FAQs

General Power Information

Should I be concerned about lightning damaging my equipment?
Yes, this is a very real concern. All ESP products have been designed to protect your equipment from the damaging effects of nearby lightning and thunder storms. ESP's products utilize hardened suppression technology capable of withstanding anything that comes down normal building wiring. Your sensitive electronics will not only be protected from damage, as long as the power is on, but protected against operational disruption as well. In the highly unlikely event that ESP's product is overwhelmed by an extreme and unusually severe event, ESP utilizes surge suppression that operate with a response time in the billionths of a second range. In the very worst case, ESP will sacrifice itself, tripping a breaker to turn off the power to protect your equipment.

What is the maximum voltage at an outlet from a lighting strike?
6,000 Volts at an indoor outlet, voltages greater than this arc over before reaching the outlet. ESP's products are designed to withstand thousands and thousands of 6000-volt surges repetitively while continually providing optimal power protection.

Is it important to protect phone and data (network) lines?
Yes, any electrical connect to your equipment is a pathway for high speed transients and high frequency noise into your sensitive micro processor based equipment, whether it is a computer, a printer, a phone system, a server, a scanner, a fax machine or even a refrigerator with an internet connection. All these products and devices have electronic circuits that utilize sensitive semiconductors that can be damaged by surges, spikes and noise. ESP's network and phone options incorporate state-of-the-art protection circuitry specifically designed to coordinate with the unique requirements of communication lines.

What about brownouts or under voltage situations?
Brownouts or under voltage situations are not usually a problem for the types of power supplies found in your sophisticated electronics today. These power supplies are known as "Switch Mode" power supplies or very efficient DC voltage regulators. Digital (micro processor based) technology is powered with DC voltage that needs to be very closely regulated. As a result an entire industry was created to design and manufacture regulated DC power supplies. Therefore it is redundant to put a voltage regulator in front of a voltage regulator. For some types of power supplies, using a voltage regulator could starve the DC voltage regulator inside your equipment. Fast moving transients and high frequency noise will go right through a power supply and right through many types of voltage regulators. The appropriate solution is a industrial/commercial grade power filter.

What causes destructive power line surges?
Transients are normally characterized by high energy, (fraction of a Joule to over 100 Joules), high amplitude, (up to 6000V), single event, (nanosecond to millisecond duration), interference signals that are often damaging in nature. There are many sources of transients including natural sources such as lightning strikes, which induce energy into all conductors of power/communication grids, producing common mode transient interference.

Another source of transients includes large inductive loads, which when switched in and out of the power grid, dump inductive energy onto the power lines in the form of normal mode transient interference which propagates in the same manner as normal mode RFI.

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Transient interference in the normal and common propagation modes can be the source of equipment disruption in mild cases or equipment damage in more severe cases. Thunderstorms and lightning are the most dramatic, but there are many other causes, many of which may be right in your building... These include: electric motors, air conditioners, elevators, microwaves, refrigerators, other office equipment, etc. Even TV, cellular telephone and radio signals can cause power disturbances.

Can these surges and spikes cause damage to my equipment?
Yes, modern, computer controlled office machines can be seriously damaged by voltage surges. High voltage surges can cause catastrophic equipment damage. Lesser surges and noise will degrade electronic components and create unnecessary service disruptions and costly downtime.

Is noise always present or is it intermittent?
In many environments, it tends to be intermittent, such as would occur when an air conditioning unit turns off or on, or when an elevator operates. In a factory environment, it may always be present.

What is electrical noise?
Electrical noise is the presence of any voltage at a frequency other than the operating frequency of the equipment.

We have clean power from our utility company, why do we need ESP?
The utility companies admit that they cannot provide clean, “computer-grade” power, due to external influences on the power distribution system (storms, lightning, equipment failure, grid switching transients, etc.). Electrical distribution is over 100 years old and was built for strong, unsophisticated electro-mechanical equipment not today’s sophisticated, sensitive digital equipment. That's where ESP comes in!