



Protect Your Electronics From Power Disturbances

At Copper Valley Electric Association, we do our best to deliver consistent, reliable power. However, the quality of power is the result of many forces that can affect it between the generation plant and your home.

Forces also can distort power once it enters your home. Power disturbances do happen, so it is helpful to know how to protect the equipment in your home.

Possible Causes of Power Disturbances

Surges, spikes or sags in the power that runs through a house can be caused by a variety of factors.

Abrupt power changes within a single location are the most frequent causes. Environmental impacts on the transmission and distribution systems can cause instability. Switching operations and equipment malfunction are other possible causes.

In businesses, copy machines, air conditioners, vending machines, electronic ballasts, welders and variable-speed motors all affect power quality.

In the electric distribution system, whenever a tree falls on a power line, an underground cable is cut or a car hits a pole, the delivery of electricity is affected.

In homes, air conditioners, refrigerators, garbage disposal units and equipment with electronic controls are a few of the devices that can cause power surges or sags.

In the past, few were concerned about the lights dimming when the refrigerator started. However, today's homes have many devices and appliances with controls that are sensitive to voltage fluctuations.

Equipment to Protect Your Equipment

Countless items in the market of-

fer point-of-use protection for your sensitive electronic equipment. A random check found 28 varieties available in Glennallen alone.

Which one should you use? No one solution fits all.

Are you concerned with just power surges?

A surge suppressor might be what you need. Surge protectors are designed to absorb extra power from surges or spikes and send it to the ground, to keep it from going to your equipment.

Whole-house surge suppressors use devices at the electric meter, breaker panel or plug-in circuit breaker. Point-of-use suppressors are installed throughout the house where sensitive electronic equipment plugs into the wall.

Do you have electronic equipment that is sensitive to low voltages or outages?

If so, an uninterruptible power



supply (UPS) should be part of your custom solution. A UPS uses automatic voltage regulation to boost or reduce voltage to maintain the optimum power level.

Line conditioners and noise filters also are available for more sensitive equipment.

Sometimes a combination of devices is necessary for comprehensive protection. Not all UPS devices offer surge suppression.

Customizing your protection setup will provide the best coverage.

Here are some tips to consider when evaluating your protection needs.

- Start by itemizing the inventory you want to protect.
- Determine the total amount of power your equipment requires.
- Consider manufacturers with a history of quality in electrical products. An Underwriters Laboratory (UL) rating label is recommended.

- Compare performance specifications, based on the definitions at right.

- Consider special features, such as the number of outlets, if you can plug in phone lines or television cables, and the length of the cord.

- Look for instantaneous response time in surge suppressors; a nanosecond response time should be adequate.

Keep in mind it is essential all of your sensitive equipment be protected, because problems can enter your system through any of the wires or cables, including telephone, cable television and electric service.

To determine the total amount of power your equipment requires, look at each piece. The back panel or labels on the equipment should list power consumption ratings.

You will need to convert the values to a single common measurement, such as voltage amperes. ■

Protection Product Specification Definitions

Joule rating is the measure of the amount of energy that surge suppressor can direct away from your equipment. Higher joule ratings mean more protection of your equipment.

Clamping voltage is the initial voltage at which the suppressor begins to conduct. Generally, the lower the clamping voltage, the better the protection.

Let-through voltage is how much of a power surge will be allowed through to connected equipment before it starts clamping.

Many surge protector manufacturers offer a guarantee the unit will protect your equipment. Be sure to understand all of the stipulations for the guarantee, because conditions vary depending on the vendor. ■