

PSP series Surge Protective Devices

Category B series

(50 kA per phase)

The **PSP B series** are defined as high performance surge protection solution for most commercial and industrial environments with critical operations, and UL 1449 Type1/ 2 designed to protect 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



PRODUCT SPECIFICATIONS

Note : * Items are optional

PSP category	B
Certification	ANSI/UL1449 4 th , Type 1 SPD
	ANSI/UL1449 4 th , Type2 SPD (With sine wave tracking)
Connection Type	Parallel Connected
Ports	1
Surge capacity per phase	50 kA
Nominal discharge current (In)	10 kA
SCCR rating	200kArms
EMI/RFI filtering *	Sine wave tracking (for Type 2)
Power Status Indication	Normal=Blue LED ON
Working Status Indication	Fail=Surge Protection LED on
Power Connecting	#12 AWG, 300mm (11.8") length A(L1)=black ;B(L2)=red; C(L3)=blue; N=white; PE=green
	#16 AWG, 300mm (11.8") length C=red; NC=blue; NO=brown
Signal cable(Remote alarm)*	Temperature -40℃ ~ +75℃, Humidity relative 5~95% (25℃) , Altitude≤3km
Working environments	162 x 80 x 76 mm
Dimensions, W x D x H	1/2"NPT
Threaded NPT	Plastic enclosure, NEMA 4X
Enclosure	

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 1 SPDs for use in PV systems can be connected between the PV array and the main service disconnect.

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.

Type 3 – Point of utilization SPDs, installed at a minimum conductor length of 10 meters (30 feet) from the electrical service panel to the point of utilization, for example cord connected, direct plug-in, receptacle type and SPDs installed at the utilization equipment being protected. The distance (10 meters) is exclusive of conductors provided with or used to attach SPDs.

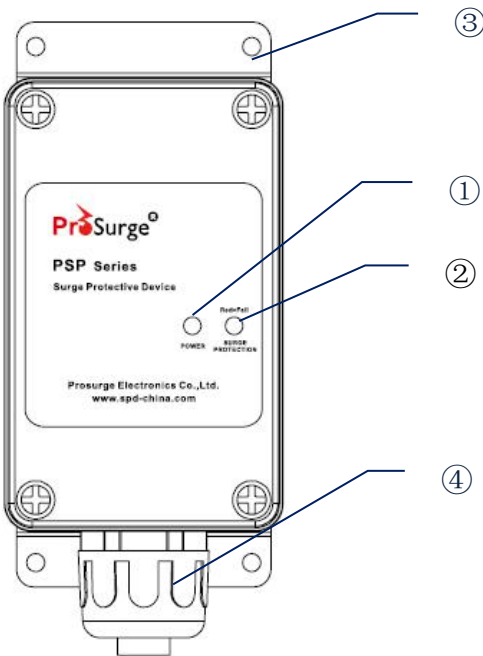
WARNING!

Only qualified personnel should install or service this system. Electrical safety precautions must be followed when installing or servicing this equipment. To prevent risk of electrical shock, turn off and lock out all power sources to the unit before making electrical connections or servicing.



For proper and safe operation, neutral and ground **MUST** be reliably connected. Failure to operate this unit from a solidly grounded power source of the proper configuration will reduce or impede operation, and may result in unit failure.

CONFIGURATION AND OPERATION



- ① **Power Indication**, while the SPD is connected to the electrical system supply voltage, the line power indicators will be illuminated blue.
- ② **Surge Protection Indication**, the status LEDs provide visual indication of SPD health status. When the power Lines lose of protection, the LED will be illuminated red.
- ③ **Fixed support**, used to mount the PSP models on the wall by bolt
- ④ **Threaded NPT**, 1/2”NPT, # 12 AWG for power connection (L1=black; L2=red; L3=blue; N=white; PE=green); # 16 AWG for remote signal connection (C=red; NC=blue; NO=brown).

Fig 1: Diagram of PSP B

INSTALLATION

Mounting – Mount unit as close as possible to the service panel, using mounting hardware. For best performance, unit should be positioned so that the length of the wiring to the surge protective device (SPD) unit is minimized.

Wire Sizing/Routing - #12 AWG and 300mm (11.8”) length wiring is provided with unit. The length of wiring to the PSP must be kept at a minimum for the best performance. Wire lengths should be short, straight runs between the PSP and power source. To reduce the wiring impedance to surge currents, the phase, neutral (if required), and ground conductors are recommended to be twisted together and routed in the same race way (conduit). Avoid any sharp bends in the conductors. All wiring must comply with the National Electrical Code (NEC) and applicable local codes.

Conduit Connection - Feed all wires into the panel through the knockout selected and secure.

Installation Instruction

Wiring Connections – Before making connections to the unit, verify that the unit model number and nameplate voltage rating are appropriate for connection to the intended power source. Please check it according to below table 1.



WARNING !

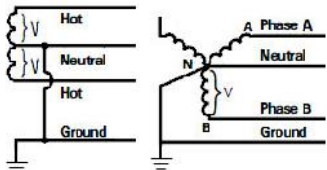
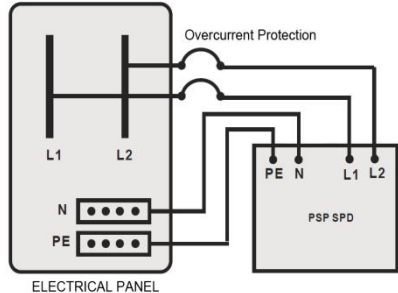
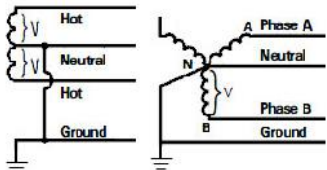
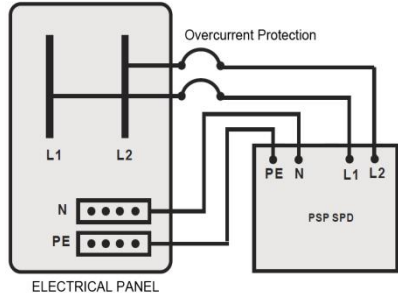
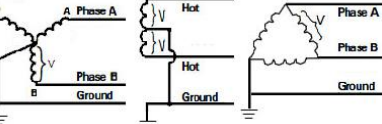
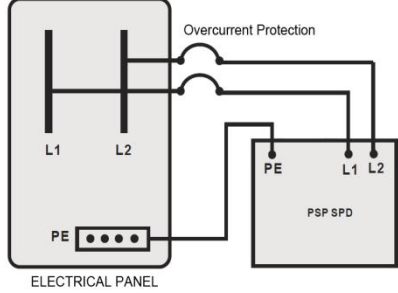
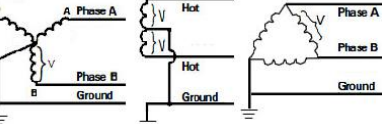
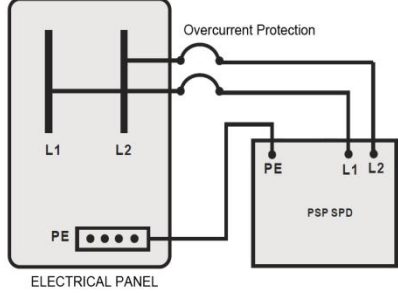
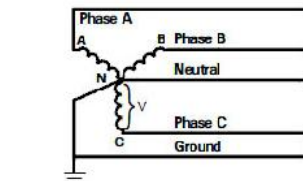
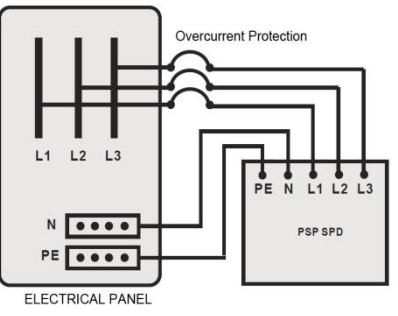
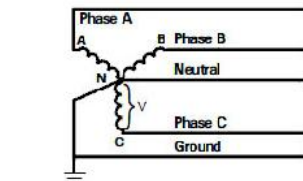
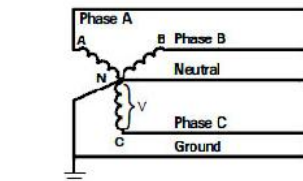
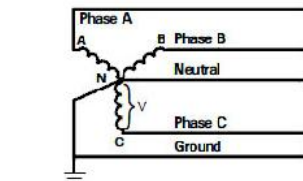
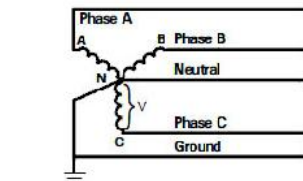
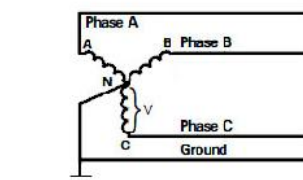
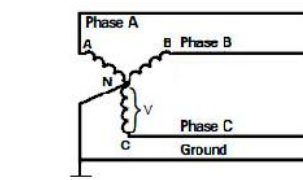
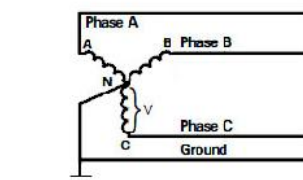
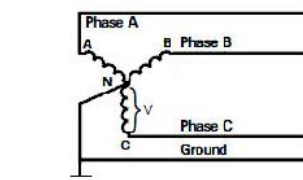
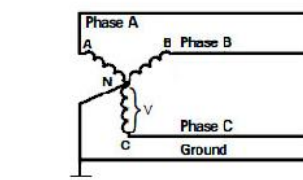
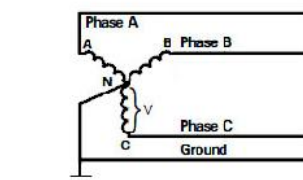
Select the proper PROSURGE PSP series SPD unit according to your system voltage, configuration and the anticipated surge environment.

Prior to install the SPD, ensure that your facility electric supply system is properly installed and connected in according with all applicable national and local codes and safety procedure.

Table 1- Power distribution & wire connection

Part No.	Nominal Voltage Un (50/60Hz)	MCOV Uc	Power distribution	Wire connection
PSP240D12/T1A PSP240D12/T2FA	240 V	320 V	Three phase Delta, 3W+G 	
PSP480D12/T1A PSP480D12/T2FA	480 V	550 V		
PSP600D12/T1A PSP600D12/T2FA	600 V	690 V		
PSP120H12/T1A PSP120H12/T2FA	120/240 V	150/320 V	HI-LEG Delta(B high), 4W+G 	
PSP240H12/T1A PSP240H12/T2FA	240/480 V	320/550 V		
PSP120HC12/T1A PSP120HC12/T2FA	120/240 V	150/320 V	HI-LEG Delta(B high), 3W+G 	
PSP240HC12/T1A PSP240HC12/T2FA	240/480 V	320/550 V		

Installation Instruction

PSP120SP12/T1A PSP120SP12/T2FA	120/208-240 V	150 V	Split phase or single phase, 3W+G 	
PSP240SP12/T1A PSP240SP12/T2FA	240/415-480 V	320 V		
PSP120SPC12/T1A PSP120SPC12/T2FA	120 V	150 V	Split phase or single phase, 2W+G (No neutral) 	
PSP240SPC12/T1A PSP240SPC12/T2FA	240 V	320 V		
PSP120Y12/T1A PSP120Y12/T2FA	120/208 V	150 V	Three phase WYE, 4W+G 	
PSP127Y12/T1A PSP127Y12/T2FA	127/220 V	150 V		
PSP240Y12/T1A PSP240Y12/T2FA	240/415 V	320 V		
PSP277Y12/T1A PSP277Y12/T2FA	277/480 V	320 V		
PSP347Y12/T1A PSP347Y12/T2FA	347/600 V	420 V		
PSP120YC12/T1A PSP120YC12/T2FA	120/208 V	150 V	Three phase WYE(No neutral), 3W+G 	
PSP127YC12/T1A PSP127YC12/T2FA	127/220 V	150 V		
PSP240YC12/T1A PSP240YC12/T2FA	240/415 V	320 V		
PSP277YC12/T1A PSP277YC12/T2FA	277/480 V	320 V		
PSP347YC12/T1A PSP347YC12/T2FA	347/600 V	420 V		
PSP120YC12/T1A PSP120YC12/T2FA	120/208 V	150 V		

Installation Instruction

PSP120S12/T1A PSP120S12/T2FA	120 V	150 V	<p>Single phase, 2W+G</p>	
PSP127S12/T1A PSP127S12/T2FA	127 V	150 V		
PSP240S12/T1A PSP240S12/T2FA	220-240 V	320 V		
PSP277S12/T1A PSP277S12/T2FA	277 V	320 V		
PSP347S12/T1A PSP347S12/T2FA	347 V	420 V		

1. Connect Black /Red/Blue Phase Wires to corresponding phase on the service panel.
2. Connect the White wire of the SPD (if provided) to the neutral of the supply and the Green wire of the SPD to source ground.
3. If using remote sensing, connect the Red (COM), Blue (NC), and Brown (NO) wires (#16 AWG). If not using relay contacts for remote sensing, cut and dress wires.

Remote alarm contact type	Floating changeover contact
Remote Alarm Contact	AC: 250V/5A
Capability Un/In	DC: 30V/5A
Com-No Breakover	SPD Fault, need to be replaced
Com-Nc Breakover	SPD is OK

Suggested Circuit Breaker

Over current Protection: 25A Recommended.

In addition to safety, the dedicated breaker performs the following functions:

- Allows power to the protector's to be removed without interrupting power to other loads.
- Should a component fail inside the protector, only the protector's breaker will trip, and power to other loads is not disturbed.

Applying Power – Apply power to the SPD and assure status indications are normal. Under normal conditions, power LEDs is illuminated blue.

PRODUCT RATINGS AND LIMITATIONS

Voltage Protection Rating – To obtain the voltage protection ratings (VPRs), in accordance with the Standard for Safety, Surge Protective Devices (SPDs), Standard 1449 Fourth Edition, released 2014, indicated on this product, the wire supplied must be utilized to connect the SPD to your facilities power grid. Connections made with unapproved conductors may result in different VPRs.

Installation Instruction

Circuit Ampacity Limitations – This device has been investigated to withstand, without exposing live circuits or components on power sources, a voltage of two times (2x) the device ratings, and fault currents of up to 200,000 AIC, as described in the Standard for Safety, Surge Protective Devices (SPDs), Standard 1449, Fourth Edition, released 2014.

NEMA 4X – NEMA 4X boxes provide a watertight protection against splashing water, indoor wash down from a commercial hose as well as ingress protection from dirt, rain, sleet, snow, ice and windblown dust. NEMA 4X provides an additional level of protection against corrosion.

NEMA 4X enclosures can be an equivalent replacement for International Protection Ratings: **IP56 & IP66**.

TROUBLESHOOTING

If any of the diagnostic indicators indicates a problem, check all connections and voltages to the unit. If all connections are made and reliable, and proper voltages are supplied to the unit, please contact: Eproteca S.A. - soporte@eproteca.com - Tel. +506 22801686

NOTE

This instruction is not comprehensive. It's assumed the user will follow established safety precautions for working in an electrical environment. For more information on safety precautions and procedures, please find from related organizations as below.

- Underwriters Laboratories(UL)
- American National Standards Association(ANSI)
- Institute of Electrical and Electronics Engineers (IEEE).
- National Fire Protection Association (NFPA)
- National Electrical Manufacturers Association (NEMA)

Installation Dimension

Note: units are in mm

