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Internally Mounted SPDs



Features

- Per Phase Surge Current Capacity ranging from 100 kA to 500 kA
- Industry best VPRs
- I_n = 20 kA (most models)
- Across the board UL 96A compliance (most models)
- Ground Reference Monitoring (GRM) diagnostics

External or Wall Mounted SPDs



Features

- Per Phase Surge Current Capacity ranging from 50 kA to 1000 kA
- Industry best VPRs
- I_n = 20 kA (most models)
- Across the board UL 96A compliance (most models)
- Ground Reference Monitoring (GRM) diagnostics (excluding TPS3 03 & TPS3 09)

Residential SPDs



See pages 10-9 – 1-52

Features

- Per Phase Surge Current Capacity of 40, 50, 60, 100 or 140 kA
- Complete Service Protection for
  - Power
  - Telephone
  - Coax
- Ground Reference Monitoring (GRM) diagnostics

Introduction

In today's electronic world, home and business electrical systems just aren't complete unless they incorporate surge protection. **Stopping Surges Before They Get Into** these systems is best accomplished through the installation of appropriately sized hard-wired surge protective devices (SPDs) beginning at the incoming service followed by installations at other key surge entry points.

When Siemens first developed the Transient Protection System (TPS) family of surge protectors, we knew early on that hard-wired surge protectors needed fully coordinated safety controls. This led to the adoption of a number of SPD industry safety control firsts including the patented Ceramgard and TranSafe circuitry, coordinated fusing and thermal cutouts, dielectric isolation, mechanical re-enforcing taping, etc… resulting in a design that ensures the highest possible electrical system surge protection and reliability.

Our next generation UL 1449 4th Edition TPS SPDs carry on this same legacy. Every TPS is infused with Siemens engineering safety and performance "know-how." Siemens SPDs have the highest degree of safety while delivering the industry's best performance ratings – some of the lowest Voltage Protection Ratings (VPRs), Type 1 or 2 and 20 kA I-nominal ratings (for most models) with surge current ratings from 50 to 1000 kA.

The BoltShield line of SPDs helps address the changing NEC codes that require surge protection in all dwellings. The Siemens BoltShield family of residential and commercial products allows this to be done easily and at a reasonable cost.

Electrical disturbances will always occur, but they don't have to cause surge protectors to fail in an unsafe manner. Safer surge protection means uncompromised electrical system **protection, safety, and reliability.**

The following pages provide additional technical and ordering information concerning our entire offering of surge protection devices.

Surge Protector Per Phase Surge Current Capacities

Internal and Wall Mounted Standard Mode

Per Phase Surge Current	TPS3 01	TPS4 01	TPS3 02	TPS3 03	TPS3 03 DC	TPS3 05	TPS4 05	TPS3 06	TPS4 06	TPS3 09	TPS3 11	TPS3 12	TPS3 15
50 kA													
100 kA													
150 kA													
200 kA													
250 kA													
300 kA													
400 kA													
500 kA													
600 kA													
800 kA													
1000 kA													

10 Mode SPDs

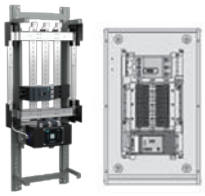
Per Phase Surge Current	TSP3 L1	TSP4 L1	TPS3 L2	TPS3 L5	TPS4 L5	TPS3 L6	TPS4 L6	TPS3L 12	TPS3L 15
100 kA									
150 kA									
300 kA									
450 kA									
500 kA									
550 kA									
600 kA									
750 kA									
900 kA									

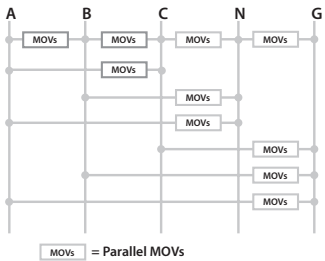
SOLID Protection

Either at home or in the work place, nearly every electrical load is electronic infused. With today's power quality 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 TPS model number with surge current capacities matching those to what are typically specified by consultants across North America.

S	O	L	I	D
				
TPS30620 / TPS40620 or TPS31220	TPS30515 / TPS40515 or TPS31215	TPS30110 / TPS40110 or TPS31110	TPS31110 or TPS30910	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 or True 10 Mode Style SPDs	
 **TPS3 03 Type 1 SPD with I_n = 20 kA**	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 (I_n) rating equal to 20 kA. Most all Siemens TPS3s are rated as Type 1, I_n=20 kA 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" or "True" 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 profile projects require.

BSPD series for panelboards

Ordering Information

Catalog # BSPD – 2 – A – 100

Series	Poles	Voltage Code	Surge Current Rating
BSPD	**2** = 2 Pole **3** = 3 Pole	**A** = 120/240V, 1Ø 3W (Fig.1)① **B** = 240/120V, 3Ø 4W (Fig.3) **C** = 208Y/120V, 3Ø 4W (Fig.2) **D** = 240V, 3Ø 3W (Fig.4) **E** = 480Y/277V, 3Ø, 4W (Fig.1) **F** = 480V, 3Ø, 3W (Fig.4) **G** = 600V, 3Ø, 3W (Fig.4) **K** = 380Y/220V, 3Ø, 4W (Fig.1) **L** = 600Y/347V, 3Ø, 4W (Fig.1) **S** = 400Y/230V, 3Ø, 4W (Fig.1) **T** = 415Y/240V, 3Ø, 4W (Fig.1)	**100** = 100kA per Mode/Phase



BSPD Series

Product specifications

General specifications	
Maximum surge current rating range	100 kA per phase
UL Type designation	SPD Type 1②
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/3VA41③
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
BSPD2A100①	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).

QSPD series for load centers

Ordering Information

QSPD catalog number logic

QSPD – 2 – A – 065

Series	Poles	Voltage Code	Surge Current Rating
QSPD	**2** = 2 Pole **3** = 3 Pole	**A** = 120/240V, 1Ø 3W (Fig.1)① **B** = 240/120V, 3Ø 4W (Fig.3) **C** = 208Y/120V, 3Ø 4W (Fig.2) **D** = 240V, 3Ø 3W (Fig.4)	**065P** = 65kA per Mode/Phase in retail blister pack packaging

QSPD-Base catalog number logic

QSPD – 2 – A – 035B

Series	Poles	Voltage Code	Surge Current Rating
QSPD	**2** = 2 Pole	**A** = 120/240V, 1Ø 3W (Fig.1)①	**035B** = 35kA per Mode/Phase



QSPD Series



QSPD-Base

Product specifications

General specifications	QSPD	QSPD-Base
Maximum surge current rating range	65kA per phase	35kA per phase
UL Type designation	SPD Type 1②	
UL 1449 I-nominal rating	20kA	
UL 1449 short circuit current rating	200kA	22kA
Repetitive impulse	5,000 hits	
Response time	<1 ns	

Diagnostic monitoring specifications	QSPD	QSPD-Base
Green/red visual mechanical flag failure indicators	√	√
Flashing dual color LED (green/red) status indicator	√	—
Audible alarm with silence switch/button	√	—
Design specifications	**QSPD**	**QSPD-Base**
Monolithic distribution grade MOV	√	√
Integrated optimized thermal protection	√	√
Fits in footprint of Siemens QP breaker	√	√
Modes of protection (L-N or L-G, L-L)	√	√

QSPD 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
QSPD							
QSPD2A065P③	120/240V, 1Ø, 3W①	600V	1000	20kA	200kA	150V	2-P, QP
QSPD3B065	240/120V, 3Ø, 4W	600V/900V	1200	20kA	200kA	150V	3-P, QP
QSPD3C065	208Y/120V, 3Ø, 4W	600V	1000	20kA	200kA	150V	3-P, QP
QSPD3D065	240V, 3Ø, 3W	900V	1500	20kA	200kA	280V	3-P, QP
QSPD-Base							
QSPD2A035B	120/240V, 1Ø, 3W①	700V	1200	20kA	22kA	150V	2-P, QP

Benefits of installing multiple QSPDs

Adding multiple QSPDs in a single load center can increase the modes of protection and the surge capacity.

See the Boltshield brochure for more details and review the example chart below:

			Multiple QSPD		Multiple QSPD-Base	
No. of QSPDs or QSPD-Bases	**Connection**	**Modes of protection**	**Surge current capacity per mode**	**Surge current capacity per phase**	**Surge current capacity per mode**	**Surge current capacity per phase**
1	Neutral	3	65kA	65kA	35kA	355kA
2	Neutral + Ground	6	65kA	130kA	35kA	700kA
2	Neutral	3	130kA	130kA	70kA	70kA
3	Neutral(2) + Ground(1)	6	130kA(L-N) + 65kA (L-G)	195kA	70kA(L-N) + 35kA (L-G)	105kA
3	Ground	3	195kA	195kA	105kA	105kA
4	Neutral(2) + Ground(2)	6	130kA	260kA	70kA	140kA

① Can also be used on 208Y/120V, 1Ø, 3W system.
② Type 1 SPDs suitable for use in Type 2 applications.
③ QSPD2A065P comes in retail style blister pack packaging.

FirstSurge™ Total Home Surge Protection



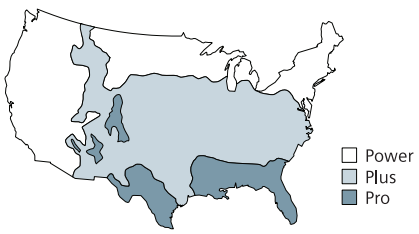
Total Home Protection

Siemens believes today's residential surge protectors come up short when protecting today's modern home filled with smart appliances and electronics. This is why we developed our FirstSurge™ commercial class total home surge protectors. These electrical system surge protectors are sized for where you live. They will let you know when there is something wrong or when they are worn out.

Based upon thunderstorm frequency, geographic location, and home size, we developed a surge exposure map correlating with FirstSurge™ current capacities known to provide years of protective service for each shaded area.

Sized For Where You Live

Model	Surge Capacity
FirstSurge™ Power (FS060)	60,000 A
FirstSurge™ Plus (FS100)	100,000 A
FirstSurge™ Pro (FS140)	140,000 A



Know You're Protected: 3 Stage Commercial Grade Notification

When there is a problem, Siemens FirstSurge™ takes the guesswork out of knowing when it is time to be replaced. What will you see and hear when this occurs?

Audible Alarm:	Beeps
Green LED(s):	Extinguish
Red Service Light:	Flashes

Ground Reference Monitoring (GRM)

FirstSurge™ is GRM-equipped notifying you a rare safety hazard exists due to a compromised electrical system neutral to ground bond. What will you see and hear when this occurs?

Audible Alarm: Beeps
Green LED(s): Remains Lit
Red Service Light: Flashes



Features & Benefits

- UL 1449 Listed, Type 2, Surge Protective Device (SPD)
- Rated for 120/240 split phase panels up to 400A
- Surge Current Capacities:
  - 60,000 A
  - 100,000 A
  - 140,000 A
- 3 Stage Commercial Grade Notification
- Ground Reference Monitoring (GRM)
- Installs onto any brand load center
- Type 4 rated outdoor enclosure
- 10 year product and connected equipment warranty*

**See warranty for details*

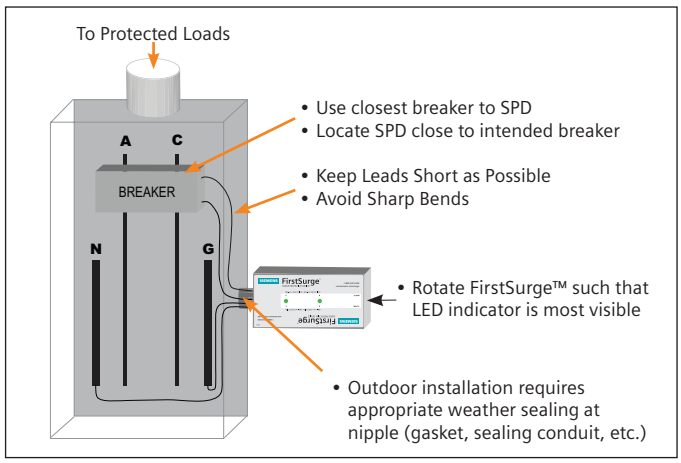
Technical Specifications	
Surge Spike Capacity	FirstSurge™ Power (FS060) 60,000 A
	FirstSurge™ Plus (FS100) 100,000 A
	FirstSurge™ Pro (FS140) 140,000 A
Line Voltage	120/240 Split Phase, 50/60 Hz
UL 1449 3rd Ed VPR	L-N: 600 V
	L-G: 600 V
	N-G: 600 V
	L-L: 900 V
Rated Voltage (MCOV)	150V – L-N, L-G, and N-G; 300V – L-L
Response Time	<1 nanosecond
Enclosure	NEMA 4X Indoor and Outdoor Rated
Selection Information	
FirstSurge™ Power	**FS060**
FirstSurge™ Plus	**FS100**
FirstSurge™ Pro	**FS140**
FirstSurge™ Flush Mount Kit	**XMFMKIT**

Installation Instructions:

FirstSurge™ is a Type 2 SPD. It is suitable for use down-stream of the service disconnect.

Pre-Plan your installation. You need to accomplish the following:

- Meet all National and Local codes (NEC® Article 285 and UL 1449 address SPDs).
- Confirm System voltage to SPD voltage (120V SPD will fail instantly on 240V, 277V, etc.).
- Mount SPD as close to panel or equipment as possible to keep leads short. (long leads hurt performance).
- Ensure leads are as short and straight as possible, including neutral and ground. Use a breaker position that is close to the SPD and the panel's neutral and ground.
- Recommended breaker size is 20A.
- Make sure system is grounded per NEC® and clear of faults before energizing SPD. (inadvertent system problem may fail SPD).
- Never Hi-Pot test Any SPD. (will prematurely fail SPD).



1. Use voltmeter to check voltages and ensure correct SPD. See Data Sheet for specs and wire-outs.
2. Determine Mounting location – weather resistant equipment may be required.
3. If SPD has optional Flush Mount Kit, pre-plan its installation. See Figure 3. (If flush mounting, be careful to not drop SPD into wall).
4. Remove power from panel/source. Confirm panel/source is deenergized.
5. Identify breaker location and SPD location. Position SPD such that LEDs are best visible. If Flush Mount Kit was ordered, follow Flush Mount instructions and then proceed at #6.
6. Mount SPD – weather resistant applications require additional sealing, etc. (not included)
   – Remove an appropriately sized knockout from panel.
   – Connect conductors as appropriate – short and straight as possible.
7. Label or mark conductors as appropriate (neutral: white, ground: green, energized: black).
8. Make sure system is bonded per NEC® and is clear of hazards or faults before energizing (N-G bonding not per NEC® will fail SPDs: #1 cause of SPD failures).
9. Energize and confirm proper operation of green LED indicators. If any connected phase LED does not illuminate, remove power, check all connections and test again. If any connected phase LED still does not illuminate, contact Siemens Technical Support at: 1-888-333-3545.
10. The SPD is equipped with an audible alarm which will sound in the event of an alarm condition. This indicates a problem with the SPD which requires further evaluation. There is no test or silence switch. De-energizing the SPD will silence the alarm.

TPS3 01 and TPS3 L1 (True or Discrete 10-Mode)

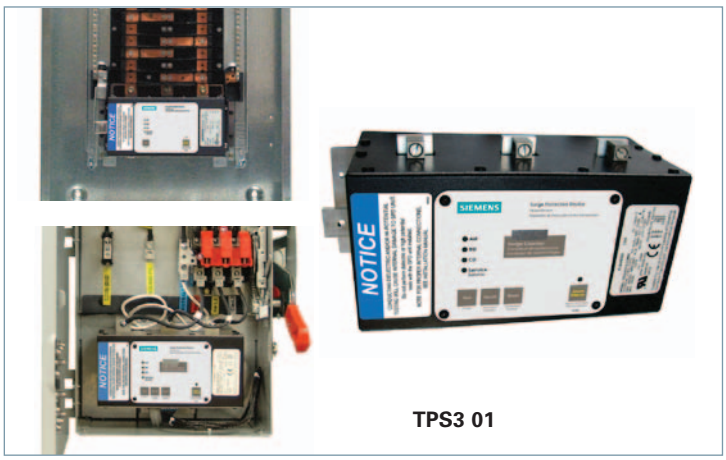
Siemens TPS3 01 and L1 surge protective devices are designed for integration within our P1, P2, and P3 power distribution panel boards, as well as TIASTAR motor control centers and busway systems. The TPS3 01 and L1 SPDs feature Ground Integrity Monitoring (GIM) diagnostics

TPS3 01 and TPS3 L1 Key Features

- UL 1449-4 Type 2 SPD and UL 1283 Listed
  – Optional UL 1449 4th Edition Listed Type 1
- Type 1 / Type 2 SPD
- 100 - 300 kA Per Phase Surge Current
- 20 kA I_n (Most models)
- 200 kA SCCR (Most models)
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- Large block, individually fused, thermally protected, 50kA MOVs
- Every MOV is monitored, including N-G
- Mounts internal to:
  – P1, P2, and P3 panels
  – TIASTAR motor control centers – standard 6"bucket
  – STP series busplug on SX series busway
- Consult factory for field retrofit in P1 panels
- Modes of Protection: L-N, L-G, N-G, and L-L
- All UL required OCP & safety coordination included
  – Type 1 SPDs intended for Line or Load side of Main Disconnect
  – Type 2 SPDs intended for Load side of Main Disconnect
- Standard Monitoring: LED Indicators, Surge Counter, Dry Contacts, Audible Alarm w/ silence switch & test button
- Dimensions: 11.5" x 7.2" x 4.5" (292.1 mm x 182.9 mm x 114.3 mm)
- Weight: 4.55 lb. (2.06 kg)
- Designed, manufactured & tested consistent with:
  – ANSI / IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-1010, C62.72-2007 and CSA C22.2 No. 269.1 and 269.2
  – 1992/2000 NEMA LS-1
  – NEC Article 285
  – IEC 61643, CE
- 10 Year Product Warranty

Available Options:

- Direct bus connected or can be wired to a circuit breaker (include W option)



TPS3 01

Ordering Information

Catalog # TPS3 □ 01 □□ □□□□

Voltage Code	Surge Current (kA)	Options	
A = 120/240 V, 1Ø, 3W	**10** = 100 kA per phase	**X** = Surge counter (Standard)	**2** = Type 2 SPD (Default) Includes UL 1283 EMI/ RFI Filters
B = 120/240 V, 3Ø, 4W	**15** = 150 kA per phase	**W**= Terminal lug	**0** = Type 1 SPD (Consult Factory Prior to Ordering)
C = 120/208 V, 3Ø, 4W	**20** = 200 kA per phase	**B** = Busway application	
D = 240 V, 3Ø, 3W	**25** = 250 kA per phase	**M** = MCC application	
E = 277/480 V, 3Ø, 4W	**30** = 300 kA per phase		
F = 480 V, 3Ø, 3W			
G = 600 V, 3Ø, 3W①			
K = 380/220 V, 3Ø, 4W			
L = 600/347 V, 3Ø, 4W			
S = 400/230 V, 3Ø, 4W			

Example: **TPS3C0120X002** = Type 2 SPD (Default) for a 208/120V panelboard with a surge current capacity of 200 kA per phase and a surge counter.

When an option is not selected, include a **zero (0)** in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

① Available in 100 kA & 150 kA only



TPS3 L1

Ordering Information

Catalog # TPS3 □ L1 □□ □□□□

Voltage Code	Surge Current (kA)	Options	
A = 120/240 V, 1Ø, 3W	**15** = 150 kA per phase	**X** = Surge counter (Standard)	**2** = Type 2 SPD (Default) Includes UL 1283 EMI/ RFI Filters
B = 120/240 V, 3Ø, 4W	**30** = 300 kA per phase	**W**= Terminal lug	**0** = Type 1 SPD
C = 120/208 V, 3Ø, 4W		**B** = Busway application	
E = 277/480 V, 3Ø, 4W		**M** = MCC application	
K = 380/220 V, 3Ø, 4W			
S = 400/230 V, 3Ø, 4W			

Example: **TPS3CL130X002** = 10 Mode Type 2 SPD (Default) for a 208/120V panelboard with a surge current capacity of 300 kA per phase and a surge counter.

When an option is not selected, include a **zero (0)** in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

TPS4 01 and TPS4 L1 (True or Discrete 10-Mode)

Siemens TPS4 01 and L1 surge protective devices are designed for integration within our RP1, P2, and P3 power distribution panel boards, as well as TIASTAR motor control centers and busway systems. The TPS4 01 and L1 SPDs feature Ground Integrity Monitoring (GIM) diagnostics

TPS4 01 and TPS4 L1 Key Features

- UL 1449-5 Type 2 SPD and UL 1283 Listed
  - Optional UL 1449 5th Edition Listed Type 1
- Type 1 / Type 2 SPD
- 100 - 500 kA Per Phase Surge Current
- 20 kA I_n
- 200 kA SCCR
- Voltage Protection Rating (VPRs)
  - 208/120 V, 3Ø, 4W: 500V
  - 480/277 V, 3Ø, 4W: 1000V
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- New Large Block MOV Pill Stack Design
- Every MOV is monitored, including N-G
- Mounts internal to:
  - RP1, P2, and P3 panels
  - TIASTAR motor control centers – standard 6"bucket
  - STP series busplug on SX series busway
- Consult factory for field retrofit in P1 panels
- Modes of Protection: L-N, L-G, N-G, and L-L
- All UL required OCP & safety coordination included
  - Type 1 SPDs intended for Line or Load side of Main Disconnect
  - Type 2 SPDs intended for Load side of Main Disconnect
- Standard Monitoring: LCD Event Counter with Time and Date Stamp, LED Indicators, Surge Counter, Dry Contacts, Audible Alarm w/ silence switch & test button
- Dimensions: 9.25" x 4.5" x 4.29" (235 mm x 114.3 mm x 109 mm)
- Weight: 4.55 lb. (2.06 kg)
- Designed, manufactured & tested consistent with:
  - ANSI / IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-1010, C62.72-2007 and CSA C22.2 No. 269.1 and 269.2
  - 1992/2000 NEMA LS-1
  - NEC Article 285
  - IEC 61643, CE
- 10 Year Product Warranty

Available Options:

- Direct bus connected or can be wired to a circuit breaker (include W option)



TPS4 01

Ordering Information

Catalog # TPS4 □ 01 □□ □□□□

Voltage Code	Surge Current (kA)	Options
A = 240/120 V, 1Ø, 3W①	**10** = 100 kA per phase	**X** = Surge counter (Standard)
B = 240/120 V, 3Ø, 4W	**15** = 150 kA per phase	
C = 208/120 V, 3Ø, 4W	**20** = 200 kA per phase	**0** = Std config (default)
W= 220/127 V, 3Ø, 4W	**25** = 250 kA per phase	**W**= Terminal lug
D = 240 V, 3Ø, 3W	**30** = 300 kA per phase	
E = 480/277 V, 3Ø, 4W	**40** = 400 kA per phase	**0** = Std config (default)
F = 480 V, 3Ø, 3W	**50** = 500 kA per phase	**B** = Busway application
G = 600 V, 3Ø, 3W②		**M** = MCC application
K = 380/220 V, 3Ø, 4W		
L = 600/347 V, 3Ø, 4W		
S = 400/230 V, 3Ø, 4W		
T = 415/240 V, 3Ø, 4W		

2 = Type 2 SPD (Default) Includes UL 1283 EMI/ RFI Filters

0 = Type 1 SPD (Consult Factory Prior to Ordering)

Example: **TPS4C0120X000** = SPD for a 208/120V panelboard with a surge current capacity of 200 kA per phase and a surge counter option.

When an option is not selected, include a **zero** (**0**) in the field.

① Can also be used on 208Y/120V, 1Ø, 3W System
② Not available in 300, 400 or 500 kA versions

Please note: The TPS4 01 series is not suitable for use in the Original P1 Lighting Panels - Only Revised P1 Lighting Panels.



TPS4 L1

Ordering Information

Catalog # TPS4 □ L1 □□ □□□□

Voltage Code	Surge Current (kA)	Options
A = 240/120 V, 1Ø, 3W①	**15** = 150 kA per phase	**X** = Surge counter (Standard)
B = 240/120 V, 3Ø, 4W	**30** = 300 kA per phase	
C = 208/120 V, 3Ø, 4W	**45** = 450 kA per phase	**0** = Std config (default)
W= 220/127 V, 3Ø, 4W	**55** = 550 kA per phase	**W**= Terminal lug
E = 480/277 V, 3Ø, 4W	**75** = 750 kA per phase	
K = 380/220 V, 3Ø, 4W		**0** = Std config (default)
L = 600/347 V, 3Ø, 4W②		**B** = Busway application
S = 400/230 V, 3Ø, 4W		**M** = MCC application
T = 415/240 V, 3Ø, 4W		

2 = Type 2 SPD (Default) Includes UL 1283 EMI/ RFI Filters

0 = Type 1 SPD

Example: **TPS4CL120X000** = SPD for a 208/120V panelboard with a surge current capacity of 200kA per phase and a surge counter option.

When an option is not selected, include a **zero** (**0**) in the field.

① Can also be used on 208Y/120V, 1Ø, 3W System
② Not available in 450, 550 or 750 kA versions

Please note: The TPS4 L1 series is not suitable for use in the Original P1 Lighting Panels - Only Revised P1 Lighting Panels.

TPS3 02 and TPS3 L2 (True or Discrete 10-Mode)

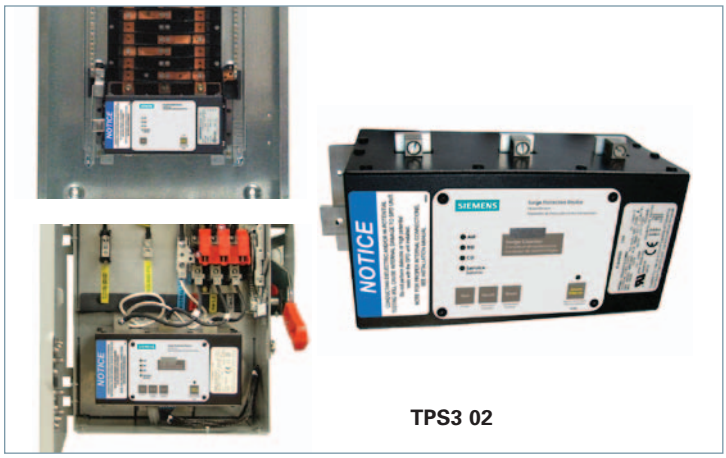
Siemens TPS3 02 and L2 surge protective devices are designed for integration within our Revised P1 power distribution panel boards.The TPS3 02 and L2 SPDs feature Ground Integrity Monitoring (GIM) diagnostics.

TPS3 02 and TPS3 L2 Key Features

- UL 1449-4 Type 2 SPD and UL 1283 Listed
  – Optional UL 1449 4th Edition Recognized Type 1
- Type 1 / Type 2 SPD
- 100 - 300 kA Per Phase Surge Current
- Large block, individually fused, thermally protected, 50kA MOVs
- 20 kA I_n (Most models)
- 200 kA SCCR (Most models)
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- Large block, individually fused, thermally protected, 50kA MOVs
- Every MOV is monitored, including N-G
- Mounts internal to:
  – Revised P1 Lighting Panelboards
- Consult factory for field retrofit in P1 panels
- Modes of Protection: L-N, L-G, N-G, and L-L
- All UL required OCP & safety coordination included
  – Type 1 SPDs intended for Line or Load side of Main Disconnect
  – Type 2 SPDs intended for Load side of Main Disconnect
- Standard Monitoring: LED Indicators, Surge Counter, Dry Contacts, Audible Alarm w/ silence switch & test button
- Dimensions: 11.6" x 5.7" x 4.9"
  (294.6 mm x 144.8 mm x 124.5 mm)
- Weight: 4.55 lb. (2.06 kg)
- 10 Year Product Warranty

Available Options:

- Direct bus connected
  Can be wired to a circuit breaker (consult factory at time of order or see installation manual for retrofit)



TPS3 02

Ordering Information

Catalog # TPS3 ☐ 02 ☐☐☐☐

Voltage Code
A = 120/240 V, 1Ø, 3W
B = 120/240 V, 3Ø, 4W
C = 120/208 V, 3Ø, 4W
D = 240 V, 3Ø, 3W
E = 277/480 V, 3Ø, 4W
F = 480 V, 3Ø, 3W
G = 600 V, 3Ø, 3W①
K = 380/220 V, 3Ø, 4W
L = 600/347 V, 3Ø, 4W
S = 400/230 V, 3Ø, 4W

Surge Current (kA)
10 = 100 kA per phase
15 = 150 kA per phase
20 = 200 kA per phase
25 = 250 kA per phase
30 = 300 kA per phase

Options
X = Surge counter (Standard)
2 = Type 2 SPD (Default)
Includes UL 1283 EMI/RFI Filters
0 = Type 1 SPD
(Consult Factory Prior to Ordering)

Example: **TPS3C0220X2** = Type 2 SPD (Default) for a 208/120V panelboard with a surge current capacity of 200 kA per phase and a surge counter.

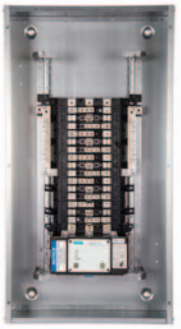
When an option is not selected, include a **zero (0)** in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

① Available in 100kA & 150 kA only





TPS3 L2

Ordering Information

Catalog # TPS3 ☐ L2 ☐☐☐☐

Voltage Code
A = 120/240 V, 1Ø, 3W
B = 120/240 V, 3Ø, 4W
C = 120/208 V, 3Ø, 4W
E = 277/480 V, 3Ø, 4W
K = 380/220 V, 3Ø, 4W
S = 400/230 V, 3Ø, 4W

Surge Current (kA)
15 = 150 kA per phase
30 = 300 kA per phase

Options
X = Surge counter (Standard)
2 = Type 2 SPD (Default)
Includes UL 1283 EMI/RFI Filters
0 = Type 1 SPD
(Consult Factory Prior to Ordering)

Example: **TPS3CL230X2** = 10 Mode Type 2 SPD (Default) for a 208/120 V panelboard with a surge current capacity of 300 kA per phase and a surge counter.

When an option is not selected, include a **zero (0)** in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

TPS3 03

TPS3 03 is a UL 1449 4th Edition 50 kA Type 1 compact surge protective device that can be used as a replacement secondary surge or lighting arrestors. Having a Type 1 designation allows for flexible electrical system connection location (line or load side) as well as UL 96A compliance (@ 20 kA I_n).

TPS3 03 Key Features

- UL 1449 4th Edition Listed Type 1
- Type 1 Rated SPD
- 50 kA Per Phase Surge Current
- 20 kA I_n (Most models)
- 200 kA SCCR (Most models
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA))
- Every MOV is monitored
- Mounts external to electrical distribution equipment – Recommend for Line Side or Load Side Applications
- Standard compact NEMA 4X polycarbonate enclosure
- Modes of Protection: L-N or L-G and L-L
- Standard Monitoring: LED Indicator
- Dimensions: 3.25" x 3.25" x 3.3" (82.6 mm x 82.6 mm x 83.8 mm)
- Weight: 2 lb. (0.9 kg)
- 2 Year Product Warranty

Available Options:

- Dry contacts & Audible Alarm (option "D")
- Neutral to Ground Protection (option "N")



TPS3 03



TPS3 01 DIN RAIL Mounting

Ordering Information

Catalog # TPS3 ☐ 03 ☐☐☐☐

Voltage Code

A = 120/240 V, 1Ø, 3W
B = 120/240 V, 3Ø, 4W
C = 120/208 V, 3Ø, 4W
D = 240 V, 3Ø, 3W
E = 277/480 V, 3Ø, 4W
F = 480 V, 3Ø, 3W
G = 600 V, 3Ø, 3W
K = 380/220 V, 3Ø, 4W
L = 600/347 V, 3Ø, 4W

Surge Current (kA)

05 = 50 kA per phase

Options

D = Dry contact & audible alarm
N = Adds N-G Protection

Example: **TPS3C0305D0** = Type 1 SPD for a 208/120V application with a surge current capacity of 50 kA per phase, in a standard NEMA 4X enclosure with dry contacts and audible alarm option.

When an option is not selected, include a **zero (0)** in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

TPS3 03 DC

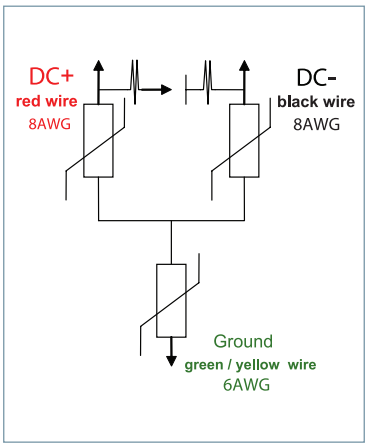
TPS3 03 DC is available in 300VDC, 600VDC and 1000VDC versions, which are designed to protect photovoltaic electrical systems. Typical PV installation would be on the DC solar panel side and also on the AC side of the inverter/converter. AC voltage TPS3 03's are also available. SPDs are highly recommended when lightning activity is present to protect sensitive electrical photovoltaic components.

TPS3 03 DC is designed as a stand alone device in a NEMA 4X polycarbonate enclosure. Large block, thermally protected 50 kA MOVs are utilized. A green LED illuminates for diagnostic monitoring. TPS3 03 DC comes standard with a Tri-Mount installation kit which allows it to be Nipple, DIN-rail or Bracket mounted.

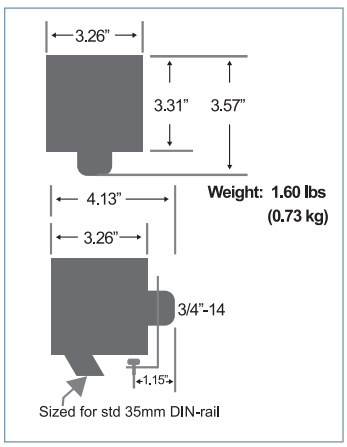


TPS3 09

Diagram



Dimensions



Ordering Information

Catalog # TPS3 ☐ 0305

Voltage Code

M = 300 VDC **P** = 1000 VDC **R** = 600 VDC

Tri-Mount Installation

Mounting Kit Included



Std. 3/4"-14 Nipple



DIN-rail Mount
(rail not incl.)



Bracket Mount
for Flat Surfaces

Performance Data

Siemens Part Number		TPS3M0305	TPS3R0305	TPS3P0305
Modes of Protection		DC+ – DC- , DC+ – Ground, DC- – Ground		
Nominal Network Voltage	U_n	300VDC	600VDC	1000VDC
Technology		Large Block, Thermally Protected 50kA MOVs		
Maximum Continuous Operating Voltage DC	U_c	425VDC	760VDC	1180VDC
Maximum Surge Current (8/20 µs)	Imax	50kA	50kA	50kA
Nominal Discharge Current (8/20 µs)	I_n	20kA	20kA	10kA
Voltage Protection Level (3kA 8/20µs)	U_p	<600V	<1800V	<2500V
Operating Temperature		-40oC + 65oC		
Response Time	t_A	<1ns		
Installation mounting method		DIN Rail, Nipple or Bracket		
Enclosure Material		NEMA 4X Polycarbonate		
Wiring (red = + , black = - , green / yellow = gnd)		Pre-wired w/3'(~1m) of 8AWG + 6AWG Ground Conductor		
Diagnostic circuit		Low Consumption LED Indicator		
Safety Disconnectors		Thermal/Overcurrent Protection; Arc-Breaking Slide Gate		
UL Listing		UL 1449 Listed as Type 1 SPD as a DC SPD for PV and other types of DC applications		
Warranty		5 Years		

TPS3 05 and TPS3 L5 (True or Discrete 10-Mode)

Siemens TPS3 05 and L5 surge protective devices are designed for integration within our P4 and P5 panelboards as well as distribution switchboards. The TPS3 05 and L5 SPDs feature Ground Integrity Monitoring (GIM) diagnostics.

TPS3 05 and TPS3 L5 Key Features

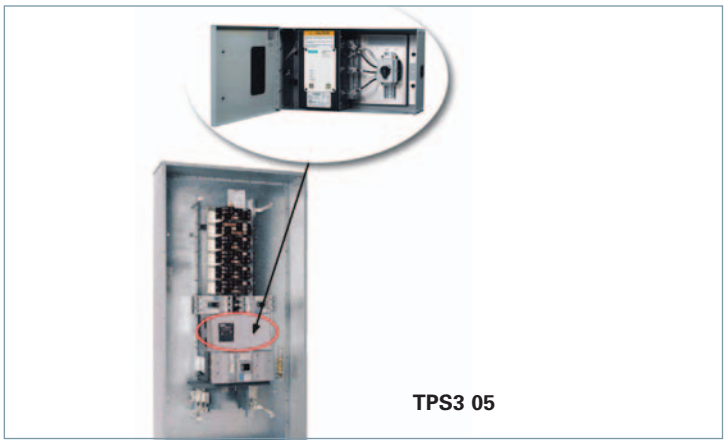
- UL 1449-4 Type 2 SPD and UL 1283 Listed
  – Optional UL 1449 4th Edition Listed Type 1
- Type 1 / Type 2 SPD
- 100 - 300 kA Per Phase Surge Current
- 20 kA I_n (Most models)
- 200 kA SCCR (Most models)
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- Large block, individually fused, thermally protected, 50kA MOVs
- Every MOV is monitored, including N-G
- Mounts internal to:
  – P4 & P5 panelboards and distribution switchboards
- Modes of Protection: L-N, L-G, N-G, and L-L
- All UL required OCP & safety coordination included
  – Type 1 SPDs intended for Line or Load side of Main Disconnect
  – Type 2 SPDs intended for Load side of Main Disconnect
- Standard Monitoring: LED Indicators, Surge Counter, Dry Contacts, Audible Alarm w/ silence switch & test button
- Dimensions: 10" x 17" x 6"
  (254 mm x 431.8 mm x 152.4 mm)
- Weight: 9.4 lb. (4.2 kg)
- Designed, manufactured & tested consistent with:
  – ANSI / IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-1010, C62.72-2007 and CSA C22.2 No. 269.1 and 269.2
  – 1992/2000 NEMA LS-1
  – NEC Article 285
  – IEC 61643, CE
- 10 Year Product Warranty

Panelboard Features:

- Copper or aluminum bus
  MB or MLO

Switchboard Features:

- Copper or aluminum bus
  200% rated neutral bus for harmonic-rich applications
  CSA, UL 891, UL 67 and NEMA PB-2



TPS3 05

Ordering Information

Catalog # TPS3 ☐ 05 ☐☐☐☐

Voltage Code	Surge Current (kA)	Options
A = 120/240 V, 1Ø, 3W	**10** = 100 kA per phase	**X** = Surge counter (Standard)
B = 120/240 V, 3Ø, 4W	**15** = 150 kA per phase	**2** = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
C = 120/208 V, 3Ø, 4W	**20** = 200 kA per phase	**0** = Type 1 SPD (Consult Factory Prior to Ordering)
D = 240 V, 3Ø, 3W	**25** = 250 kA per phase	
E = 277/480 V, 3Ø, 4W	**30** = 300 kA per phase	
F = 480 V, 3Ø, 3W		
G = 600 V, 3Ø, 3W①		
K = 380/220 V, 3Ø, 4W		
L = 600/347 V, 3Ø, 4W		
S = 400/230 V, 3Ø, 4W		

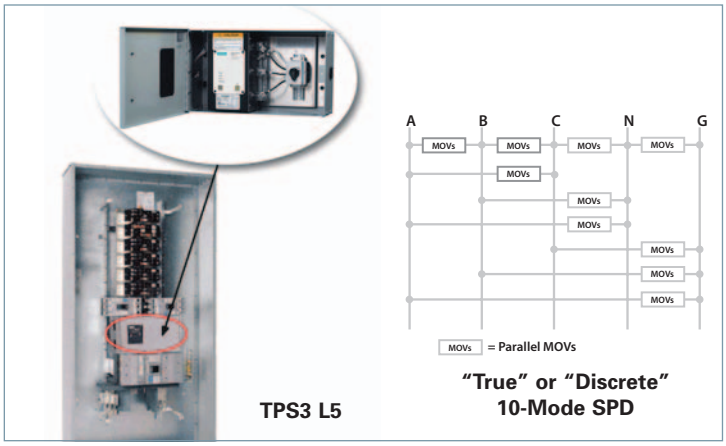
Example: **TPS3C0530X2** = Type 2 SPD (Default) for a 208/120V power panel with a surge current capacity of 300 kA per phase and a surge counter.

When an option is not selected, include a **zero (0)** in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

① Available in 100 kA & 150 kA only



TPS3 L5

"True" or "Discrete" 10-Mode SPD

Ordering Information

Catalog # TPS3 ☐ L5 ☐☐☐☐

Voltage Code	Surge Current (kA)	Options
A = 120/240 V, 1Ø, 3W	**15** = 150 kA per phase	**X** = Surge counter (Standard)
B = 120/240 V, 3Ø, 4W	**30** = 300 kA per phase	**2** = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
C = 120/208 V, 3Ø, 4W		**0** = Type 1 SPD (Consult Factory Prior to Ordering)
E = 277/480 V, 3Ø, 4W		
K = 380/220 V, 3Ø, 4W		
S = 400/230 V, 3Ø, 4W		

Example: **TPS3C0530X2** = Type 2 SPD (Default) for a 208/120V power panel with a surge current capacity of 300 kA per phase and a surge counter.

When an option is not selected, include a **zero (0)** in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

TPS4 05 and TPS4 L5 (True or Discrete 10-Mode)

Siemens TPS4 05 and L5 surge protective devices are designed for integration within our P4 and P5 panelboards as well as distribution switchboards. The TPS4 05 and L5 SPDs feature Ground Integrity Monitoring (GIM) diagnostics.

TPS4 05 and TPS4 L5 Key Features

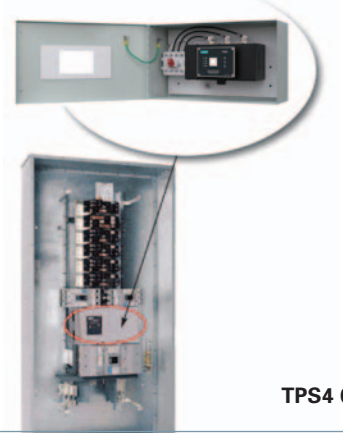
- UL 1449 Type 2 SPD and UL 1283 Listed
  - Optional UL 1449 Listed Type 1
- Type 1 / Type 2 SPD
- 100 - 500 kA Per Phase Surge Current
- 20 kA I_n
- 200 kA SCCR
- Voltage Protection Rating (VPRs)
  - 208/120 V, 3Ø, 4W: 600V
  - 480/277 V, 3Ø, 4W: 1000V
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- New Large Block MOV Pill Stack Design
- Every MOV is monitored, including N-G
- Mounts internal to:
  - P4 & P5 panelboards and distribution switchboards
- Modes of Protection: L-N, L-G, N-G, and L-L
- All UL required OCP & safety coordination included
  - Type 1 SPDs intended for Line or Load side of Main Disconnect
  - Type 2 SPDs intended for Load side of Main Disconnect
- Standard Monitoring: LCD Event Counter with Time and Date Stamp, LED Indicators, Surge Counter, Dry Contacts, Audible Alarm w/ silence switch & test button
- Dimensions: 17" x 10" x 6" (434 mm x 254 mm x 154 mm)
- Weight: 22 lbs. (10 kg)
- Designed, manufactured & tested consistent with:
  - ANSI / IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-1010, C62.72-2007 and CSA C22.2 No. 269.1 and 269.2
  - 1992/2000 NEMA LS-1
  - NEC Article 285
  - IEC 61643, CE
- 10 Year Product Warranty

Panelboard Features:

- Copper or aluminum bus
  MB or MLO

Switchboard Features:

- Copper or aluminum bus
  200% rated neutral bus for harmonic-rich applications
  CSA, UL 891, UL 67 and NEMA PB-2



TPS4 05

Ordering Information

Catalog # TPS4 ☐ 05 ☐☐ X ☐

Voltage Code

A = 240/120V ,1Ø, 3W
B = 240/120V, 3Ø, 4W
C = 208/120V, 3Ø, 4W
W= 220/127V, 3Ø, 4W
D = 240V, 3Ø, 3W
E = 480/277V, 3Ø, 4W
F = 480V, 3Ø, 3W
G = 600V, 3Ø, 3W①
K = 380/220V, 3Ø, 4W
L = 600/347V, 3Ø, 4W
S = 400/230V, 3Ø, 4W
T = 415/240V, 3Ø, 4W

Surge Current (kA)

10 = 100 kA per phase
15 = 150 kA per phase
20 = 200 kA per phase
25 = 250 kA per phase
30 = 300 kA per phase
40 = 400kA per phase
50 = 500kA per phase

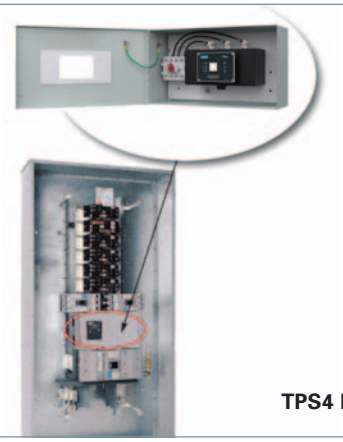
Options

X = Surge counter (Standard)
2 = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
0 = Type 1 SPD (Consult Factory Prior to Ordering)

Example: **TPS4C0520X2** = SPD for a 208/120V panelboard with a surge current capacity of 200kA per phase and Type 2 SPD.

When an option is not selected, include a **zero (0)** in the field.

① Not available in 300, 400 or 500kA versions



TPS4 L5

Ordering Information

Catalog # TPS4 ☐ L5 ☐☐ X ☐

Voltage Code

A = 240/120V ,1Ø, 3W
B = 240/120V, 3Ø, 4W
C = 208/120V, 3Ø, 4W
W= 220/127V, 3Ø, 4W
E = 480/277V, 3Ø, 4W
K = 380/220V, 3Ø, 4W
L = 600/347V, 3Ø, 4W①
S = 400/230V, 3Ø, 4W
T = 415/240V, 3Ø, 4W

Surge Current (kA)

15 = 150 kA per phase
30 = 300 kA per phase
45 = 450 kA per phase
55 = 550 kA per phase
75 = 750 kA per phase

Options

X = Surge counter (Standard)
2 = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
0 = Type 1 SPD

Example: **TPS4CL520X2** = SPD for a 208/120V panelboard with a surge current capacity of 200kA per phase and Type 2 SPD.

When an option is not selected, include a **zero (0)** in the field.

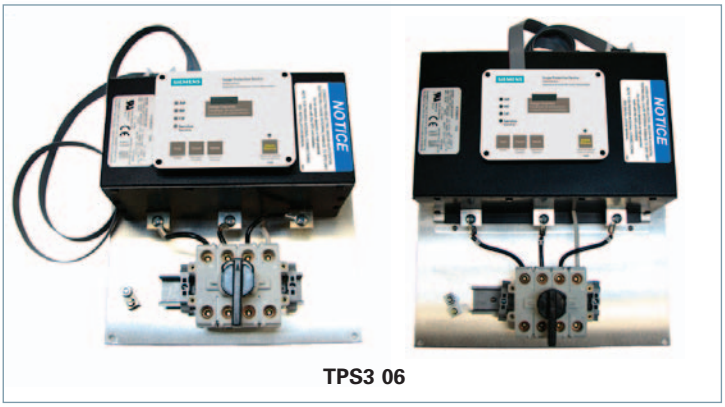
① Not available in 450, 550 or 750kA versions

TPS3 06 and TPS3 L6 (True or Discrete 10-Mode)

Siemens TPS3 06 and L6 surge protective devices are designed for integration within our SB1, SB2, SB3, Type RCS Switchboards, Low-Voltage Switchgear, Motor Control Centers, and Busway Systems. The TPS3 06 and L6 SPDs feature Ground Integrity Monitoring (GIM) diagnostics.

TPS3 06 and TPS3 L6 Key Features

- UL 1449-4 Type 2 SPD and UL 1283 Listed
  - Optional UL 1449 4th Edition Listed Type 1
- Type 1 / Type 2 SPD
- 100 - 500 kA Per Phase Surge Current
- 20 kA I_n (Most models)
- 200 kA SCCR (Most models)
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- Large block, individually fused, thermally protected, 50kA MOVs
- Every MOV is monitored, including N-G
- Mounts internal to:
  - SB1, SB2, SB3 and Type RCS Switchboards
  - Type WL low-voltage switchgear
  - TIASTAR motor control centers - standard 12" bucket
  - STP series busplug on SX series busway
- Modes of Protection: L-N, L-G, N-G, and L-L
- All UL required OCP & safety coordination included
  - Type 1 SPDs intended for Line or Load side of Main Disconnect
  - Type 2 SPDs intended for Load side of Main Disconnect
- Standard Monitoring: LED Indicators, Surge Counter, Dry Contacts, Audible Alarm w/ silence switch & test button, Rotary disconnect switch
- Dimensions: 10.7" x 11.5" x 4.5" (271.8 mm x 292.1 mm x 114.3 mm)
- Weight: 6.8 lb. (3.0 kg)
- Designed, manufactured & tested consistent with:
  - ANSI / IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-1010, C62.72-2007 and CSA C22.2 No. 269.1 and 269.2
  - 1992/2000 NEMA LS-1
  - NEC Article 285
  - IEC 61643, CE
- Designed, manufactured & tested consistent with:
  - ANSI / IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-1010, C62.72-2007 & CSA C22.2 No. 269.1 and .2
  - 1992/2000 NEMA LS-1
  - NEC Article 285
  - IEC 61643, CE
- 10 Year Product Warranty



TPS3 06

Ordering Information

Catalog # TPS3 ☐ 06 ☐☐ ☐☐☐

Voltage Code

A = 120/240 V, 1Ø, 3W
B = 120/240 V, 3Ø, 4W
C = 120/208 V, 3Ø, 4W
D = 240 V, 3Ø, 3W②
E = 277/480 V, 3Ø, 4W
F = 480 V, 3Ø, 3W②
G = 600 V, 3Ø, 3W①
K = 380/220 V, 3Ø, 4W
L = 600/347 V, 3Ø, 4W
S = 400/230 V, 3Ø, 4W

Surge Current (kA)

10 = 100 kA per phase
15 = 150 kA per phase
20 = 200 kA per phase
25 = 250 kA per phase
30 = 300 kA per phase
40 = 400 kA per phase
50 = 500 kA per phase

Options

X = Surge counter (Standard)
B = Busway application
M = MCC application

2 = Type 2 SPD (Default) Includes UL 1283 EMI/ RFI Filters
0 = Type 1 SPD (Consult Factory Prior to Ordering)

Example: **TPS3C0120X002** = Type 2 SPD (Default) for a 208/120V panelboard with a surge current capacity of 200 kA per phase and a surge counter.

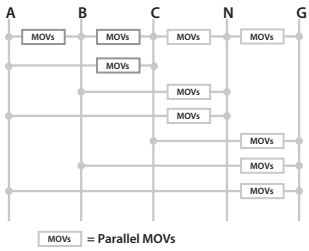
When an option is not selected, include a **zero (0)** in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor
① G voltage code only available in 200 & 250 kA
② Not available in 500 kA



TPS3 L6



"True" or "Discrete" 10-Mode SPD

Ordering Information

Catalog # TPS3 ☐ L6 ☐☐ ☐☐☐

Voltage Code

A = 120/240 V, 1Ø, 3W
B = 120/240 V, 3Ø, 4W
C = 120/208 V, 3Ø, 4W
E = 277/480 V, 3Ø, 4W
K = 380/220 V, 3Ø, 4W
S = 400/230 V, 3Ø, 4W

Surge Current (kA)

15 = 150 kA per phase
30 = 300 kA per phase
45 = 450 kA per phase

Options

X = Surge counter (Standard)
B = Busway application
M = MCC application

2 = Type 2 SPD (Default) Includes UL 1283 EMI/ RFI Filters
0 = Type 1 SPD (Consult Factory Prior to Ordering)

Example: **TPS3CL645X2** = 10 mode Type 2 SPD (Default) for a 208/120V switchboard with a surge current capacity of 450 kA per phase and a surge counter.

When an option is not selected, include a **zero (0)** in the field.

Available Accessories: Ordered Separately

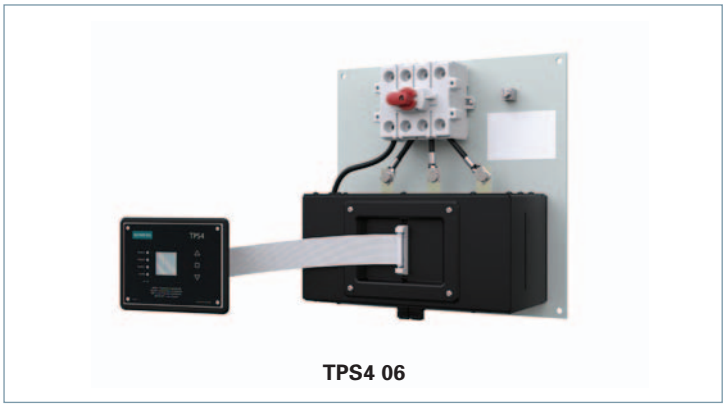
RMSIE = Remote monitor

TPS4 06 and TPS4 L6 (True or Discrete 10-Mode)

Siemens TPS4 06 and L6 surge protective devices are designed for integration within our SB1, SB2, SB3, Type RCS Switchboards and Low-Voltage Switchgear. The TPS4 06 and L6 SPDs feature Ground Integrity Monitoring (GIM) diagnostics.

TPS4 06 and TPS4 L6 Key Features

- UL 1449 Type 2 SPD and UL 1283 Listed
  - Optional UL 1449 Listed Type 1
- Type 1 / Type 2 SPD
- 100 - 500 kA Per Phase Surge Current
- 20 kA I_n
- 200 kA SCCR
- Voltage Protection Rating (VPRs)
  - 208/120 V, 3Ø, 4W: 600V
  - 480/277 V, 3Ø, 4W: 1000V
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- New Large Block MOV Pill Stack Design
- Every MOV is monitored, including N-G
- Mounts internal to:
  - SB1, SB2, SB3 and Type RCS Switchboards
  - Type WL low-voltage switchgear
- Modes of Protection: L-N, L-G, N-G, and L-L
- All UL required OCP & safety coordination included
  - Type 1 SPDs intended for Line or Load side of Main Disconnect
  - Type 2 SPDs intended for Load side of Main Disconnect
- Standard Monitoring: LCD Event Counter with Time and Date Stamp, LED Indicators, Surge Counter, Dry Contacts, Audible Alarm w/ silence switch & test button
- Dimensions: 11" x 11" x 4.5" (276 mm x 276 mm x 115 mm)
- Weight: 7.4 lbs (3.4 kg)
- Designed, manufactured & tested consistent with:
  - ANSI / IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-1010, C62.72-2007 and CSA C22.2 No. 269.1 and 269.2
  - 1992/2000 NEMA LS-1
  - NEC Article 285
  - IEC 61643, CE
- Designed, manufactured & tested consistent with:
  - ANSI / IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-1010, C62.72-2007 & CSA C22.2 No. 269.1 and .2
  - 1992/2000 NEMA LS-1
  - NEC Article 285
  - IEC 61643, CE
- 10 Year Product Warranty



TPS4 06

Ordering Information

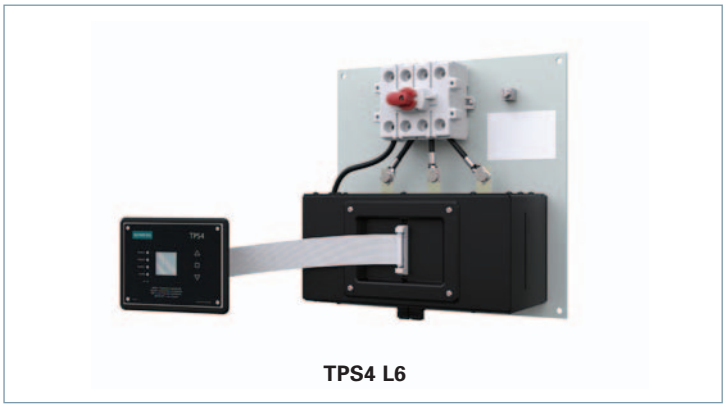
Catalog # TPS4 ☐ 06 ☐☐ X ☐

Voltage Code	Surge Current (kA)	Options
A = 240/120V ,1Ø, 3W	**10** = 100 kA per phase	**X** = Surge counter (Standard)
B = 240/120V, 3Ø, 4W	**15** = 150 kA per phase	**2** = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
C = 208/120V, 3Ø, 4W	**20** = 200 kA per phase	**0** = Type 1 SPD
W= 220/127V, 3Ø, 4W	**25** = 250 kA per phase	
D = 240V, 3Ø, 3W	**30** = 300 kA per phase	
E = 480/277V, 3Ø, 4W	**40** = 400 kA per phase	
F = 480V, 3Ø, 3W	**50** = 500 kA per phase	
G = 600V, 3Ø, 3W①		
K = 380/220V, 3Ø, 4W		
L = 600/347V, 3Ø, 4W		
S = 400/230V, 3Ø, 4W		
T = 415/240V, 3Ø, 4W		

Example: **TPS4C0620X2** = SPD for a 208/120V panelboard with a surge current capacity of 200kA per phase and Type 2 SPD.

When an option is not selected, include a **zero (0)** in the field.

① Not available in 300, 400 or 500kA versions



TPS4 L6

Ordering Information

Catalog # TPS4 ☐ L6 ☐☐ X ☐

Voltage Code	Surge Current (kA)	Options
A = 240/120V ,1Ø, 3W	**15** = 150 kA per phase	**X** = Surge counter (Standard)
B = 240/120V, 3Ø, 4W	**30** = 300 kA per phase	**2** = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
C = 208/120V, 3Ø, 4W	**45** = 450 kA per phase	**0** = Type 1 SPD
W= 220/127V, 3Ø, 4W	**55** = 550 kA per phase	
E = 480/277V, 3Ø, 4W	**75** = 750 kA per phase	
K = 380/220V, 3Ø, 4W		
L = 600/347V, 3Ø, 4W		
S = 400/230V, 3Ø, 4W		
T = 415/240V, 3Ø, 4W		

Example: **TPS4CL620X2** = SPD for a 208/120V panelboard with a surge current capacity of 200kA per phase and Type 2 SPD.

When an option is not selected, include a **zero (0)** in the field.

① Not available in 450, 550 or 750kA versions

TPS3 09

TPS3 09 is a UL 1449 4th Edition 100 kA Type 1 compact multi-mode surge protective device that can be installed on either the line or load side of the electrical service. When installed at the electrical service entrance, it can be used for UL 96A compliance (@ 20 kA I_n).

TPS3 09 Key Features

- UL 1449 4th Edition Listed Type 1
- Type 1 Rated SPD
- 100 kA Per Phase Surge Current
- 20 kA I_n (Most models)
- 200 kA SCCR (Most models)
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- Every MOV is monitored, including N-G
- Mounts external to electrical distribution equipment
  – Weatherproof hub included
- Mounts internal to P1 panelboards & busway
  – P1 - Field retrofit or factory install
  – P2 and P3 - factory install only
- Standard compact NEMA 4X polycarbonate enclosure
- Modes of Protection: L-N, L-G, N-G, and L-L
- Standard Monitoring: LED Indicators
- Wire Size: Prewired with 3' (91.4 cm) of #10 AWG
- Dimensions: 8.3" x 3.6" x 3.0" (211 mm x 91 mm x 77 mm)
- Weight: 3 lb. (1.4 kg)
- 10 Year Product Warranty

Available Options:

- Dry contacts & Audible Alarm (option "D")
- Extended indicator light (option "E")
- Internal mounting in P1, P2 Panels (option "I"), requires TPS9IKITP1 or TPS9IKITP2 mounting bracket accessory.



TPS3 09

Ordering Information

Catalog # TPS3 ☐09 ☐☐ ☐☐☐

Voltage Code
A = 120/240 V, 1Ø, 3W
B = 120/240 V, 3Ø, 4W
C = 120/208 V, 3Ø, 4W
D = 240 V, 3Ø, 3W
E = 277/480 V, 3Ø, 4W
F = 480 V, 3Ø, 3W
G = 600 V, 3Ø, 3W
K = 380/220 V, 3Ø, 4W
L = 600/347 V, 3Ø, 4W
S = 400/230 V, 3Ø, 4W

Surge Current (kA)
10 = 100 kA per phase

Example: **TPS3C0910D000** = Type 1 SPD for a 208/120V panelboard with a surge current capacity of 100 kA per phase with standard NEMA 4X enclosure, dry contacts and audible alarm option.

Available for field retrofit in P1 panels.

Options
E = Extended indicator light
I = Internal mounting in P1, P2 panels①
D = Dry Contact & audible alarm

When an option is not selected, include a **zero** (**0**) in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor
XMFMKIT = Flush mount plate
TPS9IKITP1 = Mounting bracket for installation in P1 panels
TPS9IKITP2 = Mounting bracket for installation in P2 panels (factory install only)

① Requires TPS9IKITP1 or TPS9IKITP2 mounting bracket accessory, see available Accessories. Prewired cables are extended from 3 to 6 feet.

TPS3 11

TPS3 11 is a UL 1449 3rd Edition Listed multi-mode Type 1 surge protective device with a per phase surge current capacity that can be increased to 200 kA. In addition, this unit provides UL 1283 listed EMI/RFI or Sine Wave tracking filtering that will condition low energy L-N coupled noise. When installed at the electrical service entrance, it can be used for UL 96A compliance (@ 20 kA I_n).

Standard monitoring includes protection status indication LEDs. Complete protection is intact when the status indicators are illuminated. When protection is lost, the status indicator will extinguish and the red service light will illuminate. An audible alarm and dry contacts are available monitoring options.

A new diagnostic feature integrated within the TPS3 11 is Ground Integrity Monitoring or (GIM) diagnostic indication circuit. Ground Integrity Monitoring or (GIM) diagnostics monitors the health of the electrical system's neutral to ground bond. If voltage is seen across neutral and ground, the phase indicators will remain illuminated, while the red service light begins to flash alerting the end user that the electrical system grounding needs to be checked and serviced. This feature can be remotely monitored when the optional dry contacts are included. Siemens TPS3s are one of the first in the industry to offer this power quality safety and performance indication.

TPS3 11 Key Features

- UL 1449-4 Type 2 SPD and UL 1283 Listed
  – Optional UL 1449 4th Edition Listed Type 1
- Type 1 / Type 2 SPD
- 100, 150, 200 kA Per Phase Surge Current
- 20 kA I_n (Most models)
- 200 kA SCCR (Most models)
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- Every MOV is monitored, including N-G
- Mounts external to electrical distribution equipment
- Standard NEMA 4X polycarbonate enclosure (UL 746C (f1), UL 94-5VA)
- Modes of Protection: L-N, L-G, N-G, and L-L
- Standard Monitoring: LED Indicators and Ground Integrity Monitoring diagnostics
- Wire size: #8 AWG to #10 AWG
- Dimensions: 6" x 6" x 4" (152 mm x 152 mm x 102 mm)
- Weight: 5 lb. (2.27 kg)
- 10 Year Product Warranty

Available Options:

- Dry contacts & Audible Alarm (option "D")



TPS3 11

Ordering Information

Catalog # TPS3 ☐ 11 ☐☐ ☐ ☐

Voltage Code

A = 120/240 V, 1Ø, 3W
B = 120/240 V, 3Ø, 4W
C = 120/208 V, 3Ø, 4W
D = 240 V, 3Ø, 3W
E = 277/480 V, 3Ø, 4W
F = 480 V, 3Ø, 3W
G = 600 V, 3Ø, 3W①
K = 380/220 V, 3Ø, 4W
L = 600/347 V, 3Ø, 4W
S = 400/230 V, 3Ø, 4W

Surge Current (kA)

10 = 100 kA per phase
15 = 150 kA per phase
20 = 200 kA per phase

Example: **TPS3C1110D2** = Type 2 SPD (Default) for a 208/120V application with a surge current capacity of 100 kA per phase, in a standard NEMA 4X enclosure with dry contacts and audible alarm option.

When option **D** is NOT selected, include a **zero** (**0**) in the field.

Options

2 = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
0 = Type 1 SPD (Consult Factory Prior to Ordering)
D = Dry Contacts & audible alarm

Available Accessories: Ordered Separately

RMSIE = Remote monitor
KITFMXF = Flush mount plate

① Available in 100 kA per phase only

TPS3 12 and TPS3 L12 (True or Discrete 10-Mode)

TPS3 12 and TPS3 L12 are UL 1449-4 Type 2 and Optional UL 1449 4th Edition surge protective device with a per phase surge current capacity that can be increased to 500 kA (TPS3 L12 up to 450 kA). For mission critical or high profile applications, the TPS3 L12 is our "True" or "Discrete" 10-mode style SPD providing the "Just in Case" assurance of directly connected L-L MOVs.

Both TPS3 12 and TPS3 L12 are UL 1283 Listed incorporating EMI/RFI or Sine Wave tracking filtering designed to condition low energy L-N coupled noise. When installed at the electrical service entrance, it can be used for UL 96A compliance (@ 20 kA In).

Standard monitoring includes protection status indication LEDs, audible alarm, and dry contacts. Complete protection is intact when the status indicators are illuminated. When protection is lost, the status indicator will extinguish, the red service light will illuminate, and the dry contacts will change state. An optional surge counter is available.

A new diagnostic feature integrated within the TPS3 12 and TPS3 L12 is Ground Integrity Monitoring or (GIM) diagnostic indication circuit. Ground Integrity Monitoring or (GIM) diagnostics monitors the health of the electrical system's neutral to ground bond. If voltage is seen across neutral and ground, the phase indicators will remain illuminated, while the red service light begins to flash alerting the end user that the electrical system grounding needs to be checked and serviced. This feature can be remotely monitored via the dry contact outputs. Siemens TPS3s are one of the first in the industry to offer this power quality safety and performance indication.

TPS3 12 and TPS3 L12 Key Features

- UL 1449-4 Type 2 SPD and UL 1283 Listed
  - Optional UL 1449 4th Edition Listed Type 1
- Type 1 / Type 2 SPD
- TPS3 12: 100 – 500 kA Per Phase Surge Current
- TPS3 L12: 150, 300, 450 kA Phase Surge Current
- 20 kA I_n (Most models)
- 200 kA SCCR (Most models)
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- Every MOV is monitored, including N-G
- Mounts external to electrical distribution equipment
  - Recommended for line side or load side applications
- Standard NEMA 1/12/3R/04 ANSI 61 steel enclosure
- TPS3 12 Modes of Protection – L-N, L-G, N-G, and L-L
- TPS3 L12 Modes of Protection – L-N, L-G, N-G, and L-L (directly connected L-L elements)
- Standard Monitoring:
  - LED Indicators
  - Ground Integrity Monitoring diagnostics
  - Dry Contacts
  - Audible alarm with silence switch and test button
- Wire size: #8 AWG to 1/0
- Dimensions: 12" x 12" x 7" (305 mm x 305 mm x 178 mm)③
- Weight: 20 lb. (9.07 kg)③
- 10 Year Product Warranty

Available Options:

- Internal rotary disconnect
- Thru-door disconnect



TPS3 12

Ordering Information

Catalog # TPS3 ☐ 12 ☐☐ ☐ ☐☐☐

Voltage Code
- **A** = 120/240 V, 1Ø, 3W
- **B** = 120/240 V, 3Ø, 4W
- **C** = 120/208 V, 3Ø, 4W
- **D** = 240 V, 3Ø, 3W①
- **E** = 277/480 V, 3Ø, 4W
- **F** = 480 V, 3Ø, 3W①
- **G** = 600 V, 3Ø, 3W②
- **K** = 380/220 V, 3Ø, 4W
- **L** = 600/347 V, 3Ø, 4W
- **S** = 400/230 V, 3Ø, 4W

Surge Current (kA)
- **10** = 100 kA per phase
- **15** = 150 kA per phase
- **20** = 200 kA per phase
- **25** = 250 kA per phase
- **30** = 300 kA per phase
- **40** = 400 kA per phase
- **50** = 500 kA per phase

Enclosure
- **0** = Standard NEMA 1/12/3R/4 Steel
- **V** = NEMA 4X non-metallic
- **S** = NEMA 4X stainless steel
- **F** = NEMA 1 flush mount
- **P** = NEMA 1 screwcover pullbox with extended display on 6ft cable for line side mounting in SWBD/SWGR

Options
- **2** = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
- **0** = Type 1 SD (Consult Factory Prior to Ordering)
- **D** = Internal rotary disconnect
- **T** = Thru-door disconnect
- **X** = Surge Counter (Standard)

Example: **TPS3C12100XD2** = Type 2 SPD (Default) for a 208/120V application with a surge current capacity of 100kA per phase, in a standard NEMA 1/12/3R/4 enclosure with a surge counter and internal rotary disconnect option.

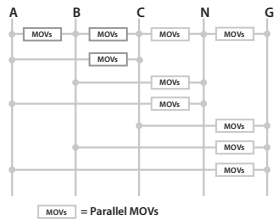
When option **X**, **T**, or **D** are NOT selected, include a **zero** (**0**) in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

① Not available in 500 kA

② Available in 100 kA, 150 kA, 200 kA & 250 kA only



"True" or "Discrete" 10-Mode SPD



TPS3 L12

Ordering Information

Catalog # TPS3 ☐ L12 ☐☐ ☐ ☐☐☐

Voltage Code
- **A** = 120/240 V, 1Ø, 3W
- **B** = 120/240 V, 3Ø, 4W
- **C** = 120/208 V, 3Ø, 4W
- **E** = 277/480 V, 3Ø, 4W
- **K** = 380/220 V, 3Ø, 4W
- **S** = 400/230 V, 3Ø, 4W

Surge Current (kA)
- **15** = 150 kA per phase
- **30** = 300 kA per phase
- **45** = 450 kA per phase

Enclosure
- **0** = Standard NEMA 1/12/3R/4 Steel
- **V** = NEMA 4X non-metallic
- **S** = NEMA 4X stainless steel
- **F** = NEMA 1 flush mount
- **P** = NEMA 1 screwcover pullbox with extended display on 6ft cable for line side mounting in SWBD/SWGR

Options
- **2** = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
- **0** = Type 1 SD (Consult Factory Prior to Ordering)
- **D** = Internal rotary disconnect
- **T** = Thru-door disconnect
- **X** = Surge Counter (Standard)

Example: **TPS3CL12150XD2** = 10 Mode, Type 2 SPD (Default) for a 208/120V application with a surge current capacity of 150kA per phase, in a standard NEMA 1/12/3R/4 enclosure with a surge counter and internal rotary disconnect option.

When an option is NOT selected, include a **zero** (**0**) in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

③ Internal disconnect options and other NEMA ratings may increase enclosure size and weight

TPS3 15 and TPS3 L15 (True or Discrete 10-Mode)

TPS3 15 and TPS3 L15 are UL 1449-4 Type 2 and Optional UL 1449 4th Edition surge protective device with a per phase surge current capacity that can be increased to 1000 kA (TPS3 L15 up to 900 kA). For mission critical or high profile applications, the TPS3 L15 is our "True" or "Discrete" 10-mode style SPD providing the "Just in Case" assurance of directly connected L-L MOVs.

Both TPS3 15 and TPS3 L15 are UL 1283 Listed incorporating EMI/RFI or Sine Wave tracking filtering designed to condition low energy L-N coupled noise. When installed at the electrical service entrance, it can be used for UL 96A compliance (@ 20 kA I_n).

Standard monitoring includes protection status indication LEDs, audible alarm, and dry contacts. Complete protection is intact when the status indicators are illuminated. When protection is lost, the status indicator will extinguish, the red service light will illuminate, and the dry contacts will change state. An optional surge counter is available.

A new diagnostic feature integrated within the TPS3 15 and TPS3 L15 is Ground Integrity Monitoring or (GIM) diagnostic indication circuit. Ground Integrity Monitoring or (GIM) diagnostics monitors the health of the electrical system's neutral to ground bond. If voltage is seen across neutral and ground, the phase indicators will remain illuminated, while the red service light begins to flash alerting the end user that the electrical system grounding needs to be checked and serviced. This feature can be remotely monitored via the dry contact outputs. Siemens TPS3s are one of the first in the industry to offer this power quality safety and performance indication.

TPS3 15 and TPS3 L15 Key Features

- UL 1449-4 and UL 1283 Listed
  - Optional UL 1449 4th Edition Listed Type 1
- Type 1 / Type 2 SPD
- TPS3 15: 400 – 1000 kA Per Phase Surge Current
- TPS3 L15: 600 and 900 kA Phase Surge Current
- 20 kA I_n (Most models)
- 200 kA SCCR (Most models)
- UL 96A Lightning Protection Master Labeling compliant (@ 20 kA)
- Every MOV is monitored, including N-G
- Mounts external to electrical distribution equipment
  - Recommended for line side or load side applications
- Standard NEMA 1/12/3R/04 ANSI 61 steel enclosure
- TPS3 15 Modes of Protection – L-N, L-G, N-G, and L-L
- TPS3 L15 Modes of Protection – L-N, L-G, N-G, and L-L (directly connected L-L elements)
- Internal rotary disconnect switch included
- Standard Monitoring:
  - LED Indicators
  - Ground Integrity Monitoring diagnostics
  - Dry Contacts
  - Audible alarm with silence switch and test button
- Wire size: #8 AWG to 1/0
- Dimensions: 20" x 20" x 7" (508 mm x 508 mm x 178 mm)④
- Weight: 64 lb. (29 kg)④
- 10 Year Product Warranty

Available Options:

- Thru-door disconnect



TPS3 15

Ordering Information

Catalog # TPS3 ☐ 15 ☐☐ ☐ ☐ ☐☐

Voltage Code

A = 120/240 V, 1Ø, 3W
B = 120/240 V, 3Ø, 4W
C = 120/208 V, 3Ø, 4W
D = 240 V, 3Ø, 3W②
E = 277/480 V, 3Ø, 4W
F = 480 V, 3Ø, 3W②
G = 600 V, 3Ø, 3W③
K = 380/220 V, 3Ø, 4W
L = 600/347 V, 3Ø, 4W
S = 400/230 V, 3Ø, 4W

Surge Current (kA)

40 = 400 kA per phase①
50 = 500 kA per phase①
60 = 600 kA per phase
80 = 800 kA per phase
1K = 1000 kA per phase

Enclosure

0 = Standard NEMA 1/12/3R/4 Steel
V = NEMA 4X non-metallic
S = NEMA 4X stainless steel
F = NEMA 1 flush mount
P = NEMA 1 screwcover pullbox with extended display on 5ft cable for line side mounting in SWBD/SWGR

Options

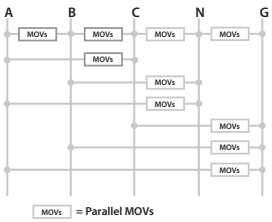
2 = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
0 = Type 1 SD (Consult Factory Prior to Ordering)
T = Thru-door disconnect
X = Surge Counter (Standard)

Example: **TPS3C1560SX02** = Type 2 SPD (Default) for a 208/120V application with a surge current capacity of 600 kA per phase, in a NEMA 4X stainless steel enclosure with a surge counter and standard disconnect switch.

When an option is NOT selected, include a **zero** (**0**) in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor
① Available in G voltage code only
② Available in 600 kA & 800 kA only
③ Available in 400 kA & 500 kA only



"True" or "Discrete" 10-Mode SPD



TPS3 L15

Ordering Information

Catalog # TPS3 ☐ L15 ☐☐ ☐ ☐☐

Voltage Code

A = 120/240 V, 1Ø, 3W
B = 120/240 V, 3Ø, 4W
C = 120/208 V, 3Ø, 4W
E = 277/480 V, 3Ø, 4W
K = 380/220 V, 3Ø, 4W
S = 400/230 V, 3Ø, 4W

Surge Current (kA)

60 = 600 kA per phase
90 = 900 kA per phase

Enclosure

0 = Standard NEMA 1/12/3R/4 Steel
V = NEMA 4X non-metallic
S = NEMA 4X stainless steel
F = NEMA 1 flush mount
P = NEMA 1 screwcover pullbox with extended display on 5ft cable for line side mounting in SWBD/SWGR

Options

2 = Type 2 SPD (Default) Includes UL 1283 EMI/RFI Filters
0 = Type 1 SD (Consult Factory Prior to Ordering)
T = Thru-door disconnect
X = Surge Counter (Standard)

Example: **TPS3CL15600X02** = 10 Mode, Type 2 SPD (Default) for a 208/120V application with a surge current capacity of 600 kA per phase, in a standard NEMA 1/12/3R/4 enclosure with a surge counter.

When an option is NOT selected, include a **zero** (**0**) in the field.

Available Accessories: Ordered Separately

RMSIE = Remote monitor

④ Other NEMA ratings may increase enclosure size and weight.

Frequently Asked Questions

What is a surge protective device or SPD?

A Surge Protective Device is a device that attenuates (reduces in magnitude) random, high energy, short duration overvoltages caused by lightning, utilities, switching, etc. Such anomalies occur in the form of voltage and current spikes with a duration of less than half an ac voltage cycle. These high energy power spikes can damage sensitive electronic equipment, such as computers, instrumentation, and process controllers.

How do SPDs work?

Surge Suppressors divert high energy power away from a load by providing a lower impedance path to common point earth ground. This is similar in concept to pressure relief valves that protect water heaters from overpressure. Surge suppressors used most often for protection of AC Power have metal oxide varistors (MOVs) connected in parallel.

Where are SPDs installed?

AC voltage surge suppressors are typically installed in these three areas: at a utility service entrance for protection of an entire facility, in distribution panelboards and switchboards for protection of sensitive downstream loads; connected to a wall outlet for individual protection of a specific piece of equipment, such as a computer or solid-state controller.

What is clamping voltage?

Clamping voltage, also referred to as peak let through or suppressed voltage rating, is the amount of voltage a surge suppressor permits to pass through it to the attached load during a transient event. Clamping voltage is a performance measurement of a surge suppressor's ability to attenuate a transient. For example, a surge suppressor might limit a 6,000V surge so that only 700V is 'visible' to the load. The Voltage Protection Rating is 700V, commonly called Clamping Voltage. This performance value is confirmed by Underwriters Laboratories during tests conducted while evaluating a surge suppressor for listing.

What is surge current capacity?

Surge current capacity is the maximum amount of surge current that a surge suppressor can pass for a single transient event. This level is used to indicate the protection capacity of a particular surge suppressor design, and when specifying surge suppressors. For example, in a high exposure application with very large transients present from lightning, a higher level surge current capacity might be desired. Be aware that surges have natural limitations and that larger surge current capacity tends to add redundancy rather than the implied ability to handle an extremely large surge. For example, an entire lightning strike cannot go through wire; it is much like trying to put the output from a fire hose through a soda straw. Consequently, suppressors do not need to be sized for entire lightning strikes. There are valid reasons for adding excess surge current capacity for redundancy reasons.

What types of components make up a SPD?

The device most commonly used in AC voltage surge suppressors are MOVs, a solid-state device made of zinc oxide materials. MOVs are voltage sensitive semiconductors, which change from high impedance to low impedance when sensing an overvoltage condition. MOVs are packaged for specific voltages and current handling capacities. Other devices (more typically found in DC applications) include single junction diodes and gas tubes that ionize at preset voltages.

What features should be considered when selecting SPDs?

Two important areas to consider during the selection of a surge suppressor are performance and safety, and include the following criteria: Performance: 1) surge current capacity; and 2) clamping voltage. Safety: 1) the individual suppression circuit should be fused to clear an inoperative MOV during an extreme transient event, and 2) provide overcurrent protection for the surge suppressor during a fault condition.

What surge current capacity is required?

Surge current capacity is dependent on the application and the amount of required protection. The selection of the proper surge suppressor is not an exact science and cannot be scientifically calculated from a standard algorithm.

Questions to consider when specifying the proper surge current capacity for a surge suppressor include:

- What is the geographic location of the facility and it's susceptibility to lightning? (For example, Florida is a high-lightning area; California is a low lightning area.)
- Is the facility in a rural or urban setting?
- Is the facility the tallest building around?
- Is the facility at the end of the utility grid?
- If it is an existing facility, what is its power quality history?

Based on the above information, and taking into account the cost of protection, the following is a good rule of thumb: a surge suppressor with a surge current capacity in the range of 100kA to 300kA would be used in conjunction with a service entrance panelboard or switchboard. A surge suppressor with a surge current capacity in the range of 100kA to 200kA would be used in conjunction with a downstream panelboard

Notes