



Protecting Against Power Surges

Small businesses, manufacturers, multi-national corporations, research facilities and many other businesses recognize the need to address power surge risks – and the benefits from doing so.

The general approaches to managing power surge risks are relatively straightforward. However, specific applications must be customized to fit the unique needs of diverse operating environments and circumstances. Such applications are most appropriately designed and installed by experienced experts.


The basic tools to minimize the impact of power surges are:

- Installing surge protection against external sources at the point where external power is supplied to the business.
- Making sure all systems have a common “ground” and enter the building within a few feet of each other.
- Keeping communications and low voltage lines away from power cables within the facility and, when possible, having them cross at right angles.
- Having all surge protection at distribution panels within the facility if it includes large motors, welders, etc.
- Adding surge protection for individual pieces of sensitive equipment to the power connection and to any communications lines (e.g., phone cords, Internet cables, coaxial cables – cable television or cable Internet type connections).

Assure Electrical and Telecommunications Systems are Designed and Installed to Minimize Power Disruptions

The appropriate design and installation of the wiring within a facility is extremely important in mitigating surges. A building’s electrical systems need to be properly grounded in accordance with the National Electrical Code (NEC). All telephone, cable and satellite wires need to be bonded to the same grounding point. Communications cables need to be installed with appropriate separation from power cables which can induce surges. Telecommunications rooms need to be wired to minimize electrical disturbances and fitted with electrical equipment, temperature controls and furnishings that dampen the likelihood of disturbances.

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Install Appropriate Surge Suppression Devices

Surge suppression devices regulate the voltage supplied to an electric device, either by blocking or diverting voltages above a safe threshold to ground. Surge suppression devices should be installed in a staged, cascaded or layered manner to divert surges of various strengths at different points within an electrical system.

Surge suppressors installed at the high exposure service entrances, where power enters the facility, establish the first line of defense against high-powered, externally generated surges. These devices address surges caused by lightning, power company grid switching, power system faults, severe weather and neighboring facilities.

The second layer of defense is established by installing surge suppressors at the distribution panel, which distributes power throughout the facility. These surge suppressors protect against high-to-medium surges that may be externally or internally generated. Installing devices at branch panels addresses lower-level surges generated by a wide variety of load equipment, including lightning control, office equipment and industrial systems.

In addition, some equipment and circuits may require special attention. Process control, sensing and monitoring devices may all require individual protection, including plug-in units, installed at the point-of-use locations. Telecommunication and data circuits are extremely vulnerable to relatively low-level surges and need to be protected at the point of entry.

There are several manufacturers of surge suppression devices designed to meet a variety of circumstances and conform to well-developed specifications, guidelines and standards. Selecting the appropriate devices to meet a business's needs obviously depends on performance criteria. Experts, however, emphasize that installation and inspection requirements for devices that fit the business's environment are among the most important factors in selecting appropriate surge protection.

While surge suppression devices are the major tool minimizing surge damage, they cannot prevent damage caused by direct lightning strikes, nor the rarely occurring temporary over-volts cause by severe faults in power company cables.

Install an Uninterruptible Power Supply if Dictated by Operations

Surge suppression devices do not provide back up power. An uninterruptible power supply is an electrical apparatus that provides emergency power when an input power source fails. This device differs from an emergency power system or standby generator in that it provides near-instantaneous protection from input power interruptions for a relatively short period to allow time to properly shut down protected equipment or bring an auxiliary power source on line.

This type of device is typically used to protect computers, data centers, telecommunications equipment or other electrical equipment where an unexpected power disruption could cause injuries, fatalities, serious business disruption or data loss.

Utica National has a wide array of materials available to help you control this type of loss. Visit us on-line at www.uticanational.com or contact your local Risk Management Representative for more information.

Source: Institute for Business & Home Safety (IBHS) – www.disastersafety.org

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