

Surge Protection Devices (SPD)

Recommending Surge Protection

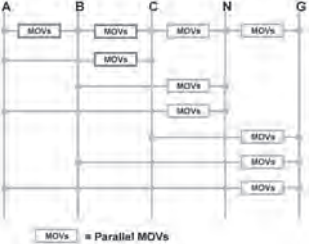
SOLID Protection

Either at home or in the work place, nearly every electrical load is electronic infused. With electrical infrastructure being the same as it was 50 years ago, equipment is more susceptible to surge damage and/or disruption generated by normal electrical distribution interactions. Places where lightning activity is minimal are now experiencing more electronic failures due to surges generated by the day to day operations of equipment like washers and dryers, copiers, chillers, etc. In response to this susceptibility, code authorities have mandated emergency power distribution equipment now must be protected by a listed SPD.

The reasoning is based upon anecdotal understating that surge protected systems are more reliable. Supported by government studies, the most efficient way to protect electrical systems from surges is through the installation of hardwired SPDs at key points throughout the distribution system. These locations can easily be remembered by memorizing the locations of the acrostic found within the following phrase, "The best surge protected system is a SOLID one," where each letter of the word SOLID stand for the locations on the electrical system where SPDs should be installed.

The illustration to the right shows "SOLID" locations for a school's electrical system. Under each 'SOLID' location is a Siemens TPS3 model number with surge current capacities matching those to what are typically specified by consultants across North America.

S  TPS30620 or TPS31220	O  TPS30515 or TPS31215	L  TPS30110 or TPS31110	I  TPS31110 or TPS30910	D  TPS30350 or Call TPS Group
Service Entrance	Outside loads like Parking Lot Lighting powered from distribution panels	Lower voltage distribution panels powering computers and other electronics	Individual critical equipment like servers	Data, telephone, and coaxial cables

Surge Arrestor Replacement		Discrete, True, or L-L Enhanced 10 Mode Style SPDs	
 TPS3 03 Type 1 SPD with In = 20kA	Low-voltage surge and lightning arrestors became obsolete when UL 1449 3rd edition went into effect in 2009. They were replaced with Type 1 SPDs having an I-nominal (In) rating equal to 20kA. Most all Siemens TPS3's are rated as Type 1, In = 20kA SPDs. However, the style and form factor of traditional surge arrestors is best replaced using our TPS3 03.		For mission critical or high profile applications, a growing number of end users prefer the assurance discrete or true 10-mode SPDs provide. When surges traverse the electrical system via phase to phase conductors, standard SPDs indirectly protect via the line to neutral or line to ground modes of protection. Siemens integral or wall mounted "Discrete," "True," or L-L Enhanced 10-mode SPDs address L-L surges by incorporating directly connected line to line surge protection elements. This style of SPD provides the "Just in Case" assurance mission critical or high pro-file projects require.

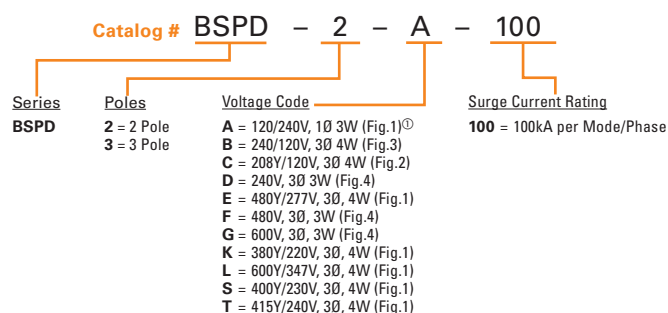
BoltShield™ Surge Protective Devices

BSPD – Commercial Surge Protection for Panel Boards

Catalogue Logic

BSPD series for panelboards

Ordering Information



Product specifications

General specifications	
Maximum surge current rating range	100 kA per phase
UL Type designation	SPD Type 1 ^②
UL 1449 I-nominal rating	20kA
UL 1449 short circuit current rating	200kA
Repetitive impulse	5,000 hits
Response time	<1 ns

Diagnostic monitoring specifications
Green/red visual mechanical flag failure indicators
Flashing dual color LED (green/red) status indicator
Audible alarm with silence switch/button
Form C dry contact, 240V AC, 1A max, 48V DC, 0.5A max

Design specifications
Monolithic distribution grade MOV
Integrated optimized thermal protection
Fits in footprint of BL/BQD, or xGB/3VA41 ^③
Modes of protection (L-N or L-G, L-L)

BSPD Catalog Numbers and UL 1449 performance data

Catalog numbers	System voltage	L-N (L-G)	L-L	I _n	SCCR	MCOV	Siemens breaker form factor
BSPD2A100 ^①	120/240V, 1Ø, 3W	600V	900	20kA	200kA	150V	2-P, BL/BQD or xGB/3VA41
BSPD3B100	240/120V, 3Ø, 4W	600V/800V	1200	20kA	200kA	150V	3-P, BL/BQD or xGB/3VA41
BSPD3C100	208Y/120V, 3Ø, 4W	600V	900	20kA	200kA	150V	3-P, BL/BQD or xGB/3VA41
BSPD3D100	240V, 3Ø, 3W	800V	1500	20kA	200kA	280V	3-P, BL/BQD or xGB/3VA41
BSPD3E100	480Y/277V, 3Ø, 4W	1000V	1800	20kA	200kA	320V	3-P, BL/BQD or xGB/3VA41
BSPD3F100	480V, 3Ø, 3W	1800V	3000	20kA	200kA	550V	3-P, BL/BQD or xGB/3VA41
BSPD3G100	600V, 3Ø, 3W	2000V	4000	20kA	200kA	700V	3-P, BL/BQD or xGB/3VA41
BSPD3K100	380Y/220V, 3Ø, 4W	900V	1800	20kA	200kA	320V	3-P, BL/BQD or xGB/3VA41
BSPD3L100	600Y/347V, 3Ø, 4W	1200V	2500	20kA	200kA	400V	3-P, BL/BQD or xGB/3VA41
BSPD3S100	400Y/230V, 3Ø, 4W	900V	1800	20kA	200kA	320V	3-P, BL/BQD or xGB/3VA41
BSPD3T100	415Y/240V, 3Ø, 4W	900V	1800	20kA	200kA	320V	3-P, BL/BQD or xGB/3V

Benefits of installing multiple BSPDs

Adding multiple BSPDs in a single panelboard can increase modes of protection and a surge capacity. See the BoltShield brochure for more details and review an example chart below:

Number of BSPDs	Connection	Modes of protection	Surge current capacity per mode	Surge current capacity per phase
1	Neutral	3	100kA	100kA
2	Neutral + Ground	6	100kA	200kA
2	Neutral(2)	3	200kA	200kA
3	Neutral(2) + Ground(1)	6	200kA(L-N) + 100kA (L-G)	300kA
3	Ground(3)	3	300kA	300kA
4	Neutral(2) + Ground(2)	6	200kA	400kA

^① Can also be used on 208Y/120V, 1Ø, 3W system.
^② Type 1 SPDs suitable for use in Type 2 applications.

^③ Each SPD comes with an adapter for xGB/3VA41 applications. Replacement adapter kit BSPDXGB1 is available, containing 2 and 3 pole adapters (1 each).