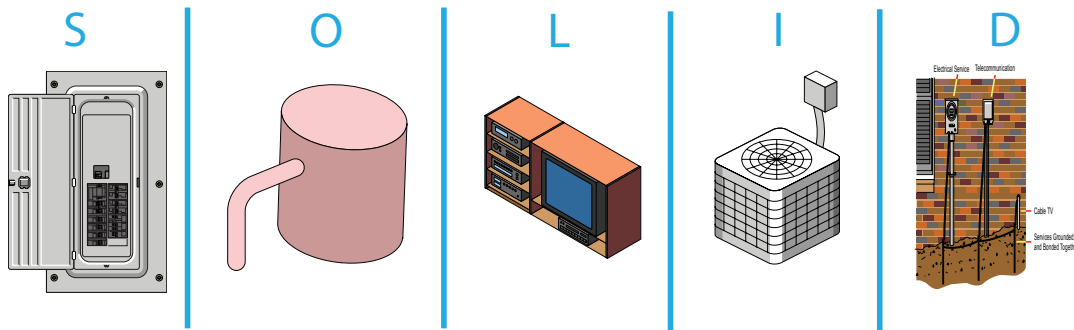
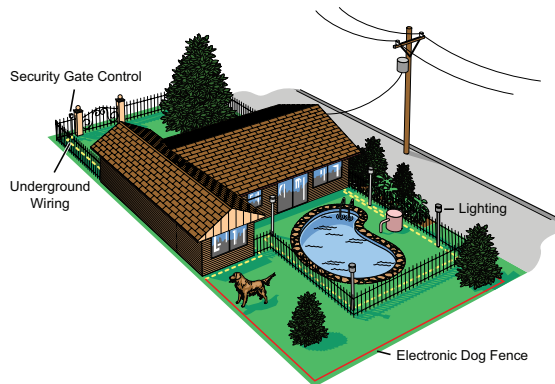


Single Family Home



IN TODAY'S ELECTRONIC WORLD, electrical systems for the home or business just aren't complete unless they incorporate surge protection. The most effective way to defend and safeguard this environment against damaging surges is by hardwiring surge protective devices (SPDs) throughout the electrical distribution system.

Ideally, every electrical panel should be surge protected, however, this may not be practical or feasible. Proven surge protection practices do not have to be complicated or costly. All that is required to effectively surge protect your facility is to answer the following questions:

1. Where should hard wired SPDs be installed on the electrical system?
2. What size and type SPD should be used?

Government studies suggest that the most efficient way to surge protect an electrical system is by applying hardwired surge protective devices at the main incoming

electrical and communications services. Additional hardwired suppressors were recommended to prevent backfed surges that could bypass the primary electrical service SPD. Also, localized equipment SPDs are recommended to protect against residual and internally generated surges.

Following these practices, 5 common SPD electrical systems installation points can be identified. Applying surge protection at these points will maximize a facility's surge immunity. These locations can easily be remembered by using the following acronym, "The best surge protection installation is a S.O.L.I.D. one." Where S.O.L.I.D. stands for the following:

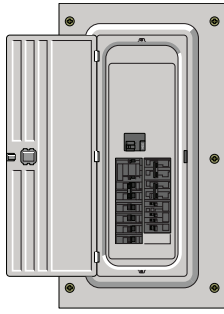
- Service Entrance
- Outside loads powered from distribution panels
- Lower voltage distribution panels
- Individual critical equipment
- Data, telephone, and coaxial cables

The following example applies S.O.L.I.D. SPD protection to a Single Family Home's electrical system. Listed to the side are SPDs with appropriately sized redundancies that we have found over the years to provide years of uninterrupted protection.

TPS3 Design Guide

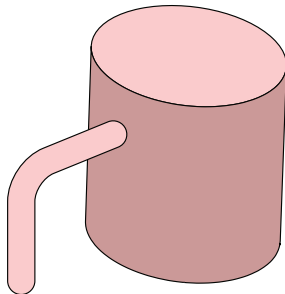
TPS3 DESIGN GUIDE

Surge Protecting a Single Family Home



Service Entrance

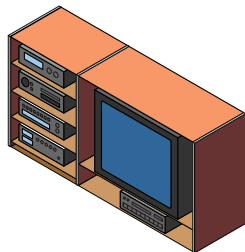
Applying surge protection at the incoming electrical service "Stops Surges Before They Get In."



Pool Filtration

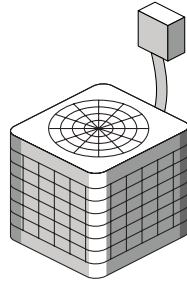
Outside Loads

SPDs should be installed at remote workshops or guest houses, or at panels that supply external loads to prevent back feeding surges entering the main building.



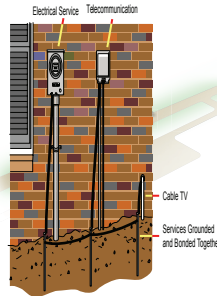
Lower Voltage Panels

The standard 120V service may supply control panels connected to equipment operating at lower voltages. These control panels need SPDs to condition residual surges leaving the service entrance SPD as well as any internally generated surges. Examples could be lighting control panels, home theater controls, or any other panel powering sensitive electronics.



Individual Equipment

Even if surge protection is applied at the previous locations, redundant protection maybe warranted for sensitive, costly equipment. This may include the use of plug-in surge protectors for audio-visual equipment.



Data Lines

Security, fire alarm, telephone, and cable systems using copper communications lines need protection especially for incoming cable and telephone services.

Siemens TPS3 SOLID Solutions

SERVICE ENTRANCE

External SPD

Internal SPD



TPS30910

QSA2020

OUTSIDE LOADS

External SPD

External SPD



TPS30910

TPS30350

LOWER VOLTAGE PANELS

Internal SPD

External SPD



Plug-in SPD

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INDIVIDUAL EQUIPMENT

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External SPD



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DATA LINES

External SPD



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