

20PSP series



PROSURGE® 20PSP series panel SPDs are compact Surge Protective Devices (SPDs) designed to protect single and multi-phase electrical distribution systems against the harmful effects of transient surges. These surges are the result of:

- Direct and indirect lightning strikes
- Power company load switching
- Upstream load switching at other facilities

The 20PSP is constructed with Prosurge’s patented PTMOV (20PTMOV), which has a thermally protected and arc extinguishing technology as the core of Prosurge’s competency. PSP B has a significant advantage in abnormal over-voltage & high fault current safety and thus ensures industry’s highest level of safety and performance.

20PSP is tested and listed as UL1449 4th & CSA C22.2 Type 1 SPD. It is constructed in a NEMA 4X plastic enclosure to ensure that dirt, dust and water are resisted for either indoor or outdoor usage, and with indicator and a colored LED to demonstrate the power & protection status of protected power phase.

**The SPD Types Per ANSI / UL 1449 4th:**

*Type 1 – Permanently connected SPDs intended for installation between the secondary of the service transformer and the line side of the service equipment overcurrent device, as well as the load side, including watt-hour meter socket enclosures and Molded Case SPDs intended to be installed without an external overcurrent protective device.*

*Type 2 – Permanently connected SPDs intended for installation on the load side of the service equipment overcurrent device; including SPDs located at the branch panel and Molded Case SPDs.*

■ **Typical Applications:**

In low & medium exposure locations

- Commercial
- Industrial
- Communications
- Renewable energy
- Critical power (hospitals, data centers, etc)

**Outstanding 20PTMOV Technology**

*Thermally Protected MOV technology. Fast and safely disconnect in the case of abnormal over-voltage or current fault conditions.*



■ **Features:**

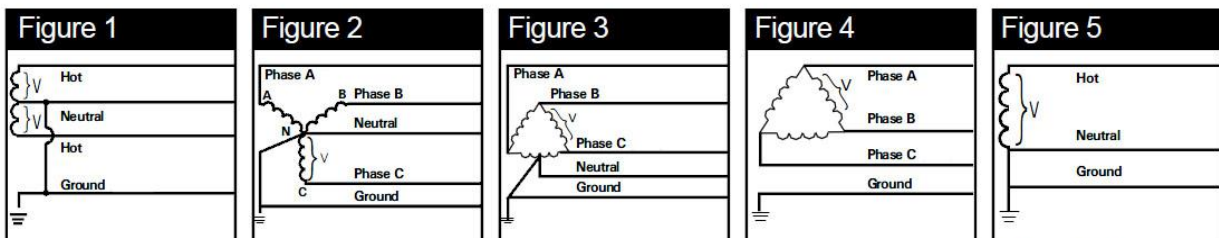
- UL 1449 4<sup>th</sup> & CSA C22.2 Type 1 SPD with SCCR up to 200kArms without external fuse or CB
- Nominal discharge current 20kA 8/20 μ s
- Prosurge Patented SCCR 200kArms thermally protected MOV technology (20PTMOV) as key component
- Full modes protection
- High surge energy capability with compact size
- Low voltage protection rating
- Degradation failure indication.
- With surge event counter
- Remote Alarm optional
- Threaded NPT
- NEMA 4X plastic enclosure to resist dirt, dust and water

■ **Configure & Ordering Information:**

<b><u>20PSP</u></b> Model series	<b><u>277Y</u></b> Voltage and system configuration	<b><u>C</u></b> Protection mode	<b><u>12</u></b> Surge capacity	<b><u>/ T1</u></b> SPD Category	<b><u>A</u></b> Function
<b><u>20PSP</u></b>	<b><u>120SP:</u></b> 120/240V split <b><u>240SP:</u></b> 240/480V split <b><u>120Y:</u></b> 120/1208V WYE <b><u>277Y:</u></b> 277/480V WYE <b><u>120H:</u></b> 120/240V high leg delta <b><u>240D:</u></b> 240V delta <b><u>120S:</u></b> 120V 1ph, 2W+G ...	<b><u>C:</u></b> Delete N-G protection mode	<b><u>12:</u></b> 100kA per phase	<b><u>T1:</u></b> UL type 1 SPD	<b><u>A:</u></b> Remote Alarm

1. **Voltage code for power distribution system**

- 120SP, 240SP= 120/240V;240/480V-----Split-phase three-wire + ground (Figure1)
- 120Y, 127Y, 240Y, 277Y, 347Y = 208Y/120V,220Y/127V, 415Y/240V, 480Y/277V-----Three-phase wye (star) four-wire + ground (Figure2)
- 120H,240H = 120/240V, 240V/480V-----Three-phase high leg delta (Figure3)
- 240D, 480D= 240V,480V-----Three-phase delta three-wire + ground (Figure4)
- 120S,127S,240S,277S =120V,127V, 240V,277V -----Single-phase two-wire + ground (Figure5)



SPLIT  
2 Hots, 1 Neu, 1 Grnd

WYE  
3 Hots, 1 Neu, 1 Grnd

HI-LEG DELTA (B High)  
3 Hots, (B HIGH),  
1 Neu, 1 Grnd

DELTA & HRG WYE  
3 Hots, 1 Grnd

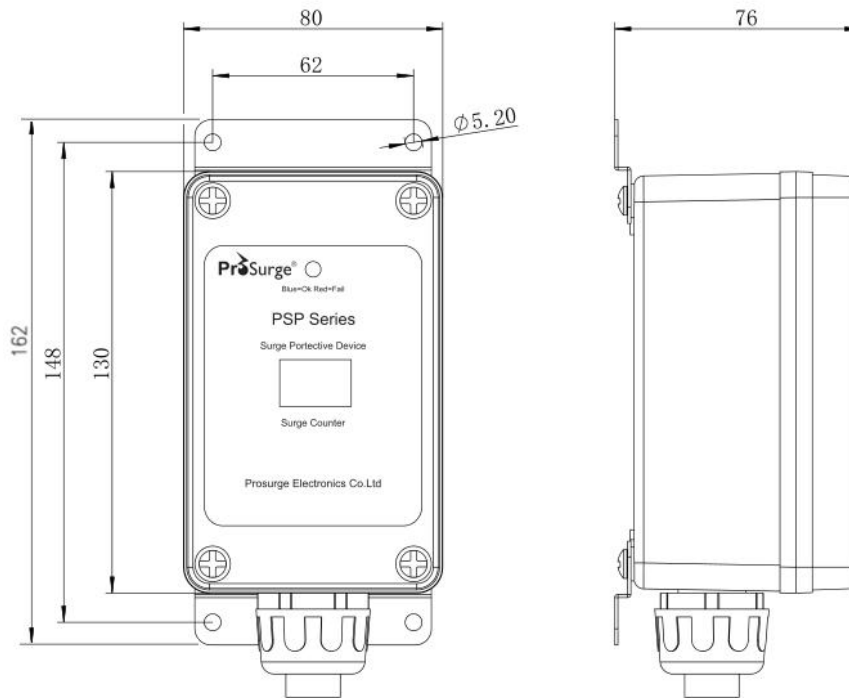
SINGLE POLE  
1 Hot, 1 Neu, 1 Grnd

■ Basic circuit diagram

Un/ Power system (50/60 HZ)	Basic circuit diagram of surge protection circuit	
	Power System has Neutral Line	Power System has No Neutral Line
120/240 VAC Split phase 240/480 VAC Split phase ...	20PSP... <b>SP12</b> ...(3W+G) 	20PSP... <b>SPC12</b> ...(2W+G) 
120 VAC single phase 127 VAC single phase 220 VAC single phase 230 VAC single phase 240 VAC single phase 277 VAC single phase ...	20PSP... <b>S12</b> ...(2W+G) 	
120/208 VAC WYE 127/220 VAC WYE 220/380 VAC WYE 230/400 VAC WYE 240/415VAC WYE 277/480 VAC WYE ...	20PSP... <b>Y12</b> ...(4W+G) 	20PSP... <b>YC12</b> ...(3W+G) 
240 VAC Delta ...		20PSP... <b>D12</b> ...(3W+G) 
120/240 VAC Hi-leg delta ...	20PSP... <b>H12</b> ...( 4W+G, L2 is High leg) 	20PSP... <b>HC12</b> ...(3W+G, L2 is High leg) 

### ■ Dimensions (unit: mm)

20PSP series can be fixed with bolts. The dimension of the devices and bolt holes as below:



### ■ General Specification:

Category	20PSP
Certification	ANSI/UL1449 4 <sup>th</sup> edition, CSA C22.2, Type1 SPD
Connection Type	Parallel Connected
Surge Capacity	100kA per Phase
Nominal discharge current $I_n$	20kA
SCCR	200kArms
Lightning counter Current	≥ 200A (with Reset button )
Power Status Indication	Normal=Blue LED ON
Working Status Indication	Normal= Blue LED ON; Fail= Blue LED turn to Red
Power Connecting	12 AWG, 762mm (30") length
Signal cable	16 AWG, 762mm (30") length (C=red; NC=blue; NO=brown)
Working environments	Temperature -40°C ~ +75°C, Humidity relative 5~95% (25°C) , Altitudes≤3km
Dimensions (W x D x H)	162 x 80 x 76 mm
Threaded NPT	1/2"NPT
Enclosure	Plastic enclosure, NEMA 4X
Net Weight (typical value)	0.53 kg

■ Technical Data:

Model No.	System voltage (50/60Hz)	In (kA)	Protected mode				Voltage Protection Ratings (VPR @6kV/ 3kA)				Surge Capability	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L		
20PSP120SP12/T1A	120/240V Split-phase	20	✓	✓	✓	✓	700	700	700	1200	100kA/phase	150/300 <sup>(1)</sup>
20PSP120SPC12/ T1A	120/240V Split-phase	20	✗	✓	✗	✓	-	700	-	1200	100kA/phase	150/300 <sup>(1)</sup>
20PSP240SP12/T1A	240/480V Split-phase	20	✓	✓	✓	✓	1200	1200	1200	2000	100kA/phase	320/640 <sup>(1)</sup>
20PSP240SPC12/T1A	240/480V Split-phase	20	✗	✓	✗	✓	-	1200	-	2000	100kA/phase	320/640 <sup>(1)</sup>
20PSP120Y12/T1A	208Y120V Three-phase wye	20	✓	✓	✓	✓	700	700	700	1200	100kA/phase	150
20PSP120YC12/T1A	208Y120V Three-phase wye	20	✗	✓	✗	✓	-	700	-	1200	100kA/phase	150
20PSP127Y12/T1A	220Y127V Three-phase wye	20	✓	✓	✓	✓	700	700	700	1200	100kA/phase	150
20PSP127YC12/T1A	220Y127V Three-phase wye	20	✗	✓	✗	✓	-	700	-	1200	100kA/phase	150
20PSP240Y12/T1A	415Y/240V Three-phase wye	20	✓	✓	✓	✓	1200	1200	1200	2000	100kA/phase	320
20PSP240YC12/T1A	415Y/240V Three-phase wye	20	✗	✓	✗	✓	-	1200	-	2000	100kA/phase	320
20PSP277Y12/T1A	480Y/277V Three-phase wye	20	✓	✓	✓	✓	1200	1200	1200	2000	100kA/phase	320
20PSP277YC12/T1A	480Y/277V Three-phase wye	20	✗	✓	✗	✓	-	1200	-	2000	100kA/phase	320
20PSP120H12/T1A	120/240V High leg delta	20	✓	✓	✓	✓	700- 1200HL	700- 1200HL	700	1200- 2000HL	100kA/phase	150/ 320(HL)
20PSP120HC12/T1A	120/240V High leg delta	20	✗	✓	✗	✓	-	700- 1200HL	-	1200- 2000HL	100kA/phase	150/ 320(HL)
20PSP240D12/T1A	240V Three-phase delta	20	✗	✓	✗	✓	-	1200	-	1200	100kA/phase	320
20PSP120S12/T1A	120V Single-phase	20	✓	✓	✓	✗	700	700	700	-	100kA/phase	150
20PSP127S12/T1A	127V Single-phase	20	✓	✓	✓	✗	700	700	700	-	100kA/phase	150
20PSP240S12/T1A	240V Single-phase	20	✓	✓	✓	✗	1200	1200	1200	-	100kA/phase	320
20PSP277S12/T1A	277V Single-phase	20	✓	✓	✓	✗	1200	1200	1200	-	100kA/phase	320

Note: <sup>(1)</sup> MCOV for L1-L 2  
(end)