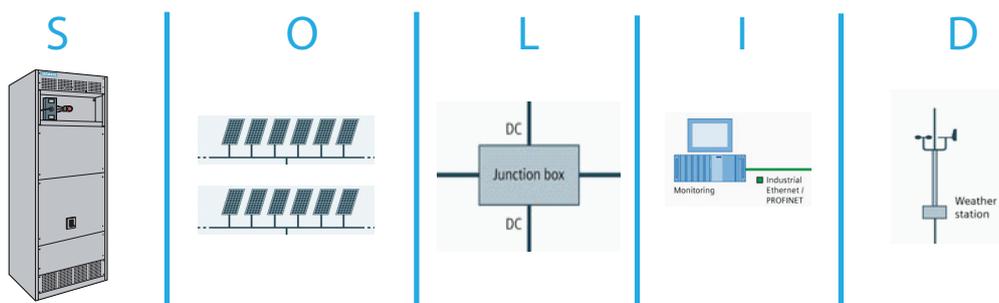
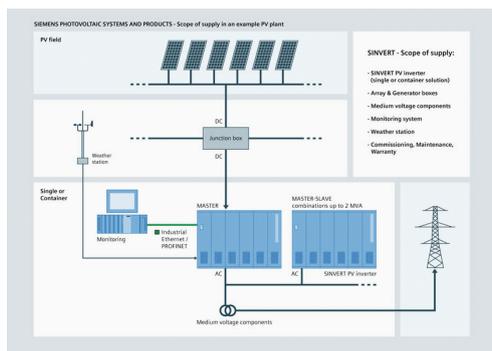


# Solar Farm



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 Solar Farm'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

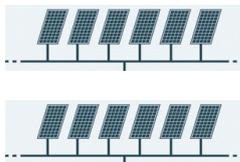
# TPS3 DESIGN GUIDE

## Surge Protecting a Solar Farm



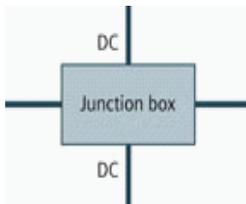
### Service Entrance

Applying surge protection at the main utility electrical service interconnects “Stops Surges Before They Get In” to the photovoltaic (PV) modules or DC-to-AC converters.



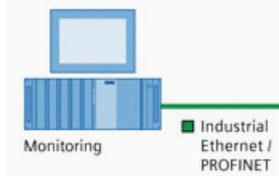
### Outside Loads

SPDs should be installed at distribution panels powered from PV panels to prevent back feeding surges entering the main service interconnect.



### Lower Voltage Panels

This may require surge protection to be installed within the PV combiner box. Siemens AC TPS surge protective devices can easily be reconfigured for DC services.



### Individual Equipment

If surge protection is applied at the previous locations, redundant protection may be warranted for sensitive, costly equipment. This may include PV controllers, power monitors, etc.



### Data Lines

Security, fire alarm, and telephone systems using copper communications lines need protection especially for communication circuits including weather or seismic stations.

## Siemens TPS3 SOLID Solutions

### SERVICE ENTRANCE

Internal SPD

External SPD



TPS30630  
Increased Redundancy  
TPS3L630

TPS31230  
TPS3L1230

### OUTSIDE LOADS

External SPD

External SPD



TPS30910

TPS30350

### LOWER VOLTAGE PANELS

External SPD

External SPD



TPS30910

TPS30350

### INDIVIDUAL EQUIPMENT

External SPD

External SPD



TPS30910

TPS30350

### DATA LINES

External SPD



TPS30350

Call TPS Group  
1.888.333.3545

Siemens Canada Limited  
1550 Appleby Line  
Burlington, ON L7L 6X7

SPD Hotline: 888.333.3545  
info@purgethesurge.ca

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