

Q: I need a 240V SurgeX but I'm not sure whether to order your SXN-240 or the SXN-1240. Can you advise me?

A: If this is for a domestic US application you will almost certainly need the SXN-240. The SXN-1240 is a single-phase unit primarily designed for overseas applications where there is 240V between the hot wire and neutral. Most 240V US electric services are center-tapped (120-0-120V) or to put it another way: provided by two 120V services which are 180 degrees out of phase. The SXN-240 is designed for these domestic applications and contains two protection modules – one for each of the two hot wires. The SXN-1240 contains a single 240V protection module and should not be used with dual-phase services. The SXN-240 is also the model you should use with 208V services. One final note: although not required for code, the SXN-240 must have a neutral connection.

Q: Do you have 240V, 208V or Three-Phase units?

A: We have both dual-phase and single-phase 240V products in NEMA enclosures capable of handling 20 amps. The dual phase unit can be used with dual-phase 240V or two-phase 208V (as far as SurgeX is concerned, a 3-phase service is nothing more than three 120V services 120 degrees out-of-phase). We don't have a specific product for 3-phase service, but we do offer custom manufacturing for NEMA units, and can build multiple SurgeX protection modules into NEMA enclosures to suit a customer's application. However, all SurgeX products must have a neutral connection, so a five wire connection would be required: the three phases, neutral and ground.

Q: I thought that lightning involved millions of volts of electricity and tens of thousands of amps of current. You say that SurgeX will protect equipment under any surge conditions, but your spec is only 6000 volts and 3000 amps. Is there something I'm not understanding here?

A: The reason for this apparent anomaly is the fact that we are not attempting to protect equipment sitting exposed on a hill. We are protecting equipment inside a building where surges are transmitted to equipment via the building wiring. Several years ago the Institute of Electrical and Electronic Engineers (IEEE) compiled research on lightning induced surges outside and inside buildings. The results of this research is documented in C62.41-1991, and it is from this document that the 6000 volt, 3000 amp spec is taken. The essence of what the IEEE found was that, due to arc-over at the service entrance and within the building wiring, the worst-case surges that would be found at an outlet were 6000 volts, 3000 amps with 90 Joules of energy. This was the design goal for SurgeX, and these figures are also used by UL for the Adjunct Endurance Testing and by the federal government for their surge protector Commercial Item Description (CID). The SurgeX surge protection technology was designed to handle these surges, and this has been verified by UL for 1000 such surges.

Q: Do you have “whole house” surge protectors?

A: In a word... no. We recommend that SurgeX units are placed close to the equipment to be protected. This is because long wires can pick up surges and transients by magnetic coupling,

and also because this strategy protects the equipment from transients generated within a building. Conventional shunt mode surge suppressors (such as MOV based products) require a really solid ground and a short connection to the ground stake to work effectively. For this reason they have to be near the service entrance, but this is probably not where the equipment is located.

Q: Can I control the SX2120-SEQ from the 120V ac output of another product?

A: You can't directly control the SEQ by using 120V ac, but if you use a 12V dc wall transformer to convert from 120V ac to 12V dc then you can control the SEQ. Set the SEQ control input for "Applied Voltage" in the programming section and away you go. By the way, very little current is required to control the SEQ so you can use the smallest wall transformer you can find.

Q: Can I use SurgeX in combination with other types of surge suppressors?

A: There is one case where we would make a recommendation: that SurgeX is not plugged into a conventional MOV based surge suppressor. This is not because anything would blow up or not work, it is simply because MOV based surge suppressors contaminate ground, and once ground is contaminated you can't un-contaminate it! One of the benefits of SurgeX is that it doesn't contaminate ground. Plugging a SurgeX into an MOV based surge suppressor would be like buying bottled water and then running it through lead pipes.

Q: I have a UPS which has its own surge protection. I don't need SurgeX on this application, right?

A: Wrong! Open up your UPS and you'll find MOVs inside. During the summer of 2000 we heard about two local internet providers that each had facilities down for a couple of days because their UPS got hit by a lightning surge. Play it safe, protect your UPS by plugging it into a SurgeX!

Q: You don't publish a response time in your specs. I'd like to know SurgeX's response time.

A: We don't publish a response time because this is associated with active components like MOVs, avalanche diodes etc. – parts that have to "switch on". SurgeX uses a combination of passive and active technologies which slow down the surge so that circuit response time is not a factor. SurgeX uses a large inductor, called a surge reactor, in series with the hot wire. An inductor is coiled copper wire, and copper wire has no "turn-on" time or "response" time. The fact that we use transistors and SCRs in our products is not an issue regarding response time because these parts follow the surge reactor which slows down all surges and transients. So parts which do have a finite turn-on time like SCRs can respond to slowed-down surges and transients without any problem. If they didn't, SurgeX wouldn't pass the 1000-surge Endurance Test with such a low let-through voltage.

Q: I purchased a SurgeX but I am not able to plug it into a standard 120V outlet. The plug on your unit has one blade turned at an angle. Why is this?

A: You have purchased one of our 20 amp products. A “standard” 120V receptacle is only rated for 15 amps. 20 amp plugs and receptacles have the neutral blade turned 90 degrees to prevent a 20 amp plug from being inserted into a receptacle that is not rated for 20 amps. You will need to get a licensed electrical contractor to install a 20 amp service and receptacle.