With today's electronics becoming smaller, more sensitive and more expensive no one can escape the need for quality surge protection. Every day hundreds of short duration voltage surges (some potentially larger than 5000 volts) can enter your home or business. These surges are also referred to as "spikes" or "transients". Because they last for a very short time (generally less than 1/1,000 of a second), these surges do not always destroy your equipment. They may be as subtle as a flicker on your computer screen or as catastrophic as the loss of an entire network system. The costliest result of these small surges is the wear and tear they put on all electronics. Your computer-controlled machinery could last up to 30% longer with the proper protection. In fact, most manufacturing equipment, including lathes, inserters, extrusion machines, welders, and robotics now have micro-processor controls. When you look at the cost of replacing all the electronics in a business, not to mention the lost revenue if systems are down, proper surge protection is a common-sense solution.

Lightning is the most recognized cause of power surges. Your local power company is, unfortunately, the most common. Also responsible for voltage spikes are local industrial facilities and even the machines, motors and condensers in your own building. The "2-98" rule states that roughly 2% of the surge related damage to electronics is caused by direct lightning. The remaining 98% comes from other sources.

Proper protection should be divided into two categories: Power and Data/Telecom. When recommending surge protection for electrical power, the focus should be placed on the most recognized standard in the industry (ANSI/IEEE C62.41.2-2002 – Recommended Practices on Characteristics of Surges in Low Voltage (1,000V and Less) AC Power Circuit). This standard divides a building into three categories (A,B,C). Category C is defined as the service entrance or main disconnect. Category B is at the distribution and sub-panel environment and Category A is at individual equipment or wall outlets. Maximum protection requires a surge suppressor at each one of these locations (A,B,C) and minimum protection requires a surge suppressor at two (B,C) of the locations that feed the sensitive load.

Using a basic approach, start at the sensitive equipment and work backwards. For example, if the sensitive equipment is located in an x-ray room and fed from a 225A panel; we would recommend a Category B device on the 225A panel. The voltage configuration will vary depending on the service voltage coming into the panel. If the 225A panel is fed from a 1200A main distribution panel, we would recommend a Category C device at the 1200A panel. The theory involves the Category C device dissipating the majority of the transient, at the main distribution panel. The Category B device will dissipate transient let-through from the Category C device and also, any internally generated transients, such as from inductive load switching. The transient let-through can be dissipated even further by installing a Category A device (plug-in or hard-wire suppressor) at the equipment; however, with two stages of panel protection, clamp levels can be achieved below 300 volts for 120/208 volt applications.

Nothing can give a 100% guarantee of protection when dealing with transient surges. Lightning does not follow UL approved waveforms, and when an open neutral event occurs at your local utility, line voltage can remain at more than twice nominal for several minutes.

Given a proper installation (short, straight leads and a good ground) one level of protection should stop at least 90% of a major surge. The sub-panel protector will see only 10% of the original surge. With a 90% dissipation, there is now less than 1% of the surge left. A third stage of protection will increase the dissipation to 99.9%.

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Transients can easily enter data/network communication lines and damage sensitive electronic equipment, just as they can electric power lines. Some basic information needed before installing data/network surge suppression is:

- Maximum continuous operating voltage (dc) of data lines
- Number and size of wires to protect
- Allowable resistance for communication lines
- Location of communication lines (inside or outside)
- Speed of data (capacitance)
- Type of connections

DITEK products cover an array of power and data/networking applications including service entrance, distribution and sub-panels, individual equipment and communication lines. DITEK manufactures over 1000 surge protection devices to fit virtually any application. Some of the applications our products protect include:

- Electrical Panels (Main and Sub-panels)
- Fire and Burglar Alarm Systems
- Video Surveillance Systems
- Computers Networks and Data Centers
- HVAC and Refrigeration Systems
- Fuel Pumps and Point-of-Sale Equipment
- Residential Whole House protection

Some unique features about DITEK's products are:

- Ten Year Limited Warranty
- High Surge Current handling
- Fast and Easy Installation
- Competitive Pricing and Ontime Delivery
- Compliance with Industry Standards
- Surge Suppression Between All Modes (L-N, L-G, L-L, N-G)

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