

PIQ Quiz Notes

Overvoltage (Surge) Protection Quiz 1

How much do you know about overvoltage issues?

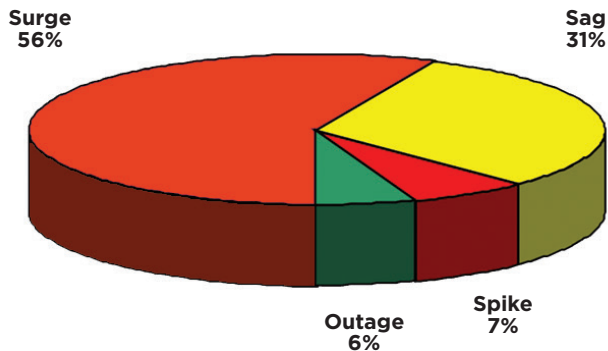
Power-related problems cost US companies more than \$80 billion dollars a year. It affects just about every aspect of business, driving up maintenance and production costs, causing delays, lost sales, late deliveries as well as increased spoilage and scrap.

Questions 1 of 2: Which of the following is the most common cause of power-related problems?

- A. Voltage Spikes, as in sudden increase in the AC Voltage
- B. Surges or transient voltage
- C. Voltage Sags, as in reductions in the AC line voltage
- D. Power outages in which a complete absence of line voltage occurs?

An explanation regarding surges

As you can see from the pie chart, 56% of all power-related problems are caused by surges, also known as a transient voltage. When combined with spikes, these two causes account for more than 60% of the damage caused to electrical equipment.

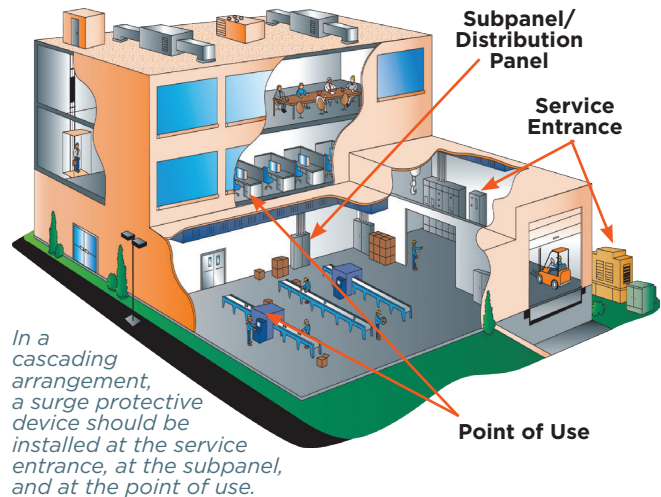


What happens when you don't protect against surges and spikes?

All electrical equipment has physical voltage limitations based on their size or the materials needed to protect them. When the electrical limits of the materials or air spaces of the equipment is exceeded, damage due to short circuits or open circuits causes the equipment to fail and stop operating.

Questions 2 of 2 Where should a surge suppressor be installed?

- A. The service entrance?
- B. A sub-panel or distribution panel?
- C. At the point-of-use or,
- D. All of the above?



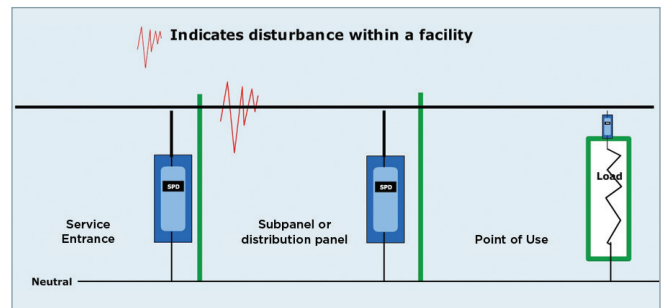
An explanation regarding SPD installation locations

Ideally, surge suppressors should be installed in what is known as a cascading arrangement in order to protect all points of interest. This will give you the maximum surge protection with a minimum amount of hardware investment.

In a cascading arrangement a surge protective device should be installed at the **service entrance**, at the **subpanel or distribution panel**, and at the **point of use**.

The benefit of a cascading arrangement

The benefit of the “cascading arrangement” is the ability to divert large external surge currents at the facilities electrical point of entrance. This setup prohibits excessive surge currents from flowing beyond the service entrance, thus protecting downstream equipment. In addition, since more than 63% of all surges are generated from within the facility, not external, the cascading arrangement positions surge protective devices at two other critical locations — electrical subpanels and point-of-use locations.



Additional Resources

- [Surge-Trap® UL/CSA Surge Protective Devices Brochure](#)
- [Surge-Trap® Quick Selection Chart](#)