights dimming.
Do I have some heavier appliances combined on the same circuits and lighter on others?	Have your electrician rebalance loads on your system.
Is my home’s electric service large enough to supply my electricity needs?	Have your electrician upgrade electric service as necessary, such as providing additional circuit breakers.
Have I installed equipment that exceeds normal home use (machines, welders, etc.)?	Upgrade of service or an additional service may be needed.

What else can I do?

Adequate home wiring and proper “grounding” (meeting the latest version of the National Electric Code and local electrical codes) is important for equipment performance.

In addition, a licensed electrician may recommend using “power conditioners” for critical equipment. Electronic surge protection devices (SPDs) and uninterrupted power supplies (UPSs) are typical power conditioners.

Remember, if you are experiencing power quality problems, LIPA can check the power supply and equipment outside your home and can advise you regarding future steps.

For additional information, visit LIPA's Web site at www.lipower.org or call us at 1-800-692-2626.

Suggested Further Reading

For the interested reader, there are a number of additional references and documents that further describe the concepts and topics presented in this brochure.

Visit LIPA at www.lipower.org/residential/safety/



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