Surge Suppression Basics

[0m:0s]

[0m:4s] Hi I'm Josh Bloom, welcome to another video in the RSP Supply education series. Today we're going to be talking about surge suppression devices. What why are they, why are they so important, and how do they work? Before we get into the devices themselves let's talk about what a power surge actually is. A power surge is basically a spike in voltage that can enter your electrical system. These spikes are typically very brief, lasting no more than just thousands of a second. However, they can still cause damage to any connected devices in the electrical system.

[0m:35s] So, what can cause these power surges?

[0m:38s] The most common cost for these surges is a lightning strike. A lightning strike can affect our electrical system, even if it occurs miles away. Lightning strikes can also affect underground conductors that can transmit that energy into our connected electrical devices and cause damage. Lightning rods and other grounding equipment can help produce the risk of a lightning strike but they do not remove the risk completely from the connected electrical equipment. Another place where we might see these types of surges come from is when we are switching heavy equipment such as motors, transformers, or any other kind of heavy equipment. This switching can cause a change in load, power loss, or disconnection of circuit breakers. It is this sudden switching that can cause the actual Overvoltage leading to a power surge. The closer the switching actually occurs to our electrical system, the greater risk it poses to the equipment itself. There are other operations that can cause power surges such as starting a motor, or opening or closing a circuit breaker, or welding equipment, or things of that nature.

[1m:35s] So why is it so important that we protect against these types of power surges? When surges occur, our electrical system can be compromised and become damaged.

[1m:44s] In many cases, the equipment that we're protecting can be very expensive. Even more importantly, that equipment can be very important in certain operations such as life saving equipment in a hospital, or safety equipment in a refinery, or automation equipment in a manufacturing facility. By taking steps to prevent these types of surges from damaging electrical equipment, we can ensure that vital processes continue. We can also save money by eliminating the need to replace electrical equipment each time a surge occurs. By using a surge suppressor, we can eliminate the majority of the problems we see from these transient surges. It provides this protection by either blocking or shorting the voltage over its operating limit to ground. This will allow the surge suppressor to protect any electrical equipment wired downstream. Surge suppressors are a very cost effective method for protecting expensive electrical equipment. So, where is it that we actually need to use surge suppression devices to protect our electrical equipment? Let's look at this at a few different levels of protection.

[2m:42s] The first level of surge supression that we want to use is going to be located closest to the input power in our electrical system.

[2m:49s] The next level of surge protection that we want to use is going to be where we have branch circuit protection or that we expect the search suppressors to protect multiple devices in a location. The last level of protection is individual protection. In the case of an industrial control panel, this would be for every instrument that is entering the panel would have a surge pressure protection device and also the radio in the panel itself.

[3m:14s] It is very important that we match the type of protection that we are using with the specific application that we intend to use it in. For instance, we would not want to use a level one type protection in a level three application. So, just remember surge suppressing devices are a very affordable way to protect potentially very expensive electrical equipment.

[3m:35s] For a full line of surge suppression devices and thousands of other products, please go to our website. For more information or other educational videos, go to RSPSupply.com, the Internet's top source for industrial hardware. Also, don't forget: like and subscribe.


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