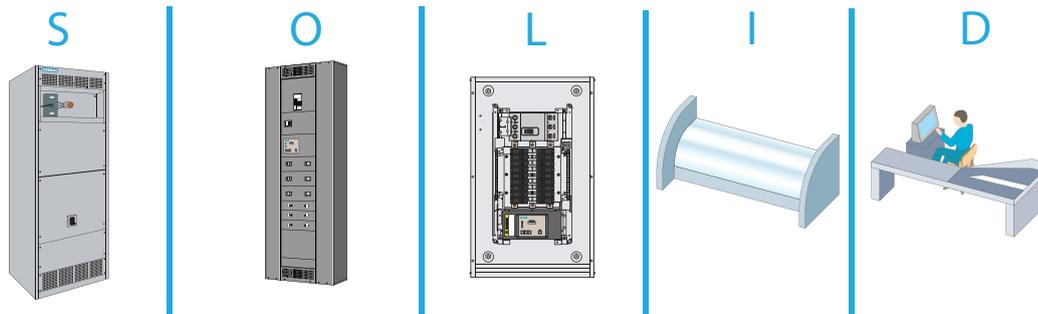


# Retail Store



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 Retail Store'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 Retail Store



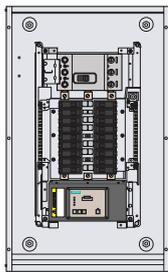
### Service Entrance

Applying surge protection at the incoming electrical service “Stops Surges Before They Get In.” These types of surges contain the largest surge energy warranting 300 kA or more of surge current redundancy.



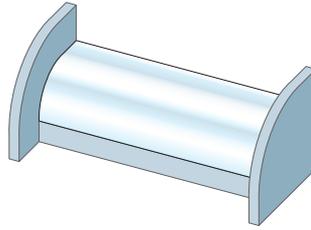
### Outside Loads

SPDs should be installed at distribution panels feeding portable generator, roof top air conditioning, parking lot lights, etc. to prevent back feeding surges entering the main building.



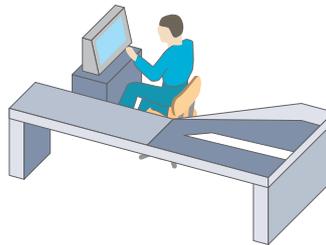
### Lower Voltage Panels

If the store is supplied with a higher system voltage (i.e. a 277/480V service), 120V panels need SPDs to condition residual surges leaving the service entrance SPD as well as any internally generated surges. Examples could be panels powering refrigeration, kitchens, or any other panels powering sensitive electronic locations.



### Individual Equipment

Even if surge protection is applied at the previous locations, redundant protection maybe warranted for sensitive, costly equipment. This may include refrigeration and point-of-sale (POS) systems.



### Data Lines

Security, fire alarm, and telephone systems using copper communications lines need protection especially for communication circuits from servers to POS systems.

## Siemens TPS3 SOLID Solutions

### SERVICE ENTRANCE

Internal SPD



TPS30630  
Increased Redundancy  
TPS3L630

External SPD



TPS31230  
TPS3L1230

### OUTSIDE LOADS

Internal SPD



TPS30520  
Increased Redundancy  
TPS3L520

External SPD



TPS31220  
TPS3L1220

### LOWER VOLTAGE PANELS

Internal SPD



TPS30115  
Increased Redundancy  
TPS3L115

External SPD



TPS31115

### INDIVIDUAL EQUIPMENT

External SPD



TPS30910

External SPD



TPS30350

### DATA LINES

External SPD



TPS30350



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