

PSP B series



PROSURGE® PSP B 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 PSP B 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 ensure industry’s highest level of safety and performance.

PSP B is tested and listed as UL1449 4th, C22.2 Type 1 and Type 2 SPD (with sine wave tracking function). 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 two colored LEDs 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 PTMOV Technology**

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



■ **Features:**

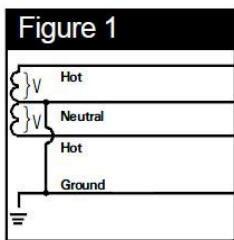
- UL 1449 4<sup>th</sup> & CSA C22.2 Type 1 SPDs with SCCR up to 200kArms without external fuse or CB
- UL 1449 4<sup>th</sup> & CSA C22.2 Type 2 SPDs with Sine Wave Tracking
- Nominal discharge current 10kA 8/20 μ s
- Prosurge Patented SCCR 200kArms thermally protected MOV technology (PTMOV) as key component
- Full modes protection
- High surge energy capability with compact size
- Low voltage protection rating
- Degradation failure indication.
- Sine wave tracking function optional (for UL Type 2 listed)
- Remote Alarm optional
- Threaded NPT
- NEMA 4X plastic enclosure to resist dirt, dust and water

■ **Configure & Ordering Information:**

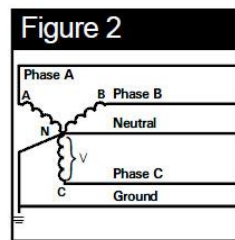
| <u>PSP</u><br>Model series | <u>277Y</u><br>Voltage and system configuration  | <u>C</u><br>Protection mode                 | <u>12</u><br>Surge capacity      | <u>/ T1</u><br>SPD Category  | <u>A</u><br>Function          |
|----------------------------|--|---|----------------------------------|--|-------------------------------|
| <u>PSP</u>                 | <p><u>120SP</u>: 120/240V split</p> <p><u>240SP</u>: 240/480V split</p> <p><u>120Y</u>: 120/120V WYE</p> <p><u>277Y</u>: 277/480V WYE</p> <p><u>120H</u>: 120/240V high leg delta</p> <p><u>240D</u>: 240V delta</p> <p><u>120S</u>: 120V 1ph, 2W+G</p> <p>...</p> | <p><u>C</u>: Delete N-G protection mode</p> | <p><u>12</u>: 50kA per phase</p> | <p><u>T1</u>: UL type 1 SPD</p> <p><u>T2F</u>: UL type 2 SPD with sine wave tracking</p> | <p><u>A</u>: Remote Alarm</p> |

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

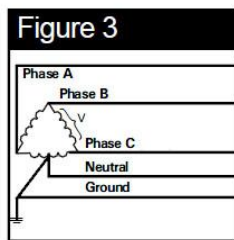
- 120SP, 240SP= 120/240V;240/480V-----Split-phase three-wire + ground (Figure1)
- 120Y, 127Y, 240Y, 277Y, 347Y = 208Y/120V,220Y/127V, 415Y/240V, 480Y/277V, 600Y/347V-----Three-phase wye (star) four-wire + ground (Figure2)
- 120H,240H = 120/240V, 240V/480V-----Three-phase high leg delta (Figure3)
- 240D, 480D, 600D = 240V,480V,600V-----Three-phase delta three-wire + ground (Figure4)
- 120S,127S,240S,277S,347S =120V,127V, 240V,277V, 347V-----Single-phase two-wire + ground (Figure5)



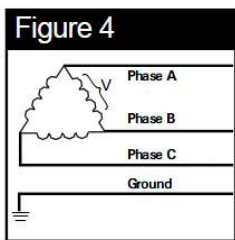
SPLIT  
2 Hots, 1 Neu, 1 Grnd



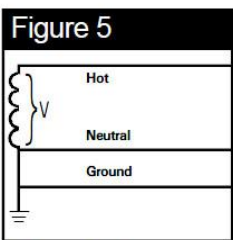
WYE  
3 Hots, 1 Neu, 1 Grnd



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



DELTA & HRG WYE  
3 Hots, 1 Grnd



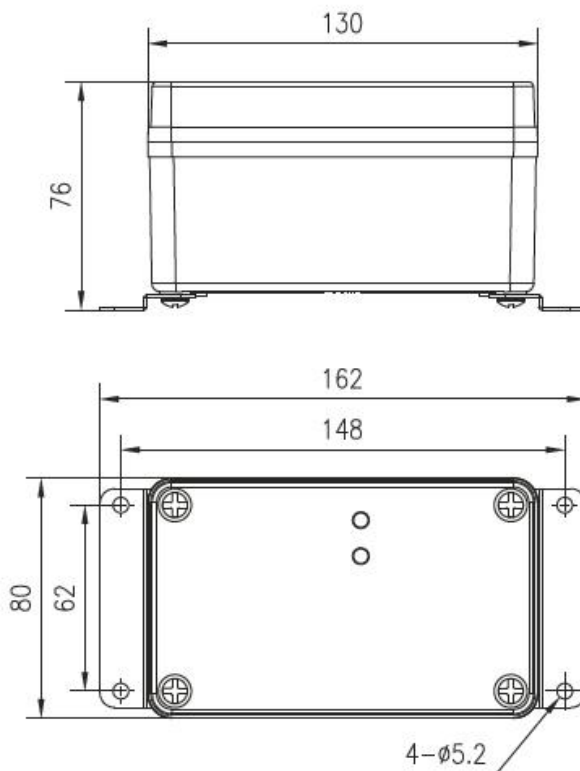
SINGLE POLE  
1 Hot, 1 Neu, 1 Grnd

■ **Basic circuit diagram**

| Un/ Power system<br>(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<br>240/480 VAC Split phase<br>...   | PSP... <b>SP12</b> ...(3W+G)<br>                  | PSP... <b>SPC12</b> ...(2W+G)<br>                |
| 120 VAC single phase<br>127 VAC single phase<br>220 VAC single phase<br>230 VAC single phase<br>240 VAC single phase<br>277 VAC single phase<br>347 VAC single phase<br>... | PSP... <b>S12</b> ...(2W+G)<br>                   |  |
| 120/208 VAC WYE<br>127/220 VAC WYE<br>220/380 VAC WYE<br>230/400 VAC WYE<br>240/415VAC WYE<br>277/480 VAC WYE<br>347/600 VAC WYE<br>...                                     | PSP... <b>Y12</b> ...(4W+G)<br>                   | PSP... <b>YC12</b> ...(3W+G)<br>                 |
| 240 VAC Delta<br>480 VAC Delta<br>600 VAC Delta<br>...  |   | PSP... <b>D12</b> ...(3W+G)<br>                  |
| 120/240 VAC Hi-leg delta<br>240/480 VAC Hi-leg delta<br>...   | PSP... <b>H12</b> ...( 4W+G, L2 is High leg)<br>  | PSP... <b>HC12</b> ...(3W+G, L2 is High leg)<br> |

### ■ Dimensions (unit: mm)

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



### ■ General Specification:

|                                 |  |
|---------------------------------|--|
| Category                        | PSP B  |
| Certification                   | ANSI/UL1449 4 <sup>th</sup> edition CSA C22.2, Type1, Type 2 SPD   |
| Connection Type                 | Parallel Connected   |
| Surge Capacity                  | 50kA per Phase   |
| Nominal discharge current $I_n$ | 10kA   |
| SCCR                            | 200kArms   |
| Sine wave tracking              | Optional for UL Type 2 listed  |
| Power Status Indication         | Normal = Power LED ON  |
| Working Status Indication       | Fail = Surge protection LED ON   |
| Power Connecting                | 12 AWG, 762mm (30") length   |
| Signal cable                    | 16 AWG, 762mm (30") length (C=red; NC=blue; NO=brown)  |
| Working environments            | Temperature $-40^{\circ}\text{C} \sim +75^{\circ}\text{C}$ , Humidity relative 5~95% (25 $^{\circ}\text{C}$ ), Altitudes $\leq 3\text{km}$ |
| 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)      | 0.47 kg  |

## One-port Panel SPDs

## ■ Technical Data:

| Model No.      | System voltage<br>(50/60Hz)  | In<br>(kA) | Protected mode |     |     |     | Voltage Protection Ratings<br>(VPR @6kV/ 3kA) |                 |      |                 | Surge<br>Capability | MCOV<br>(Vac)          |
|----------------|------------------------------|------------|----------------|-----|-----|-----|---|-----------------|------|-----------------|---------------------|------------------------|
|                |                              |            | L-N            | L-G | N-G | L-L | L-N   | L-G             | N-G  | L-L             |                     |                        |
| PSP120SP12/*A  | 120/240V<br>Split-phase      | 10         | ✓              | ✓   | ✓   | ✓   | 700   | 700             | 700  | 1200            | 50kA/phase          | 150/300 <sup>(1)</sup> |
| PSP120SPC12/*A | 120/240V<br>Split-phase      | 10         | ✗              | ✓   | ✗   | ✓   | -   | 700             | -    | 1200            | 50kA/phase          | 150/300 <sup>(1)</sup> |
| PSP240SP12/*A  | 240/480V<br>Split-phase      | 10         | ✓              | ✓   | ✓   | ✓   | 1200  | 1200            | 1200 | 2000            | 50kA/phase          | 320/640 <sup>(1)</sup> |
| PSP240SPC12/*A | 240/480V<br>Split-phase      | 10         | ✗              | ✓   | ✗   | ✓   | -   | 1200            | -    | 2000            | 50kA/phase          | 320/640 <sup>(1)</sup> |
| PSP120Y12/*A   | 208Y120V<br>Three-phase wye  | 10         | ✓              | ✓   | ✓   | ✓   | 700   | 700             | 700  | 1200            | 50kA/phase          | 150                    |
| PSP120YC12/*A  | 208Y120V<br>Three-phase wye  | 10         | ✗              | ✓   | ✗   | ✓   | -   | 700             | -    | 1200            | 50kA/phase          | 150                    |
| PSP127Y12/*A   | 220Y127V<br>Three-phase wye  | 10         | ✓              | ✓   | ✓   | ✓   | 700   | 700             | 700  | 1200            | 50kA/phase          | 150                    |
| PSP127YC12/*A  | 220Y127V<br>Three-phase wye  | 10         | ✗              | ✓   | ✗   | ✓   | -   | 700             | -    | 1200            | 50kA/phase          | 150                    |
| PSP240Y12/*A   | 415Y/240V<br>Three-phase wye | 10         | ✓              | ✓   | ✓   | ✓   | 1200  | 1200            | 1200 | 2000            | 50kA/phase          | 320                    |
| PSP240YC12/*A  | 415Y/240V<br>Three-phase wye | 10         | ✗              | ✓   | ✗   | ✓   | -   | 1200            | -    | 2000            | 50kA/phase          | 320                    |
| PSP277Y12/*A   | 480Y/277V<br>Three-phase wye | 10         | ✓              | ✓   | ✓   | ✓   | 1200  | 1200            | 1200 | 2000            | 50kA/phase          | 320                    |
| PSP277YC12/*A  | 480Y/277V<br>Three-phase wye | 10         | ✗              | ✓   | ✗   | ✓   | -   | 1200            | -    | 2000            | 50kA/phase          | 320                    |
| PSP347Y12/*A   | 600Y347V<br>Three-phase wye  | 10         | ✓              | ✓   | ✓   | ✓   | 1500  | 1500            | 1500 | 2500            | 50kA/phase          | 420                    |
| PSP347YC12/*A  | 600Y347V<br>Three-phase wye  | 10         | ✗              | ✓   | ✗   | ✓   | -   | 1500            | -    | 2500            | 50kA/phase          | 420                    |
| PSP120H12/*A   | 120/240V<br>High leg delta   | 10         | ✓              | ✓   | ✓   | ✓   | 700-<br>1200HL                                | 700-<br>1200HL  | 700  | 1200-<br>2000HL | 50kA/phase          | 150/<br>320(HL)        |
| PSP120HC12/*A  | 120/240V<br>High leg delta   | 10         | ✗              | ✓   | ✗   | ✓   | -   | 700-<br>1200HL  | -    | 1200-<br>2000HL | 50kA/phase          | 150/<br>320(HL)        |
| PSP240H12/*A   | 240/480V<br>High leg delta   | 10         | ✓              | ✓   | ✓   | ✓   | 1200-<br>1800HL                               | 1200-<br>1800HL | 1200 | 2000-<br>3000HL | 50kA/phase          | 320/<br>550(HL)        |
| PSP240HC12/*A  | 240/480V<br>High leg delta   | 10         | ✗              | ✓   | ✗   | ✓   | -   | 1200-<br>1800HL | -    | 2000-<br>3000HL | 50kA/phase          | 320/<br>550(HL)        |
| PSP240D12/*A   | 240V<br>Three-phase delta    | 10         | ✗              | ✓   | ✗   | ✓   | -   | 1200            | -    | 1200            | 50kA/phase          | 320                    |
| PSP480D12/*A   | 480V<br>Three-phase delta    | 10         | ✗              | ✓   | ✗   | ✓   | -   | 1800            | -    | 3000            | 50kA/phase          | 550                    |
| PSP600D12/*A   | 600V<br>Three-phase delta    | 10         | ✗              | ✓   | ✗   | ✓   | -   | 2000            | -    | 4000            | 50kA/phase          | 690                    |
| PSP120S12/*A   | 120V<br>Single-phase         | 10         | ✓              | ✓   | ✓   | ✗   | 700   | 700             | 700  | -               | 50kA/phase          | 150                    |
| PSP127S12/*A   | 127V<br>Single-phase         | 10         | ✓              | ✓   | ✓   | ✗   | 700   | 700             | 700  | -               | 50kA/phase          | 150                    |
| PSP240S12/*A   | 240V<br>Single-phase         | 10         | ✓              | ✓   | ✓   | ✗   | 1200  | 1200            | 1200 | -               | 50kA/phase          | 320                    |
| PSP277S12/*A   | 277V<br>Single-phase         | 10         | ✓              | ✓   | ✓   | ✗   | 1200  | 1200            | 1200 | -               | 50kA/phase          | 320                    |
| PSP347S12/*A   | 347V<br>Single-phase         | 10         | ✓              | ✓   | ✓   | ✗   | 1500  | 1500            | 1500 | -               | 50kA/phase          | 420                    |

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

(end)