ProSurge®

Maximum Safety in Surge Protection

Surge Protective Devices (SPDs)

www.Prosurge.com

2019 Edition

Prosurge, Inc - Florida, USA

Prosurge Electronics Co., Ltd - Foshan, China

Prosurge is a globally competitive surge protection company and is one of the fastest growing companies in this industry. It consists of 2 companies:

Prosurge, Inc

Prosurge Electronics Co., Ltd

We start from a humble beginning by a group of experts and now we've grown into a business with more than 120 staffs. For the past 12 years, we extended our business in 6 continents and more than 60 countries. Although United States still remains our biggest single market, most of our revenue comes from international market.

Our mission is to protect millions of businesses, households and organizations from lightning & surge damages. Inspired and encouraged by this mission, we are doing things differently than many of our competitors.

We innovate. As an engineering driven company, we invest a way-above-average ratio of yearly revenue on R&D. This ensures Prosurge to be among the very few companies who can offer the most complete SPDs on both UL and IEC standards markets.

We challenge. Using our ingenuity, we are raising the standards for SPD quality & reliability via designing, manufacturing and testing. Our SPD is one of the safest on the market.

We collaborate. The Prosurge team is one of the best in industry. We share the same value: pursue excellence in everything we do. Together, we are delivering world-class products and solutions.

We progress. Despite our accomplishment, We deem ourselves progressive instead of successful. With a continuous improving mentality, we are always bettering than we used to be.

We support. Our customers are supported and well-served in various ways: 2-hour response, technical training, video conference, regular visit, well-documented material ect. In fact, they are so loyal and satisfied that they are happy to write recommendation letters for us.

Trust us with confidence. Stay safe and sound with Prosurge!

Team

Bill Goldbach

Bill has been recognized as a leading industry expert in Power Engineering and Surge Protective Devices. He used to be member of IEEE' standards board and UL1449 STP.

Terry Mao

Terry has been in surge protection industry for about 20 years. He has in-depth experience and expertise spanning from MOV to SPD.

Prosurge Strength

ProSurge®
Maximum Safety in Surge Protection

Strict Bar Code Management Tracking System

- Bar code management for each part to trace lot #, parameters, materials lot No., materials specification, key process operator etc.

Product Approvals & Standards:

- UL, ETL (ANSI/UL 1449 4th edition, CSA C22.2, UL 497b, etc.)
- KEMA, TUV (EN/IEC 61643-1/11, EN50539-11)
- CE (LVD, EMC)

Prosurge's In-house Lab

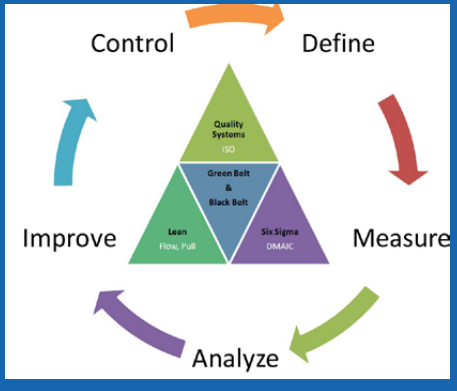
- Prosurge can perform testing according to ANSI/UL 1449 4th, 497 a/b/c, EN/IEC 61643-1/11/31, EN/IEC 61643-21, IEEE C62.41 etc. at PROSURGE in-house Lab

R&D

- International R&D team with China & USA experts, senior member of IEC and IEEE.
- Main products are international patents protected to avoid any possible intellectual property risk

Quality Assurance

- Global supplier of Fortune 500 enterprises
- 6 Sigma Quality Control System
- Inspection by 100% before packing
- 5+ Years Warranty



Production Capacity

- Factory size in square meter: 3000
- More than monthly 300K pcs SPDs in one shift

Impulse Current Generator

- For IEC/EN 61643 Type 1 / Class B SPD testing
- Current capacity: 50kA (10/350μs), 200kA (8/20μs)

Multi-waveform Surge Generator

- For IEC/EN 61643 Type2, 3 / Class C,D SPD, and UL1449 all type testing
- Current capacity: 120kA (8/20μs) & combination wave (1.2/50μs voltage - 8/20μs current)

Vibration Tester

- Product structural stability & packaging testing

Online Aging Tester

- Uc / MCOV compliance 100% online testing before packing

Rated Functioning Temperature (Tf)

- UL60691 & IEC60691

1.2/50 Voltage Impulse Generator

- UL 1449 & IEC61643

Environment Test Chamber

- UL 1449 & IEC61643

Thermal Stability Tester

- IEC61643

Intermediate Current Tester

- UL 1449

Accelerated Aging Tester

- UL 1449 & IEC61643

Handheld SPD Tester

- UL 1449 & IEC61643

Fluke Network Analysis

- UL497 & IEC61643-21

Oscilloscope

Digital Electric Bridge

SPD Component Tester

Varistor Parameter Tester

Certificates and International Patents

ProSurge®
Maximum Safety in Surge Protection


CERTIFICATE OF COMPLIANCE

Certificate Number 20150820-E319871
Report Reference E319871-20100929
Issue Date 2015-AUGUST-20

Issued to: PROSURGE ELECTRONICS CO LTD
Dajin Industrial Zone
Jiansha Rd Danzao Nanhai
Foshan
Guangdong 528216 CHINA

This is to certify that representative samples of: COMPONENT - SURGE-PROTECTIVE DEVICES
Refer addendum page for models

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL1449 Surge Protective Devices
CSA C22.2 No. 8 13 Electromagnetic Interference (EMI) Filters, Electrical Notice No. 516 Surge/Transient Voltage Suppressors

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

UL


Intertek
AUTHORIZATION TO MARK

Control Number: 3188237

ETL


CERTIFICATE

Issued to:
Applicant: Prosurge Electronics Co., Ltd.
Dajin Industrial Zone
528216 Nanhai, Foshan, Guangdong, China

Products: surge protective devices
Trade names: PROSURGE, SAFSURGE, HIT

Certificate number: 2148698.01
DEKRA Certification B.V.

KEMA


CERTIFICATE
No. B 16 08 96605 006

Holder of Certificate: Prosurge Electronics Co., Ltd.
Dajin Industrial Zone, Jiansha Road, Danzao
Nanhai
528216 Foshan, Guangdong
PEOPLE'S REPUBLIC OF CHINA

Certification Mark:

Product: Surge protection equipment
[Surge Protective Device(SPD)]

Date, 2016-08-18

TUV


Certificate of Compliance

Certificate's Holder: Prosurge Electronics Co., Ltd.
Dajin Industrial Zone, Jiansha Road, Danzao, Nanhai, Foshan, Guangdong, 528216 China

Certification ECM Mark:

Product: Surge Protective Device
Model(s): (see the following annex I)

Verification to: Standard:
EN 61643-11:2012,
EN 61643-21:2001+A1:2009+A2:2013,
EN 61000-3-2:2014, EN 61000-3-3:2013,
EN 61000-6-3:2007+A1:2011+AC:2012,
EN 61000-6-1:2007

related to CE Directive(s):
2014/35/EU (Low Voltage)
2014/30/EU (Electromagnetic Compatibility)

Ente Certificazione Macchine Srl

CE


Certificate of Registration

Prosurge Electronics Co.,Ltd

Has been assessed as conforming to meet the requirements of
ISO9001:2015

Manufacture and sale of lightning protection electronic products (except the qualification license)

Issue Date: 10 May 2018 Valid until 9 May 2021

ISO 9001: 2015


The United States of America

The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this
United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

US PATENT


Bundesrepublik Deutschland

Urkunde

über die Erteilung des
Patents Nr. 11 2010 005 119

Bezeichnung:
Überspannungsableiter mit thermischer Überlastsicherung

IPC:
H02H 9/04

Inhaber/Inhaberin:
Xiaomao Mao, Foshan, CN

Erfinder/Erfinderin:
Wei, Tianyun, Guangdong, CN; Mao, Xiaomao, Guangdong, CN

Priorität
12.01.2010 CN 201010019307.8

Tag der Anmeldung:
02.02.2010

Tag der Veröffentlichung der Patenterteilung:
12.03.2015

Die Präsidentin des Deutschen Patent- und Markenamts

Cornelia Rudloff-Schäffer

München, 14.07.2015

GERMANY PATENT


KIPO

CERTIFICATE OF PATENT REGISTRATION

Patent Reg. No. : 10-1318852

Application No. : 10-2011-7030783
Application Date : December 22, 2011
Registration Date : October 10, 2013

Title of Invention : SURGE SUPPRESSOR WITH THERMAL PROTECTIVE FUNCTION

Owner of Patent Right : Prosurge Electronics Co., Ltd.
Second floor, 30 Gongyedadao, Xiabai, Luocun Town, Nanhai Foshan, Guangdong 528226 China

Inventor(s) : MAO, Xiaomao
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Inventor(s) : WEI, Tianyun
Second floor, 30 Gongyedadao, Xiabai, Luocun Town, Nanhai Foshan, Guangdong 528226 China

This is to certify that the above invention has been registered in the original Patent register in accordance with the Patent Law.

This 10th day of October, 2013

The Commissioner of the Korean Intellectual Property Office

KOREA PATENT

Selecting SPD (UL 1449 4th Ed.)

- **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.

  SPDs investigated for Type 1 applications are automatically suitable for Type 2 applications and may be marked for SPD Type 1 and/or Type 2 applications. SPDs only marked "SPD Type 2" are not suitable for Type 1 applications.

- **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.

- **Type 4 Component Assemblies** – Component assembly consisting of one or more Type 5 components together with a disconnect (integral or external) or a means of complying with the limited current tests.

- **Type 1, 2, 3 Component Assemblies** – Consists of a Type 4 component assembly with internal or external short circuit protection.

- **Type 5** – Discrete component surge suppressors, such as MOVs that may be mounted on a PWB, connected by its leads or provided within an enclosure with mounting means and wiring terminations.

  Type 5 SPDs and Types 1, 2, 3 and 4 component assemblies are intended only for factory installation within another component, device or product.

Glossary

SURGE PROTECTIVE DEVICE (SPD)

- A device composed of at least one non-linear component (MOV, GDT, etc.) and intended for limiting surge voltages on equipment by diverting or limiting surge current and is capable of repeating these functions as specified. SPDs were previously known as Transient Voltage Surge Suppressors (TVSS) or secondary surge arresters.

SURGE

- A transient wave of current, potential or power in an electric circuit. Surges do not include temporary overvoltages (TOV) consisting of an increase in the power frequency voltage for several cycles.

VOLTAGE PROTECTION RATING (VPR)

- A rating selected from a list of preferred values as given in the latest revision of ANSI/UL 1449. The value of VPR is determined as a higher value taken from table of UL 1449 to the average measured limiting voltage determined during the first set of measured limiting voltages tests during the transient-voltage surge suppression test using the combination wave generator at a setting of 6kV, 3kA. As a standardized rating system, VPR allows the direct comparison between like SPDs (i.e. same Type and Voltage).

MAXIMUM CONTINUOUS OPERATING VOLTAGE (MCOV)

- The maximum designated root-mean-squared (rms) value of the power frequency voltage that may be continuously applied to the mode of protection of an SPD.

SHORT CIRCUIT CURRENT RATING (SCCR) OF SPD

- The suitability of an SPD for use on an AC power circuit that is capable of delivering not more than a declared rms symmetrical current at a declared voltage during a short circuit condition. SCCR is not the same as AIC (Amp Interrupting Capacity). SCCR is the amount of "available" current that the SPD can be subjected to and safely disconnect from the power source under short circuit conditions. The amount of current "interrupted" by the SPD is typically significantly less than the "available" current.

ENCLOSURE RATING

- Ensures that the NEMA rating of the enclosure matches the environmental conditions at the location where the device is to be installed.

Prosurge SPDs Overview

ProSurge®
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Prosurge is among the very few companies who can provide the most extensive SPDs applicable for North American market. The product details are thoroughly presented in later parts of this catalog.

Before we go into details, we would like to give a brief introduction so that you can have a general idea in the shortest time.

Basically, our SPDs can be classified into 4 categories:

SPD Components

PTMOV: Imax 25kA

SMTMOV: Imax 75kA

PCB Assembly: Enclosure-less surge panel

Panel SPDs

PSP series: max. 300kA per phase

PS series: max. 900kA per phase

DIN-rail SPDs for AC & DC

SPDs for Information System

Our SPDs for power supply system can also be classified into 2 categories by UL1449 standard:

- Type1CA (Component Assembly) SPD with UL recognized mark including:
  - ■ DIN-rail SPD (both AC & DC)
  - ■ PTMOV (Imax 25kA, smaller size)
  - ■ SMTMOV (Imax 75kA, bigger size)
  - ■ PCB Assembly (an enclosure-less SPD or a semi-completed SPD)

- Type1/2 SPD with UL listed mark including:
  - ■ PSP series SPD (25~300kA per phase surge capacity) with 4 different enclosures: E, B, C1, C2 using PTMOV as key component.
  - ■ PS series (150~900kA per phase surge capacity) with NEMA 4 metal enclosure using SMTMOV as key component, and in compliance with IEC61643-11 standard, too.

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Maximum Safety in Surge Protection

CONTENTS

PTMOV & SMTMOV

PTMOV & SMTMOV are our feature products and fully reflect our expertise and creativity in SPD. They have a significant advantage in abnormal over-voltage & high fault current safety to ensure industry's highest level of safety and performance. They are widely adopted by global customers as the most crucial components for various SPD, especially type 1 and type 2 surge panels.

Rating :

- **MCOV (Vac): 150V~690V**
- **Surge capacity (8/20μs): 25kA (PTMOV), 50kA (SMTMOV), 75kA (HSMTMOV)**
- **Short circuit current rating (SCCR): 200kArms - tested without external CB or fuse**

Features:

- UL recognized Type 1CA SPD (ANSI/UL1449 4th), Type 2CA SPD (CSA-C22.2) -UL File No. E319871
- Global patented thermal disconnector design with arc extinguishing device, fail-safe & self-protected, quick thermal response and perfect circuit cutoff function.
- Visual fault indication and optional remote signal contact (50mA, 12Vdc)
- Wide operating temperature: -40°C~85°C
- Type 1CA design & Compact size, can be used individually or in combination for OEM customer
- Meet both standards of ANSI/UL 1449-4th and IEC 61643-11:2011

Applications:

- Built-in surge protection of electronic equipment
- Surge protected devices applications
- AC/DC distribution
- Computer and data technology
- Power supply
- Telecommunication
- Measurement and control system

UL 1449 4th Edition, effective in March 2016, has replaced 3rd Edition, furthering the surge protection standards to prevent fire risk while using MOVs.
Prosurge's patented TMOV (PTMOV & SMTMOV) has passed all UL 1449 4th Edition tests.

SPDs not properly designed or incorrectly used and unprotected MOVs may go into thermal runaway, resulting in short circuit, overheating, smoke, and potentially fire hazard due to:

- End of life
- Sustained abnormal over-voltage (TOV)
- Surge with unexpected energy

PTMOV & SMTMOV perform an effective fail-safe and self-protected function when thermal runaway happend due to their super quick themal response.

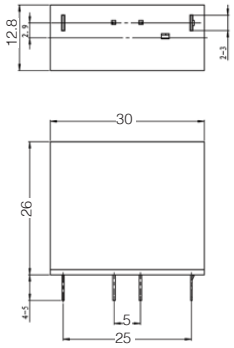
Unlike the unprotected MOV, PTMOV & SMTMOV can cut off the short circuit current and extinguish the arc, permanently and securely disconnect themselves from the power sysem to prevent fire hazard.

MOV burned by TOV

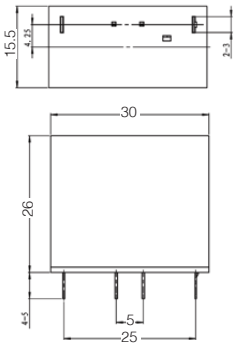
Type	PTMOV	20PTMOV	SMTMOV	HSMTMOV
In accordance with	ANSI/UL1449-4th; IEC61643-11:2012			
Category UL	Type 1CA			
Max. Continuous Operating Voltage (MCOV)	150~690Vac			
Nominal Discharge Current (8/20μs) In x 15 times	10kA	20kA	20kA	20kA
Max. Discharge Current (8/20μs) Imax x 1 time	25kA	25kA	50kA	75kA
SCCR Rating	200kA			
Response Time	≤25 ns			
Operating Temperature Range	- 40°C ~ + 80°C		- 40°C ~ + 85°C	
Enclosure Material	thermoplastic; extinguishing degree UL94 V-0			
Insulation Resistance	≥10 MOhm			
Electric Strength	≥2500V (ac)			
Disconnector Instructions	none		viewed through top hole of plastic housing	
Remote Alarm Contact	switching isolation			

Part No.	MCOV		Surge Current		VPR
	Vac (V)	Vdc (V)	Imax (x 1 time @8/20μs)	In (x15 times @8/20μs)	
PTMOV150/S	150	200	25kA	10kA	600V
PTMOV180/S	180	230	25kA	10kA	800V
PTMOV320/S	320	410	25kA	10kA	1000V
PTMOV420/S	420	560	25kA	10kA	1200V
PTMOV550/S	550	745	22kA	10kA	1800V
PTMOV690/S	690	910	22kA	10kA	2000V
20PTMOV150/S	150	200	25kA	20kA	600V
20PTMOV180/S	180	230	25kA	20kA	800V
20PTMOV320/S	320	410	25kA	20kA	1000V

- Dimension drawing

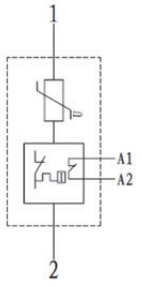


PTMOVxxx/S (MCOV 150~420Vac)



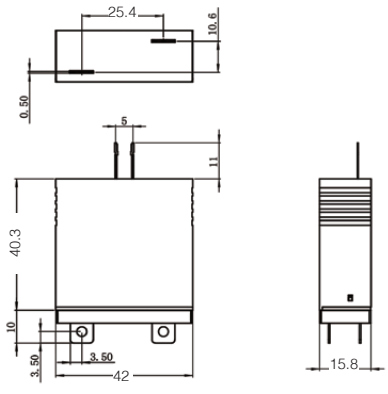
PTMOVxxx/S (MCOV 550~690Vac) & 20PTMOVxxx/S

- Basic circuit diagram

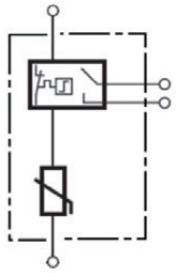


Part No.	MCOV		Surge Current		VPR
	Vac (V)	Vdc (V)	Imax (x 1 time @8/20μs)	In (x15 times @8/20μs)	
SMTMOV150	150	200	50kA	20kA	600V
SMTMOV180	180	230	50kA	20kA	600V
SMTMOV275A	275	350	50kA	20kA	800V
SMTMOV320	320	410	50kA	20kA	1000V
SMTMOV420	420	560	50kA	20kA	1500V
SMTMOV550	550	745	50kA	20kA	1500V
SMTMOV690	690	910	40kA	20kA	2000V
HSMTMOV150	150	200	75kA	20kA	600V
HSMTMOV275A	275	350	75kA	20kA	800V
HSMTMOV320	320	410	75kA	20kA	1000V

- Dimension drawing



- Basic circuit diagram



PCB Assembly for Local Made / SKD

Prosurge PCBA series are one-stop high performance surge protection solution for worldwide OEM customer. They are full-functional and flexible surge protection PCB assembly and thus will significantly simplify customer's investment on designing and certifying to manufacturing, and ensure an efficient local-made product at minimum cost.

PCBA series fully meet the demanding protection requirements of equipment operating in high-risk or critical commercial and industrial environments. By employing Prosurge's patented technology, a thermally protected and arc extinguishing MOV technology, PCBAs have a significant advantage in abnormal over-voltage & high fault current safety to deliver industry's highest level of safety and performance. The parallel redundancy modules design makes the PCBAs more robust and reliable and ensures that they can handle great impulse current up to 300kA (8/20μs) and multiple impulse current at its highest rated level.

Features:

- UL 1449 4th Type 1CA recognized with SCCR up to 200kArms without external fuse or CB
- UL1449 4th Type 2CA with sine wave tracking, SCCR up to 200kArms
- Patented PTMOV/20PTMOV (PSP PCBA), SMTMOV/HSMTMOV (PS PCBA) as key component
- Full modes protection
- Large surge energy capability up to 300kA (8/20μs) with compact size
- Low voltage protection level
- Degradation failure indication
- Surge event counter optional
- Failure pre-test
- Remote Alarm

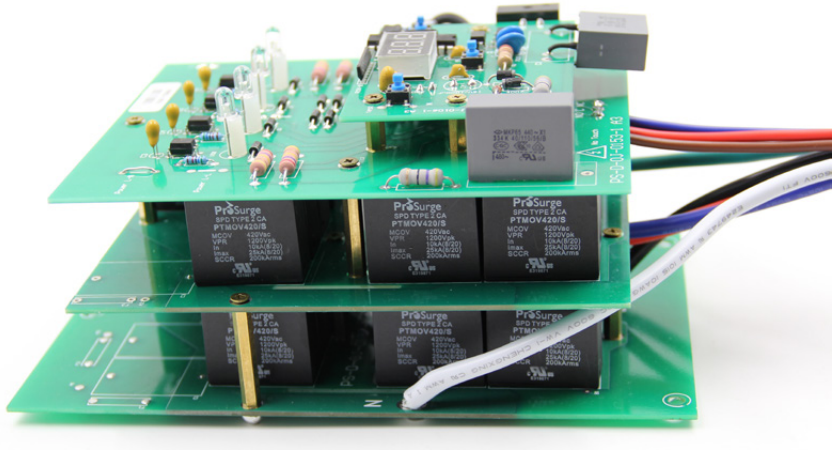
Applications:

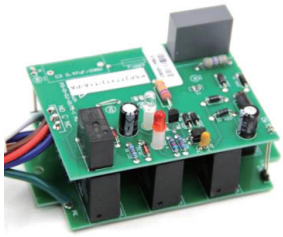
- ANSI/UL1449 Type 1/Type 2 location Surge Protective Devices OEM building
- ANSI/IEEE C62.41 Category B, C, D, E Surge Protective Devices OEM building
- IEC 61643-1/11 Class I/II Surge Protective Devices OEM building

Key Component:

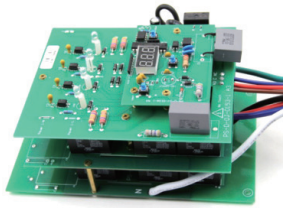
PSP PCBA: PTMOV/20PTMOV

PS PCBA: SMTMOV/HSMTMOV

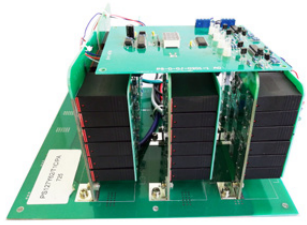




Type B, PSP PCBA



Type C, PSP PCBA



Type D, PS PCBA

PSP PCBA Type	PSP B	PSP C1	PSP C2	PS D
Certifications	ANSI/UL 1449 & CSA C22.2 Type 1/2CA			
Connection Type	Parallel Connected			
Enclosure Recommend & Dimensions, W x D x H	Plastic enclosure 130 mm x 80 mm x 70mm (min.)	Plastic enclosure 200 x 150 x 100 mm (min.)	Metal enclosure 260 x 190 x 109 mm (min.)	Metal enclosure 350 x 340 x 225 mm (min.)
Surge Capacity	Imax: 50kA/phase	Imax: 100-300kA/phase		Imax: 150~900kA/phase
SCCR Rating	200kArms			
Sine Wave Tracking	Optional for UL Type 2 certification			
Lightning Counter	No	⩾ 200A (with Reset button)		
Failure Pre-test	No	Press 2S (test button)		
Power Status Indication	Normal = Power LED ON	Normal=Blue LED ON		
Working Status Indication	Fail=Surge protection LED ON	Normal= Blue LED ON; Fail= Blue LED turn to Red		AFM (three-stage indication)
Power Connecting	12AWG	10AWG		8AWG
Signal Cable	16AWG (C Red; NC Blue; NO Brown)			
Working Environments	Temperature -40°C~+75°C,			Temperature -40°C~+80°C,
	Humidity relative 5~95% (25°C), Altitude ⩽ 2km			
PCBA Dimensions	110 x70 x 57mm	173 x 122 x 85 mm	189 x 122 x 85 mm	284 x 254 x 155 mm
Mounting Hole	Two holes, and distance: 110mm	Three holes: 70x155 mm	Three holes: 105.7x178 mm	Four holes: 140x112 mm
Net Weight (typical value)	0.23 kg	1.0 kg	1.0 kg	6.5 kg

Note:

To meet the requirement of air clearance and creepage distance, there is slight dimension difference between Type C1 and Type C2 due to enclosure material.

The detailed technical data of PSP PCBA can be refered to PSP B & PSP C technical data as listed in later parts of this catalog, and detailed technical data of PS PCBA can be refferred to PS series in later parts.

PSP Series Panel SPDs

Prosurge PSP series panel SPDs are defined as one-stop high performance surge protection solution for most commercial and industrial environments with critical operations, include Type 1 and Type 2 Surge Protective Devices that protect against the risk of 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

Rating :

- **MCOV (Vac): 150V~690V**
- **Surge capacity (8/20μs): 25~300kA per phase**
- **Short circuit current rating (SCCR): 200kArms - tested without external CB or fuse**

Features:

- UL Listed Type 1 (ANSI/UL1449 4th, CSA C22.2) SPDs
- UL Listed Type 2 (ANSI/UL1449 4th, CSA C22.2) SPDs with sine wave tracking
- Prosurge patented SCCR 200kArms thermally protected MOV technology (PTMOV/20PTMOV) as key component
- Full modes protection & High surge energy capability in compact size
- Low voltage protection rating
- NEMA 4/4X enclosure to resist dirt, dust and water
- Degradation failure indication
- Surge event counter optional
- Floating changeover contact for remote alarm
- Threaded NPT

Typical Application:

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

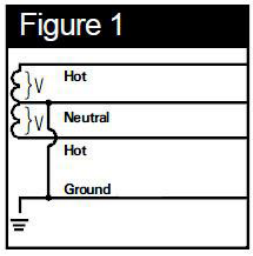
Adopt PTMOV/20PTMOV as Key Component

Configuration & Ordering Information:

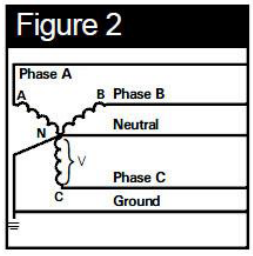
PSP Model	277Y Voltage and system configuration	C Protection mode	42 Surge capacity	M Enclosure	/T1 SPD Category	CTA Addtional function
PSP	*120SP*: 120/240V split *240SP*: 240/480V split *120Y*: 120/208V WYE *277Y*: 277/480V WYE *120H*: 120/240V high-leg delta *240D*: 240V delta *120S*: 120V 1ph, 2W+G …	*C*: Delete N-G protection mode	*11*: 25kA/phase *12*: 50kA/phase *22*: 100kA/phase *32*: 150kA/phase *42*: 200kA/phase *52*: 250kA/phase *62*: 300kA/phase	*M*: metal enclosure (Only C2 type) *Part No. without M means plastic enclosure (E, B, C1 type)	*T1*: UL type 1 SPD *T2F*: UL type 2 SPD with sine wave tracking	*C*: surge event counter *T*: failure pretest *A*: remote alarm

Voltage code for power distribution system

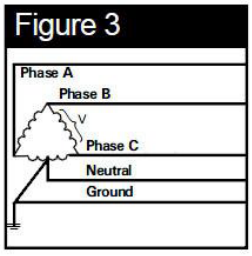
- 120SP , 240SP = 120/240V; 240/480V .....**Split-phase three-wire +ground** (Figure1)
- 120Y, 127Y, 240Y, 277Y, 347Y = 208Y120V, 220Y127V, 380Y220V & 400Y230V & 415Y240V, 480Y277V, 600Y347V .....**Three-phase wye (star) four-wire +ground** (Figure 2)
- 120H, 240H = 120/240V, 240V/480V .....**Three-phase high-leg delta** (Figure 3)
- 240D, 480D, 600D = 240V, 480V, 600V.....**Three-phase delta three-wire +ground** (Figure 4)
- 120S,127S, 240S, 277S, 347S =120V,127V, 220V&230V&240V, 277V, 347V .....**Single-phase two-wire +ground** (Figure 5)



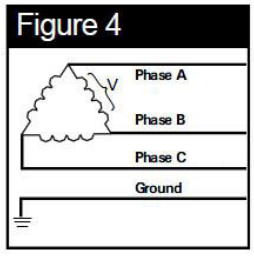
SPLIT
2 Hots, 1 Neu, 1 Grnd



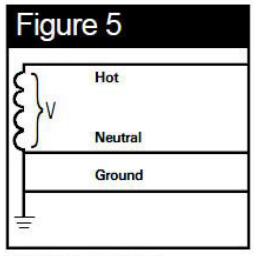
WYE
3 Hots, 1 Neu, 1 Grnd



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

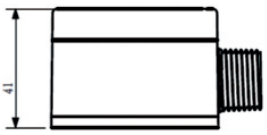
Panel SPDs | 25-50kA | Single-phase PSP E

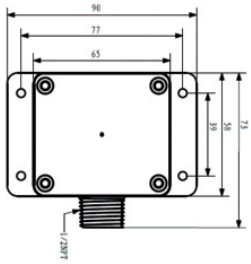
ProSurge®
Maximum Safety in Surge Protection

PSP E series panel SPDs are extra compact UL Type 1 SPD designed to protect single phase and electrical distribution systems against the harmful effects of transient surges. They are constructed with Prosurge's PTMOV which has a significant advantage in abnormal over-voltage & high fault current safety and thus ensure industry's highest level of safety and performance. They are tested and listed as Type 1 SPD, ANSI/UL1449 4th, CSA C22.2.

PSP Category	E
Certification	ANSI/UL1449 4th, CSA C22.2, Type1
Connection Type	Parallel Connected
Surge Capacity	25-50kA per Phase
Nominal Discharge Current (In)	10kA
SCCR	200kArms
Power Status Indication	Normal= LED ON
Working Status Indication	Fail= LED OFF
Power Connecting	12AWG (L=black; N=white; PE=green)
Working Environments	Temperature –40°C +80°C; Humidity relative 5~95% (25°C); Altitude≤3km
Dimensions, W x D x H	90x58x41 mm
Enclosure	Plastic enclosure, NEMA 4X
Threaded NPT	1/2" NPT
Net Weight (typical value)	0.18 kg

- Dimension drawing





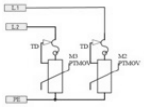
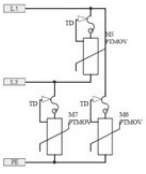
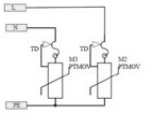
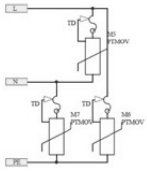
Typical Application:

- Outdoor/Indoor and commercial LED lighting
- Medical electronics
- Manufacturing facilities
- Telecommunication equipment
- Security & alarm equipment
- Other critical electronic equipment

PSP E - Technical Data:

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6KV/ 3kA)				Surge Capacity per phase	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L		
PSPE120SP11/T1	120/240V Split-phase	10	×	✓	×	✓	-	700	-	1500	25kA	150/300
PSPE120SP12/T1			×	✓	×	✓	-	700	-	1200	50kA	150/320
PSPE240SP11/T1	240/480V Split-phase	10	×	✓	×	✓	-	1200	-	2500	25kA	320/640
PSPE240SP12/T1			×	✓	×	✓	-	1200	-	1800	50kA	320/550
PSPE127S11/T1	127V Single-phase	10	✓	✓	✓	×	1500	700	700	-	25kA	150
PSPE127S12/T1			✓	✓	✓	×	700	700	700	-	50kA	150
PSPE277S11/T1	277V Single-phase	10	✓	✓	✓	×	2500	1200	1200	-	25kA	320
PSPE277S12/T1			✓	✓	✓	×	1200	1200	1200	-	50kA	320
PSPE347S11/T1	347V Single-phase	10	✓	✓	✓	×	3000	1500	1500	-	25kA	420
PSPE347S12/T1			✓	✓	✓	×	1500	1500	1500	-	50kA	420

PSP E - Basic Circuit Diagram

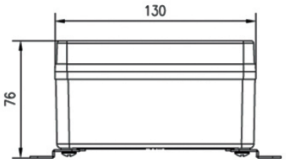
PSP…	PSP…SP11…	PSP…SP12…	PSP…S11…	PSP...S12…
Un/ Power System (50/60Hz)	120/240VAC Split phase 240/480VAC Split phase	120/240VAC Split phase 240/480VAC Split phase …	120VAC single phase 127VAC single phase 240VAC single phase 277VAC single phase 347VAC single phase …	120VAC single phase 127VAC single phase 240VAC single phase 277VAC single phase 347VAC single phase …
				

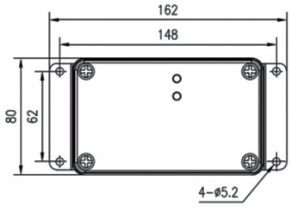
Panel SPDs | 50kA | Multi-phase PSP B

Prosurge PSP B series panel SPDs are compact Surge Protective Devices (SPDs), designed to protect single and multi-phase electrical distribution systems against the risk of the harmful effects of transient surges.

PSP Category	B
Certification	ANSI / UL 1449 4th, CSA C22.2, Type 1, Type 2
Connection Type	Parallel Connected
Surge Capacity	50kA per phase
Nominal Discharge Current (In)	10kA / 20kA
SCCR	200kArms
Sine Wave Tracking	For UL Type 2 listed
Power Status Indication	Normal = Power LED ON
Working Status Indication	Fail=Surge protection LED ON
Power Connecting	12 AWG (L1=black; L2=red; L3=blue; N=white; PE=green)
Signal Cable (Remote Alarm)*	16 AWG (C=red; NC=blue; NO=brown)
Working Environment	Temperature: -40°C~+75°C; Humidity relative 5~95% (25°C); Altitude: ≤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)	0.47 kg

- Dimension drawing





Typical Application:

In low & medium exposure locations

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

PSP B - Technical Data:

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6kV/ 3kA)				Surge Capacity per phase	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L		
In: 10kA												
PSP120SP12/*A	120/240V Split-phase	10	✓	✓	✓	✓	700	700	700	1200	50kA	150/300
PSP120SPC12/*A	120/240V Split-phase No neutral	10	×	✓	×	✓	-	700	-	1200	50kA	150/300
PSP240SP12/*A	240/480V Split-phase	10	✓	✓	✓	✓	1200	1200	1200	2000	50kA	320/640
PSP240SPC12/*A	240/480V Split-phase No neutral	10	×	✓	×	✓	-	1200	-	2000	50kA	320/640
PSP120Y12/*A	208Y120V Three-phase wye	10	✓	✓	✓	✓	700	700	700	1200	50kA	150
PSP120YC12/*A	208Y120V Three-phase wye No neutral	10	×	✓	×	✓	-	700	-	1200	50kA	150
PSP127Y12/*A	220Y127V Three-phase wye	10	✓	✓	✓	✓	700	700	700	1200	50kA	150
PSP127YC12/*A	220Y127V Three-phase wye No neutral	10	×	✓	×	✓	-	700	-	1200	50kA	150
PSP240Y12/*A	415Y240V Three-phase wye	10	✓	✓	✓	✓	1200	1200	1200	2000	50kA	320
PSP240YC12/*A	415Y240V Three-phase wye No neutral	10	×	✓	×	✓	-	1200	-	2000	50kA	320
PSP277Y12/*A	480Y277V Three-phase wye	10	✓	✓	✓	✓	1200	1200	1200	2000	50kA	320
PSP277YC12/*A	480Y277V Three-phase wye No neutral	10	×	✓	×	✓	-	1200	-	2000	50kA	320

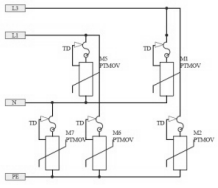
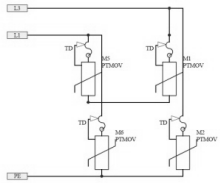
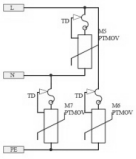
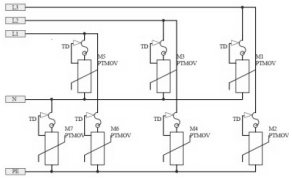
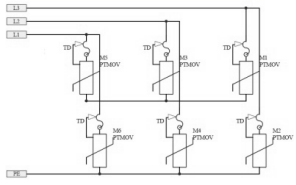
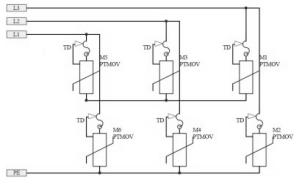
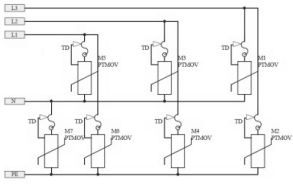
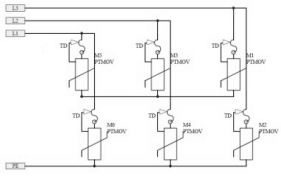
PSP B - Technical Data:

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6kV/ 3kA)				Surge Capacity per phase	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L		
PSP347Y12/*A	600Y347V Three-phase wye	10	✓	✓	✓	✓	1500	1500	1500	2500	50kA	420
PSP347YC12/*A	600Y347V Three-phase wye No neutral	10	×	✓	×	✓	-	1500	-	2500	50kA	420
PSP120H12/*A	120/240V High-leg delta	10	✓	✓	✓	✓	700-1200HL	700-1200HL	700	1200-2000HL	50kA	150/320(HL)
PSP120HC12/*A	120/240V High-leg delta No neutral	10	×	✓	×	✓	-	700-1200HL	-	1200-2000HL	50kA	150/320(HL)
PSP240H12/*A	240/480V High-leg delta	10	✓	✓	✓	✓	1200-1800HL	1200-1800HL	1200	2000-3000HL	50kA	320/550(HL)
PSP240HC12/*A	240/480V High-leg delta No neutral	10	×	✓	×	✓	-	1200-1800HL	-	2000-3000HL	50kA	320/550(HL)
PSP240D12/*A	240V Three-phase delta	10	×	✓	×	✓	-	1200	-	1200	50kA	320
PSP480D12/*A	480V Three-phase delta	10	×	✓	×	✓	-	1800	-	3000	50kA	550
PSP600D12/*A	600V Three-phase delta	10	×	✓	×	✓	-	2000	-	4000	50kA	690
PSP120S12/*A	120V Single-phase	10	✓	✓	✓	×	700	700	700	-	50kA	150
PSP127S12/*A	127V Single-phase	10	✓	✓	✓	×	700	700	700	-	50kA	150
PSP240S12/*A	240V Single-phase	10	✓	✓	✓	×	1200	1200	1200	-	50kA	320
PSP277S12/*A	277V Single-phase	10	✓	✓	✓	×	1200	1200	1200	-	50kA	320
PSP347S12/*A	347V Single-phase	10	✓	✓	✓	×	1500	1500	1500	-	50kA	420
In: 20kA												
20PSP120SP12/*A	120/240V Split-phase	20	✓	✓	✓	✓	700	700	700	1200	50kA	150/300
20PSP120SPC12/*A	120/240V Split-phase No neutral	20	×	✓	×	✓	-	700	-	1200	50kA	150/300
20PSP240SP12/*A	240/480V Split-phase	20	✓	✓	✓	✓	1200	1200	1200	2000	50kA	320/640
20PSP240SPC12/*A	240/480V Split-phase No neutral	20	×	✓	×	✓	-	1200	-	2000	50kA	320/640
20PSP120Y12/*A	208Y120V Three-phase wye	20	✓	✓	✓	✓	700	700	700	1200	50kA	150
20PSP120YC12/*A	208Y120V Three-phase wye No neutral	20	×	✓	×	✓	-	700	-	1200	50kA	150
20PSP127Y12/*A	220Y127V Three-phase wye	20	✓	✓	✓	✓	700	700	700	1200	50kA	150
20PSP127YC12/*A	220Y127V Three-phase wye No neutral	20	×	✓	×	✓	-	700	-	1200	50kA	150
20PSP240Y12/*A	415Y240V Three-phase wye	20	✓	✓	✓	✓	1200	1200	1200	2000	50kA	320
20PSP240YC12/*A	415Y240V Three-phase wye No neutral	20	×	✓	×	✓	-	1200	-	2000	50kA	320
20PSP277Y12/*#	480Y277V Three-phase wye	20	✓	✓	✓	✓	1200	1200	1200	2000	50kA	320
20PSP277YC12/*#	480Y277V Three-phase wye No neutral	20	×	✓	×	✓	-	1200	-	2000	50kA	320

PSP B - Technical Data:

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6kV/ 3kA)				Surge Capacity per phase	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L		
20PSP120HC12/*#	120/240V High-leg delta No neutral	20	×	✓	×	✓	-	700-1200HL	-	1200-2000HL	50kA	150/320(HL)
20PSP240D12/*#	240V Three-phase delta	20	×	✓	×	✓	-	1200	-	1200	50kA	320
20PSP120S12/*#	120V Single-phase	20	✓	✓	✓	×	700	700	700	-	50kA	150
20PSP127S12/*#	127V Single-phase	20	✓	✓	✓	×	700	700	700	-	50kA	150
20PSP240S12/*#	240V Single-phase	20	✓	✓	✓	×	1200	1200	1200	-	50kA	320
20PSP277S12/*#	277V Single-phase	20	✓	✓	✓	×	1200	1200	1200	-	50kA	320
20PSP120H12/*#	120/240V High-leg delta	20	✓	✓	✓	✓	700-1200HL	700-1200HL	700	1200-2000HL	50kA	150/320(HL)

PSP B - Basic Circuit Diagram

Un/ Power System (50/60 HZ)	Basic circuit diagram of surge protection circuit	
	Power System with Neutral Line	Power System without Neutral Line
120/240VAC Split phase 240/480VAC Split phase …	PSP…SP12…(3W+G) 	PSP…SPC12…(2W+G) 
120VAC single phase 127VAC single phase 220VAC single phase 230VAC single phase 240VAC single phase 277VAC single phase 347VAC single phase …	PSP…S12…(2W+G) 	
120/208VAC WYE 127/220VAC WYE 220/380VAC WYE 230/400VAC WYE 240/415VAC WYE 277/480VAC WYE 347/600VAC WYE …	PSP…Y12…(4W+G) 	PSP…YC12…(3W+G) 
240VAC Delta 480VAC Delta 600VAC Delta …		PSP...D12…(3W+G) 
120/240VAC High-leg delta 240/480VAC High-leg delta …	PSP...H12…(4W+G, L2 is High-leg) 	PSP...HC12…(3W+G, L2 is High-leg) 

Panel SPDs | 100-300kA | Multi-phase PSP C

ProSurge®
Maximum Safety in Surge Protection

Prosurge PSP C series panel SPDs are defined as high performance surge protection solution for most commercial and industrial environments with critical operations. They include Type 1 and Type2 SPDs that protect against the the harmful effects of transient surges.

Typical Application:

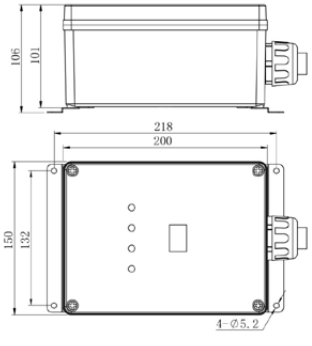
In low & medium exposure locations

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

PSP Category	C1	C2
Certification	ANSI / UL 1449 4th, CSA C22.2, Type 1, Type 2	
Connection Type	Parallel Connected	
Surge Capacity	100-300kA per phase	
SCCR	200kArms	
Sine Wave Tracking	For UL Type 2 listed	
Lightning Counter Current	≥ 200A (with Reset button)	
Failure pre-test	Press 2S (test button)	
Power Status Indication	Normal = Power LED ON	
Working Status Indication	Normal = Power LED ON; Fail=Blue LED turn to Red	
Power Connecting	10 AWG (L1=black; L2=red; L3=blue; N=white; PE=green)	
Signal Cable (Remote Alarm)*	16 AWG (C=red; NC=blue; NO=brown)	
Working Environment	Temperature: -40°C~+75°C; Humidity relative 5~95% (25°C); Altitude: ≤3km	
Dimensions, W x D x H	232x150x106 mm	286x200x120 mm
Threaded NPT	3/4" NPT	
Enclosure	Plastic enclosure, NEMA 4X	Metal enclosure, NEMA 4
Net Weight (typical value)	1.59 kg	4.3 kg

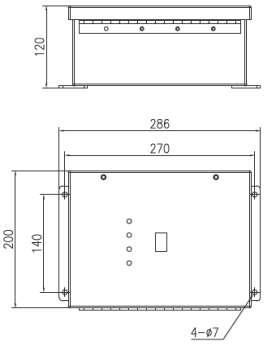
C1: NEMA 4X Plastic Enclosure

- Dimension drawing



C2: NEMA 4 Metal Enclosure

- Dimension drawing

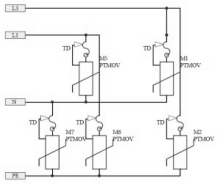
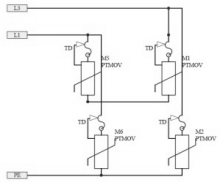
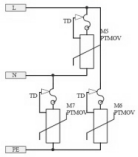
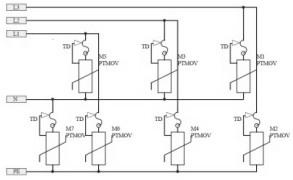
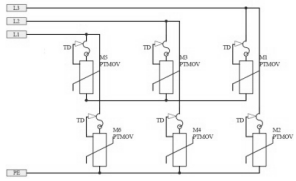
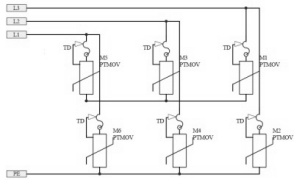
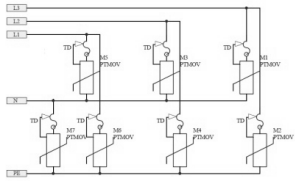
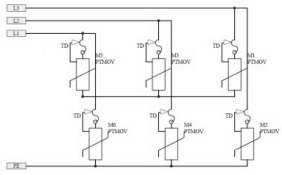


PSP C - Technical Data:

Note: % means 2 to 6 (Surge capacity 100kA~300kA per phase)

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6kV/ 3kA)				Surge Capacity per phase	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L		
PSP120SP%2/*CTA	120/240V Split-phase	20	✓	✓	✓	✓	700	800	800	1200	100~300kA	150/300
PSP120SPC%2/*CTA	120/240V Split-phase No neutral	20	×	✓	×	✓	-	800	-	1200	100~300kA	150/300
PSP240SP%2/*CTA	240/480V Split-phase	20	✓	✓	✓	✓	1200	1200	1200	2000	100~300kA	320/640
PSP240SPC%2/*CTA	240/480V Split-phase No neutral	20	×	✓	×	✓	-	1200	-	2000	100~300kA	320/640
PSP120Y%2/*CTA	208Y120V Three-phase wye	20	✓	✓	✓	✓	700	800	800	1200	100~300kA	150
PSP120YC%2/*CTA	208Y120V Three-phase wye No neutral	20	×	✓	×	✓	-	800	-	1200	100~300kA	150
PSP127Y%2/*CTA	220Y127V Three-phase wye	20	✓	✓	✓	✓	700	800	800	1200	100~300kA	150
PSP127YC%2/*CTA	220Y127V Three-phase wye No neutral	20	×	✓	×	✓	-	800	-	1200	100~300kA	150
PSP240Y%2/*CTA	415Y240V Three-phase wye	20	✓	✓	✓	✓	1200	1200	1200	2000	100~300kA	320
PSP240YC%2/*CTA	415Y240V Three-phase wye No neutral	20	×	✓	×	✓	-	1200	-	2000	100~300kA	320
PSP277Y%2/*CTA	480Y277V Three-phase wye	20	✓	✓	✓	✓	1200	1200	1200	2000	100~300kA	320
PSP277YC%2/*CTA	480Y277V Three-phase wye No neutral	20	×	✓	×	✓	-	1200	-	2000	100~300kA	320
PSP347Y%2/*CTA	600Y347V Three-phase wye	20	✓	✓	✓	✓	1500	1500	1500	2500	100~300kA	420
PSP347YC%2/*CTA	600Y347V Three-phase wye No neutral	20	×	✓	×	✓	-	1500	-	2500	100~300kA	420
PSP120H%2/*CTA	120/240V High-leg delta	20	✓	✓	✓	✓	700-1200HL	800-1200HL	800	1200-2000HL	100~300kA	150/320(HL)
PSP120HC%2/*CTA	120/240V High-leg delta No neutral	20	×	✓	×	✓	-	800-1200HL	-	1200-2000HL	100~300kA	150/320(HL)
PSP240H%2/*CTA	240/480V High-leg delta	20	✓	✓	✓	✓	1200-1800HL	1200-1800HL	1200	2000-3000HL	100~300kA	320/550(HL)
PSP240HC%2/*CTA	240/480V High-leg delta No neutral	20	×	✓	×	✓	-	1200-1800HL	-	2000-3000HL	100~300kA	320/550(HL)
PSP240D%2/*CTA	240V Three-phase delta	20	×	✓	×	✓	-	1200	-	1200	100~300kA	320
PSP480D%2/*CTA	480V Three-phase delta	20	×	✓	×	✓	-	1800	-	2000	100~300kA	550
PSP600D%2/*CTA	600V Three-phase delta	20	×	✓	×	✓	-	2000	-	2500	100~300kA	690
PSP120S%2/*CTA	120V Single-phase	20	✓	✓	✓	×	700	800	800	-	100~300kA	150
PSP127S%2/*CTA	127V Single-phase	20	✓	✓	✓	×	700	800	800	-	100~300kA	150
PSP240S%2/*CTA	240V Single-phase	20	✓	✓	✓	×	1200	1200	1200	-	100~300kA	320
PSP277S%2/*CTA	277V Single-phase	20	✓	✓	✓	×	1200	1200	1200	-	100~300kA	320
PSP347S%2/*CTA	347V Single-phase	20	✓	✓	✓	×	1500	1500	1500	-	100~300kA	420

PSP C - Basic Circuit Diagram

Un/ Power System (50/60 HZ)	Basic Surge Protection Circuit Diagram	
	Power System with Neutral Line	Power System without Neutral Line
120/240VAC Split phase 240/480VAC Split phase …	PSP…SP%2…(3W+G) 	PSP…SPC%2…(2W+G) 
120VAC single phase 127VAC single phase 220VAC single phase 230VAC single phase 240VAC single phase 277VAC single phase 347VAC single phase …	PSP…S%2…(2W+G) 	
120/208VAC WYE 127/220VAC WYE 220/380VAC WYE 230/400VAC WYE 240/415VAC WYE 277/480VAC WYE 347/600VAC WYE …	PSP…Y%2…(4W+G) 	PSP…YC%2…(3W+G) 
240VAC Delta 480VAC Delta 600VAC Delta …		PSP...D%2…(3W+G) 
120/240VAC High-leg delta 240/480VAC High-leg delta …	PSP...H%2…(4W+G, L2 is High-leg) 	PSP...HC%2…(3W+G, L2 is High-leg) 

Panel SPDs | max. 900kA | Multi-phase PS Series

Prosurge PS series panel SPDs are ultra-Large surge capacity design for critical application with very high exposure to lightning. They are UL 1449 4th Type 1 / Type 2 tested for point-of-entry (Category C, D, E, IEEE C62.41) and sub-circuit (Category B) protection. With surge capacity up to 900kA 8/20μs, PS series can meet most critical challenge worldwide and ensure maintenance-free for its lifetime.

By employing Prosurge's patented SMTMOV/HSMTMOV, a thermally protected and arc extinguishing technology component, PS series has a significant advantage in abnormal over-voltage & high fault current safety and thus ensure industry's highest level of safety and performance. The parallel redundancy modules design makes PS series more robust and reliable.

The **Anticipatory Failure Monitoring (AFM) technology** allows users to replace SPD before the protected electrical equipment or systems are threatened by overloads and thus ensure **uninterrupted surge protection**. Three stages LED indication (Blue-Yellow-Red) can help users to understand the current protection status. When the blue LED indicator turns to yellow, it shows that the SPD is in potential failure status and a replacement of the SPD is recommended. If the SPD is not replaced, it still continue to provide limited protection yet further overloads may lead to the risk of surge damage.

3 stages of 'Anticipatory failure monitoring':

Light:	**Blue**	→	**Yellow**	→ **Red**
Status:	Normal	→	Potential Failure (recommend to replace)	→ Failure

Rating :

- **MCOV (Vac): 150V~690V**
- **Surge capacity (8/20μs): 150~600kA per phase, built with SMTMOV(Imax:50kA) modules**
- **225~900kA per phase, built with HSMTMOV(Imax:75kA) modules**
- **Lightning capacity (10/350μs): 12.5~80kA per phase, EN/IEC 61643-1/11 Class I test**
- **Short circuit current rating (SCCR): 200kArms - tested without external CB or fuse**

Features:

- UL listed Type 1 (ANSI/UL1449 4th, CSA C22.2) SPDs
- UL listed Type 2 (ANSI/UL1449 4th, CSA C22.2) SPDs with sine wave tracking
- Prosurge patented SCCR 200kArms thermally protected MOV technology (SMTMOV/HSMTMOV) as key component
- Full modes protection & high surge energy capability with compact size
- Low voltage protection rating
- Degradation failure indication. Anticipatory Failure Monitoring (AFM) technology to ensure permanent surge protection
- Surge event counter optional
- Sine wave tracking function optional
- Floating changeover contact for remote alarm
- Threaded NPT
- NEMA 4 metal enclosure to resist dirt, dust and water
- Meet both standards of UL1449-4th and IEC61643-11:2011

Typical Application:

In high exposure location, be ideal for primary service or building entrances protection applications:

- All power circuit
- Telecommunication application (cell towers, base station, data center, transfer center etc.)
- Industrial
- Commercial
- Renewable energy
- Oil or mineral

Adopt SMTMOV/HSMTMOV as Key Component

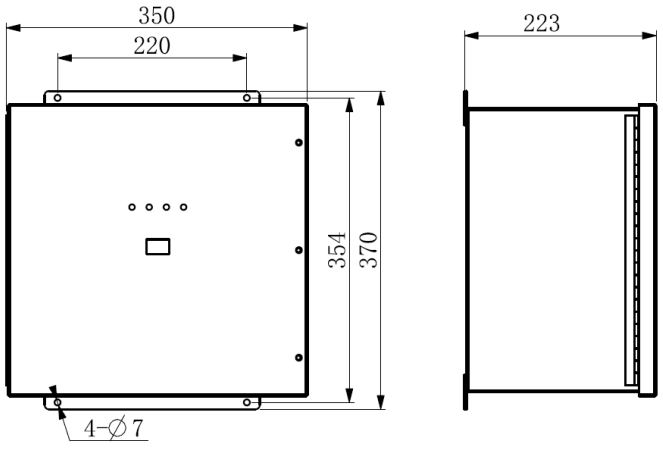
Configuration & Ordering Information:

PS	277Y	C	42	T	/ T1	CA
Model	Voltage and system configuration	Protection mode	Surge capacity	Gas tube optional	SPD Category	Addtional function
PS	*120SP*: 120/240V split *240SP*: 240/480V split *120Y*: 120/208V WYE *277Y*: 277/480V WYE *120H*: 120/240V high-leg delta *240D*: 240V delta *120S*: 120V 1ph, 2W+G …	*C*: Delete N-G protection mode *G*: Only L/N (if needed) -G protection, delete L-N and L-L (if present) protection *N*: Only L-N & N-G protection, delete L-G protection *N/A* : Full modes protection	31: 150 or 225[(1)] kA /phase 41: 200 or 300[(1)] kA /phase 51: 250 or 375[(1)] kA /phase 61: 300 or 450[(1)] kA /phase 32: 300 or 450[(1)] kA /phase 42: 400 or 600[(1)] kA /phase 52: 500 or 750[(1)] kA /phase 62: 600 or 900[(1)] kA /phase	*T*: Gas Tube used for N-G protection mode	*T1*: UL type 1 SPD *T2F*: UL type 2 SPD with sine wave tracking	*C*: surge event counter *A*: remote alarm

[(1)] The models with higher surge capacity are built with HSMTMOV (Uc range: 150~320)

PS Category	D
Certification	ANSI / UL 1449 4th, CSA C22.2, Type 1, Type 2
Connection Type	Parallel Connected
Surge Capacity	150~900kA per phase
SCCR	200kArms
Sine Wave Tracking	Optional for UL Type 2 listed
Lightning Counter Current	≥ 200A (with Reset button)
Failure pre-test	Press 2S (test button)
Power Status Indication	Normal=Blue LED ON
Working Status Indication	Three stage (Normal= Blue LED ON; Need replace= Yellow; Fail= turn to Red)
Power Connecting	8 AWG (L1=black; L2=red; L3=blue; N=white; PE=green)
Signal Cable	16 AWG (C=red; NC=blue; NO=brown)
Working Environment	Temperature: -40°C~+85°C; Humidity relative 5~95% (25°C); Altitude: ≤3km
Dimensions, W x D x H	350 x 370 x 223 mm
Threaded NPT	1" NPT
Enclosure	Metal enclosure, NEMA 4
Net Weight (Typical Value)	10.6 kg

- Dimension drawing



PS series - Technical Data

Note: % means 3 to 6 (Surge capacity 150kA~450kA per mode)

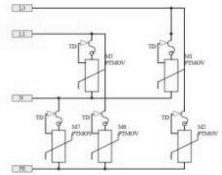
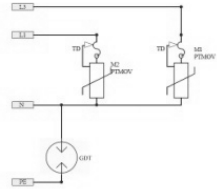
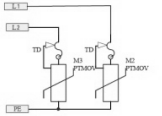
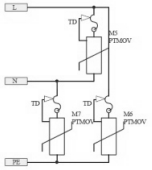
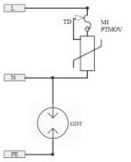
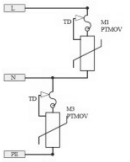
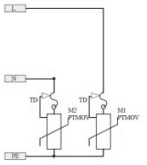
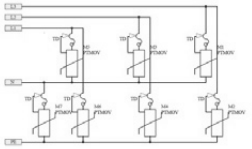
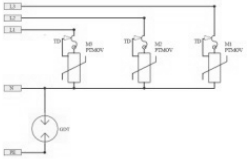
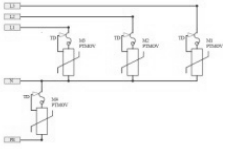
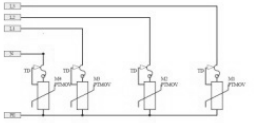
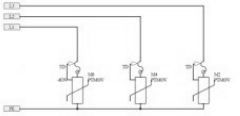
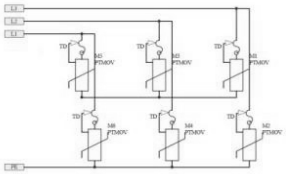
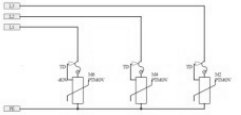
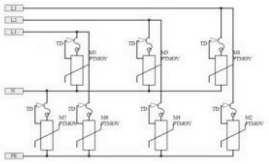
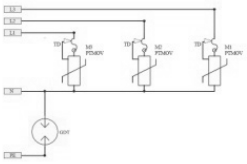
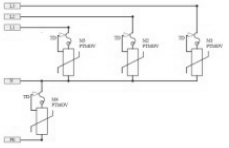
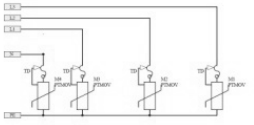
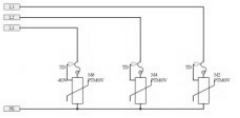
(2) lightning capacity of NPE mode is 100kA 10/350μs

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6KV/ 3kA)				Surge Capacity per phase (8/20μs)	Lightning Capacity per phase (10/350μs)	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L			
PS120SP%2/*CA	120/240V Split-phase	20	✓	✓	✓	×	700	700	700	1200	300~900kA	25~80kA	150
PS120SPC%1/*CA			×	✓	×	×	-	700	-	1200	150~450kA	12.5~40kA	150
PS120SPN%1T/*CA			✓	×	✓	×	700	1500	1500	1200	150~450kA	12.5~40kA(2)	150
PS240SP%2/*CA	240/480V Split-phase	20	✓	✓	✓	×	1200	1200	1200	2000	300~900kA	25~80kA	320
PS240SPC%1/*CA			×	✓	×	×	-	1200	-	2000	150~450kA	12.5~40kA	320
PS240SPN%1T/*CA			✓	×	✓	×	1200	2000	1500	2000	150~450kA	12.5~40kA(2)	320
PS120Y%2/*CA	208Y120V Three-phase wye	20	✓	✓	✓	×	700	700	700	1200	300~900kA	25~80kA	150
PS120YN%1T/*CA			✓	×	✓	×	700	1500	1500	1200	150~450kA	12.5~40kA(2)	150
PS120YN%1/*CA			✓	×	✓	×	700	1200	700	1200	150~450kA	12.5~40kA	150
PS120YG%1/*CA			×	✓	✓	×	1200	700	700	1200	150~450kA	12.5~40kA	150
PS120YC%1/*CA			×	✓	×	×	-	700	-	1200	150~450kA	12.5~40kA	150
PS127Y%2/*CA	220Y127V Three-phase wye	20	✓	✓	✓	×	700	700	700	1200	300~900kA	25~80kA	150
PS127YN%1T/*CA			✓	×	✓	×	700	1500	1500	1200	150~450kA	12.5~40kA(2)	150
PS127YN%1/*CA			✓	×	✓	×	700	1200	700	1200	150~450kA	12.5~40kA	150
PS127YG%1/*CA			×	✓	✓	×	1200	700	700	1200	150~450kA	12.5~40kA	150
PS127YC%1/*CA			×	✓	×	×	-	700	-	1200	150~450kA	12.5~40kA	150
PS230Y%2/*CA	400Y230V Three-phase wye	20	✓	✓	✓	×	1200	1200	1200	2000	300~900kA	25~80kA	320
PS230YN%1T/*CA			✓	×	✓	×	1200	1500	1500	2000	150~450kA	12.5~40kA(2)	320
PS230YN%1/*CA			✓	×	✓	×	1200	2000	1200	2000	150~450kA	12.5~40kA	320
PS230YG%1/*CA			×	✓	✓	×	2000	1200	1200	2000	150~450kA	12.5~40kA	320
PS230YC%1/*CA			×	✓	×	×	-	1200	-	2000	150~450kA	12.5~40kA	320
PS240Y%2/*CA	415Y240V Three-phase wye	20	✓	✓	✓	×	1200	1200	1200	2000	300~900kA	25~80kA	320
PS240YN%1T/*CA			✓	×	✓	×	1200	1500	1500	2000	150~450kA	12.5~40kA(2)	320
PS240YN%1/*CA			✓	×	✓	×	1200	2000	1200	2000	150~450kA	12.5~40kA	320
PS240YG%1/*CA			×	✓	✓	×	2000	1200	1200	2000	150~450kA	12.5~40kA	320
PS240YC%1/*CA			×	✓	×	×	-	1200	-	2000	150~450kA	12.5~40kA	320
PS277Y%2/*CA	480Y277V Three-phase wye	20	✓	✓	✓	×	1200	1200	1200	2000	300~900kA	25~80kA	320
PS277YN%1/*CA			✓	×	✓	×	1200	2000	1200	2000	150~450kA	12.5~40kA	320
PS277YG%1/*CA			×	✓	✓	×	2000	1200	1200	2000	150~450kA	12.5~40kA	320
PS277YC%1/*CA			×	✓	×	×	-	1200	-	2000	150~450kA	12.5~40kA	320
PS347Y%2/*CA	600Y347V Three-phase wye	20	✓	✓	✓	×	1500	1500	1500	2500	300~600kA	25~80kA	420
PS347YN%1/*CA			✓	×	✓	×	1500	2500	1500	2500	150~300kA	12.5~40kA	420
PS347YG%1/*CA			×	✓	✓	×	2500	1500	1500	2500	150~300kA	12.5~40kA	420
PS347YC%1/*CA			×	✓	×	×	-	1500	-	2500	150~300kA	12.5~40kA	420
PS120H%2/*CA	120/240V High-leg delta	20	✓	✓	✓	×	700-1200HL	700-1200HL	700	1200-2000HL	300~900kA	25~80kA	150/320HL
PS120HN%1T/*CA			✓	×	✓	×	700-1200HL	1500-2000HL	1500	1200-2000HL	150~450kA	12.5~40kA(2)	150/320HL
PS120HN%1/*CA			✓	×	✓	×	700-1200HL	1200-2000HL	700	1200-2000HL	150~450kA	12.5~40kA	150/320HL
PS120HG%1/*CA			×	✓	✓	×	1200-2000HL	700-1200HL	700	1200-2000HL	150~450kA	12.5~40kA	150/320HL
PS120HC%1/*CA			×	✓	×	×	-	700-1200HL	-	1200-2000HL	150~450kA	12.5~40kA	150/320HL

PS series - Technical Data

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6KV/ 3kA)				Surge Capacity per phase (8/20μs)	Lightning Capacity per phase (10/350μs)	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L			
PS240H%2/*CA	240/480V High-leg delta	20	✓	✓	✓	×	1200-2000HL	1200-2000HL	1200	2000-3000HL	300~600kA	25~50kA	320/550HL
PS240HN%1T/*CA			✓	×	✓	×	1200-2000HL	1500-3000HL	1500	2000-3000HL	150~300kA	12.5~25kA(2)	320/550HL
PS240HN%1/*CA			✓	×	✓	×	1200-2000HL	2000-3000HL	1200	2000-3000HL	150~300kA	12.5~25kA	320/550HL
PS240HG%1/*CA			×	✓	✓	×	2000-3000HL	1200-2000HL	1200	2000-3000HL	150~300kA	12.5~25kA	320/550HL
PS240HC%1/*CA			×	✓	×	×	-	1200-2000HL	-	2000-3000HL	150~300kA	12.5~25kA	320/550HL
PS240D%2/*CA	240V Three-phase delta	20	×	✓	×	✓	-	1200	-	1200	300~900kA	25~80kA	320
PS240DG%1/*CA			×	✓	×	×	-	1200	-	1500	150~450kA	12.5~40kA	320
PS480D%N2/*CA	480V Three-phase delta	20	×	✓	×	✓	-	1800	-	1800	300~600kA	25~50kA	550
PS480DGx1/*CA			×	✓	×	×	-	1800	-	3000	150~300kA	12.5~25kA	550
PS600D%2/*CA	600V Three-phase delta	20	×	✓	×	✓	-	2000	-	2000	300~600kA	25~50kA	690
PS600DG%1/*CA			×	✓	×	×	-	2000	-	4000	150~300kA	12.5~25kA	690
PS120S%2/*CA	120V Single-phase	20	✓	✓	✓	×	700	700	700	-	300~900kA	25~40kA	150
PS120SN%1T/*CA			✓	×	✓	×	700	1500	1500	-	150~450kA	12.5~40kA(2)	150
PS120SN%1/*CA			✓	×	✓	×	700	1200	700	-	150~450kA	12.5~40kA	150
PS120SG%1/*CA			×	✓	✓	×	1200	700	700	-	150~450kA	12.5~40kA	150
PS127S%2/*CA	127V Single-phase	20	✓	✓	✓	×	700	700	700	-	300~900kA	25~40kA	150
PS127SN%1T/*CA			✓	×	✓	×	700	1500	1500	-	150~450kA	12.5~40kA(2)	150
PS127SN%1/*CA			✓	×	✓	×	700	1200	700	-	150~450kA	12.5~40kA	150
PS127SG%1/*CA			×	✓	✓	×	1200	700	700	-	150~450kA	12.5~40kA	150
PS230S%2/*CA	230V Single-phase	20	✓	✓	✓	×	1200	1200	1200	-	300~900kA	25~40kA	320
PS230SN%1T/*CA			✓	×	✓	×	1200	1500	1500	-	150~450kA	12.5~40kA(2)	320
PS230SN%1/*CA			✓	×	✓	×	1200	2000	1200	-	150~450kA	12.5~40kA	320
PS230SG%1/*CA			×	✓	✓	×	2000	1200	1200	-	150~450kA	12.5~40kA	320
PS240S%2/*CA	240V Single-phase	20	✓	✓	✓	×	1200	1200	1200	-	300~900kA	25~40kA	320
PS240SN%1T/*CA			✓	×	✓	×	1200	1500	1500	-	150~450kA	12.5~40kA(2)	320
PS240SN%1/*CA			✓	×	✓	×	1200	2000	1200	-	150~450kA	12.5~40kA	320
PS240SG%1/*CA			×	✓	✓	×	2000	1200	1200	-	150~450kA	12.5~40kA	320
PS277S%2/*CA	277V Single-phase	20	✓	✓	✓	×	1200	1200	1200	-	300~600kA	25~50kA	420
PS277SN%1/*CA			✓	×	✓	×	1200	2000	1200	-	150~300kA	12.5~25kA	420
PS277SG%1/*CA			×	✓	✓	×	2000	1200	1200	-	150~300kA	12.5~25kA	420
PS347S%2/*CA	347V Single-phase	20	✓	✓	✓	×	1500	1500	1500	-	300~600kA	25~50kA	420
PS347SN%1/*CA			✓	×	✓	×	1500	2500	1500	-	150~300kA	12.5~25kA	420
PS347SG%1/*CA			×	✓	✓	×	2500	1500	1500	-	150~300kA	12.5~25kA	420

PS Series - Basic Circuit Diagram

Un/ Power system (50/60 HZ)	Basic Surge Protection Circuit Diagram		Basic Surge Protection Circuit Diagram		
	Normal model	N-G mode use GDT, Delete L-G mode (if present)	Delete L-G mode (if present)	Delete L-N or L-L mode (if present)	Delete N-G mode (if present)
120/240VAC Split phase 240/480VAC Split phase …	PS…SP%2…(3W+G) 	PS..SPN%1T…(3W+G) 			PS…SPC%1…(2W+G) 
120VAC single phase 127VAC single phase 220VAC single phase 230VAC single phase 240VAC single phase 277VAC single phase 347VAC single phase …	PS…S%2…(2W+G) 	PS…SN%1T…(2W+G) 	PS…SN%1…(2W+G) 	PS…SG%1…(2W+G) 	
120/208VAC WYE 127/220VAC WYE 220/380VAC WYE 230/400VAC WYE 240/415VAC WYE 277/480VAC WYE 347/600VAC WYE …	PS…Y%2…(4W+G) 	PS…YN%1T…(4W+G) 	PS…YN%1…(4W+G) 	PS…YG%1…(4W+G) 	PS…YC%1…(3W+G) 
240VAC Delta 480VAC Delta 600VAC Delta …	PS…D%2…(3W+G) 			PS…DG%1…(3W+G) 	
120/240VAC High-leg delta 240/480VAC High-leg delta …	PS…H%2… (4W+G, L2 is High-leg) 	PS…HN%1T…(4W+G, L2 is High-leg) 	PS…HN%1…(4W+G, L2 is High-leg) 	PS…HG%1…(4W+G, L2 is High-leg) 	PS…HC%1…(3W+G, L2 is High-leg) 

AC Power DIN-rail SPDs UL

ProSurge®
Maximum Safety in Surge Protection

Prosurge SP series DIN-rail SPD is a Type 1CA SPD according to UL1449 4th, designed for low-voltage power supply system surge protection, especially for point of entry (Category C, D, ANSI/IEEE C62.41) and sub-circuit (Category B, ANSI/IEEE C62.41) protection.

Rating:

- **MCOV (Vac): 150V~690V**
- **Surge capacity (8/20μs): 50kA**
- **Short circuit current rating (SCCR): 200kArms - tested without external CB or fuse**

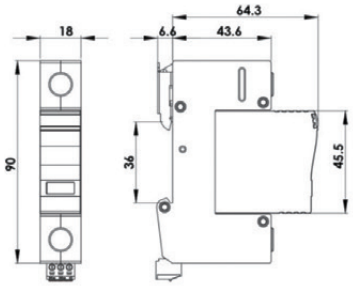
Features:

- UL recognized Type 1CA SPD (ANSI/UL1449 4th), Type 2CA SPD (CSA-C22.2) - UL File No. E319871, KEMA-tested Type2 (class II) to IEC61643-11
- Low voltage protection level.
- DIN-rail mounting configuration.
- Degradation failure indication and optional remote signal contact.
- Pluggable module for easy replacement
- Meet both standards of UL 1449-4th and IEC 61643-11:2011
- Global patented thermal disconnector design with arc extinguishing device, fail-safe & self-protected, quick thermal response and perfect circuit cutoff function. No additional over-current protection devices required.

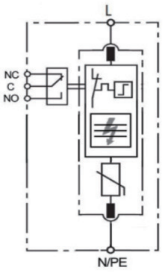
Single-phase Two-wire System

Part No.		Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
Type 1ca	Type 2ca					L-N	L-G	N-G	L-N	L-G	N-G	
SP150-S	SP150C-S	1	50	20	120	150	150	-	0.7	0.7	-	200
SP180-S	SP180C-S	1	50	20	127	180	180	-	1.0	1.0	-	200
SP275A-S	SP275AC-S	1	50	20	240	275	275	-	1.0	1.0	-	200
SP320-S	SP320C-S	1	50	20	277	320	320	-	1.2	1.2	-	200
SP385-S	SP385C-S	1	50	20	277	385	385	-	1.5	1.5	-	200
SP420-S	SP420C-S	1	50	20	347	420	420	-	1.5	1.5	-	200
SP550-S	SP550C-S	1	50	20	480	550	550	-	1.8	1.8	-	200
SP690-S	SP690C-S	1	40	20	600	690	690	-	2.5	2.5	-	200
SP150T-S	SP150TC-S	1	50	20	Neutral	-	-	150	-	-	0.9	200
SP255T-S	SP255TC-S	1	50	20	Neutral	-	-	255	-	-	0.9	200

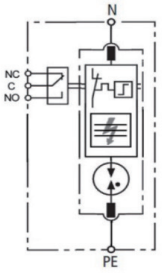
- Dimension drawing



- Basic circuit diagram



L-N/PE (1P)



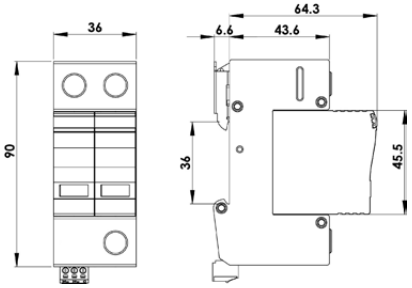
N-PE (1P)

Part No.		Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
Type 1ca	Type 2ca					L-N	L-G	N-G	L-N	L-G	N-G	
SP180/2P-S*	SP180C/2P-S*	2	50	20	120	180	180	-	1.0	1.0	-	200
SP320/2P-S*	SP320C/2P-S*	2	50	20	240	320	320	-	1.2	1.2	-	200

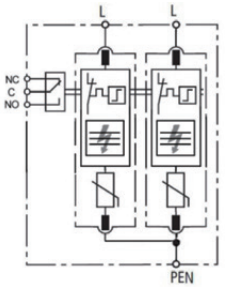
* This model is especially used for split phase application for L-G protection mode.

Split-phase Two-wire+ Ground System

- Dimension drawing



- Basic circuit diagram

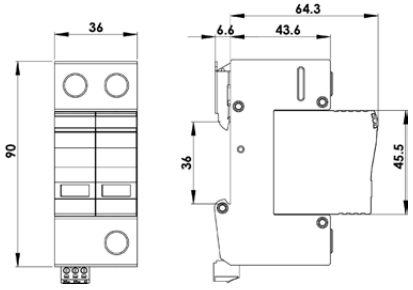


Part No.		Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
Type 1ca	Type 2ca					L-N	L-G	N-G	L-N	L-G	N-G	
SP180/2P-S	SP180C/2P-S	2	50	20	127	-	180	180	-	1.0	1.0	200
SP180/PN-S*	SP180C/PN-S*	2	50	20		180	-	150	1.0	-	0.9	200
SP275A/2P-S	SP275AC/2P-S	2	50	20	240	-	275	275	-	1.0	1.0	200
SP275A/PN-S*	SP275AC/PN-S*	2	50	20		275	-	255	1.0	-	0.9	200
SP320/2P-S	SP320C/2P-S	2	50	20	277	-	320	320	-	1.2	1.2	200
SP420/2P-S	SP420C/2P-S	2	50	20	347	-	420	420		1.5	1.5	200

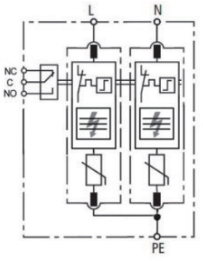
Single-phase Two-wire+ Ground System

* PN : GDT Module for N-PE pole

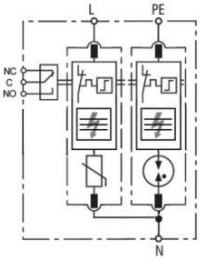
- Dimension drawing



- Basic circuit diagram



2+0 (2P)



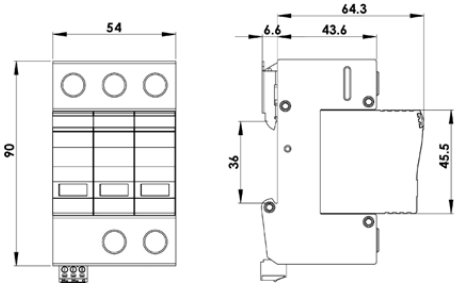
1+1(2P)

Part No.		Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
Type 1ca	Type 2ca					L-N	L-G	N-G	L-N	L-G	N-G	
SP180/3P-S*	SP180C/3P-S*	3	50	20	120	-	180	180	-	1.0	1.0	200
SP320/3P-S*	SP320C/3P-S*	3	50	20	240	-	320	320	-	1.2	1.2	200

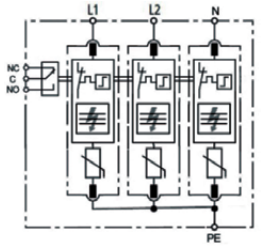
* This model is especially used for split phase application for L1 to G, L2-G and N to G protection mode.

Split-phase
Three-wire+
Ground System

- Dimension drawing



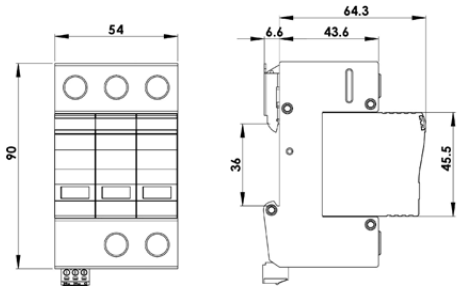
- Basic circuit diagram



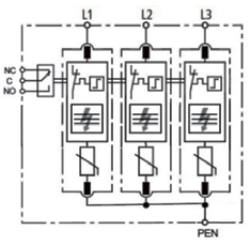
Part No.		Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
Type 1ca	Type 2ca					L-N	L-G	N-G	L-N	L-G	N-G	
SP150/3P-S	SP150C/3P-S	3	50	20	120	-	150	-	-	0.7	-	200
SP275A/3P-S	SP275AC/3P-S	3	50	20	240	-	275	-	-	1.0	-	200
SP320/3P-S	SP320C/3P-S	3	50	20	277	-	320	-	-	1.2	-	200
SP420/3P-S	SP420C/3P-S	3	50	20	347	-	420	-	-	1.5	-	200
SP550/3P-S	SP550C/3P-S	3	50	20	480	-	550	-	-	1.8	-	200
SP690/3P-S	SP690C/3P-S	3	50	20	600	-	690	-	-	2.5	-	200

Three-phase
Delta & Wye
Three-wire+
Ground System

- Dimension drawing



- Basic circuit diagram



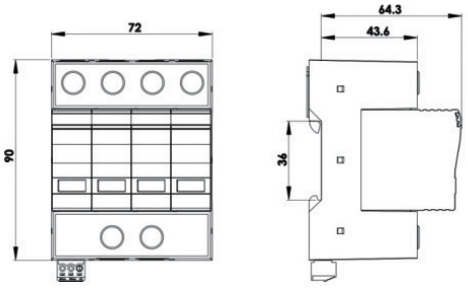
3+0 (3P)

Three-phase Wye (star) Four-wire+ Ground System

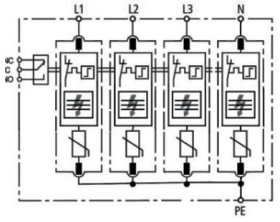
Part No.		Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
Type 1ca	Type 2ca					L-N	L-G	N-G	L-N	L-G	N-G	
SP150/4P-S	SP150C/4P-S	4	50	20	220Y127V	-	150	150	-	0.7	0.7	200
SP150/3PN-S*	SP150C/3PN-S*	4	50	20		150	-	150	0.7	-	0.9	200
SP275A/4P-S	SP275AC/4P-S	4	50	20	415Y240V	-	275	275	-	1.0	1.0	200
SP275A/3PN-S*	SP275AC/3PN-S*	4	50	20		275	-	255	1.0	-	0.9	200
SP320/4P-S	SP320C/4P-S	4	50	20	480Y277V	-	320	320	-	1.2	1.2	200
SP420/4P-S	SP420C/4P-S	4	50	20	600Y347V	-	420	420	-	1.5	1.5	220

* PN : GDT Module for N-PE pole

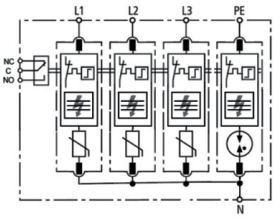
- Dimension drawing



- Basic circuit diagram



4+0 (4P)



3+1 (4P)

Accessory for SP series
Plug-in protection module

Part No		Module Type	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Max. Continuous Operating Voltage, MCOV (VAC)	Voltage Protection Rating, VPR (kV)	SCCR Rating (kArms)
Type 1ca	Type 2ca						
MSP150	MSP150C	MOV	50	20	150	0.7	200
MSP180	MSP180C	MOV	50	20	180	1.0	200
MSP275A	MSP275AC	MOV	50	20	275	1.0	200
MSP320	MSP320C	MOV	50	20	320	1.2	200
MSP385	MSP385C	MOV	50	20	385	1.5	200
MSP420	MSP420C	MOV	50	20	420	1.5	200
MSP550	MSP550C	MOV	50	20	550	1.8	200
MSP690	MSP690C	MOV	40	20	690	2.5	200
MSP150T	MSP150TC	GDT	50	20	150	0.9	200
MSP255T	MSP255TC	GDT	50	20	255	0.9	200

AC Power DIN-rail SPDs ETL

ProSurge®
Maximum Safety in Surge Protection

Prosurge ETL series DIN-rail SPD is a Type 1CA SPD according to UL 1449 4th, designed for low-voltage power supply system surge protection, especially for point of entry (Category C,D, ANSI/IEEE C62.41) and sub-circuit (Category B, ANSI/IEEE C62.41) protection.

Rating:

- **MCOV (Vac): 150V~690V**
- **Surge capacity (8/20μs): 50kA**
- **Short circuit current rating (SCCR): 200kArms - tested without external CB or fuse**

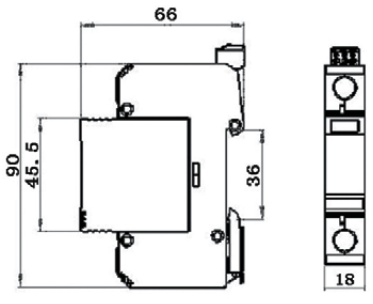
Technical Features:

- ETL recognized Type 1CA SPD (ANSI/UL1449 4th), Type 2CA SPD (CSA C22.2)
- Low voltage protection level
- DIN-rail mounting configuration
- Degradation failure indication and optional remote signal contact
- Pluggable module for easy replacement
- Meet both standards of UL 1449-4th and IEC 61643-11:2011
- Global patented thermal disconnector design with arc extinguishing device, fail-safe & self-protected, quick thermal response and perfect circuit cutoff function. No additional over-current protection devices required.

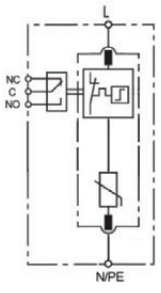
1 pole

Part No.	Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
					L-N	L-G	N-G	L-N	L-G	N-G	
V50/150-S	1	50	20	120	150	150	-	0.7	0.7	-	200
V50/180-S	1	50	20	127	180	180	-	0.7	0.7	-	200
V50/275-S	1	50	20	240	275	275	-	1.0	1.0	-	200
V50/320-S	1	50	20	277	320	320	-	1.0	1.0	-	200
V50/420-S	1	50	20	347	420	420	-	1.2	1.2	-	200
V50/550-S	1	50	20	480	550	550	-	1.5	1.5	-	200
T50/150-S	1	50	20	Neutral	-	-	150	-	-	0.8	200
T50/255-S	1	50	20	Neutral	-	-	255	-	-	1.0	200
T50/350-S	1	50	20	Neutral	-	-	350	-	-	1.2	200
T50/440-S	1	50	20	Neutral	-	-	440	-	-	1.5	200

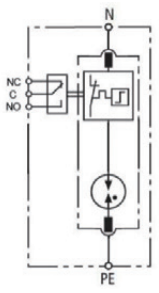
- Dimension drawing



- Basic circuit diagram



L-N/PE (1P)

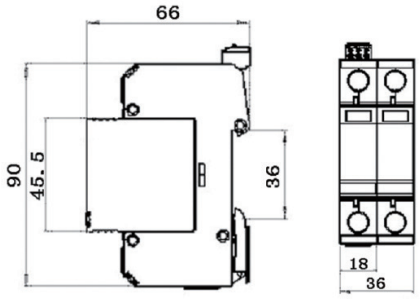


N-PE (1P)

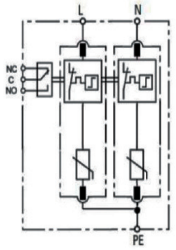
2 poles

Part No.	Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
					L-N	L-G	N-G	L-N	L-G	N-G	
DS50/150-2V-S	2	50	20	120	-	150	150	-	0.7	0.7	200
DS50/150-(V+T)-S	2	50	20	120	150	-	150	0.7	-	0.8	200
DS50/180-2V-S	2	50	20	127	-	180	180	-	0.7	0.7	200
DS50/180-(V+T)-S	2	50	20	127	180	-	150	0.7	-	0.8	200
DS50/275-2V-S	2	50	20	240	-	275	275	-	1.0	1.0	200
DS50/275-(V+T)-S	2	50	20	240	275	-	255	1.0	-	1.0	200
DS50/320-2V-S	2	50	20	277	-	320	320	-	1.0	1.0	200
DS50/320-(V+T)-S	2	50	20	277	320	-	255	1.0	-	1.0	200
DS50/420-2V-S	2	50	20	347	-	420	420	-	1.2	1.2	200
DS50/420-(V+T)-S	2	50	20	347	420	-	350	1.2	-	1.2	200
DS50/550-2V-S	2	50	20	480	-	550	550	-	1.5	1.5	200

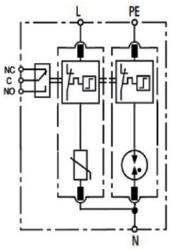
- Dimension drawing



- Basic circuit diagram



2+0 (2P)

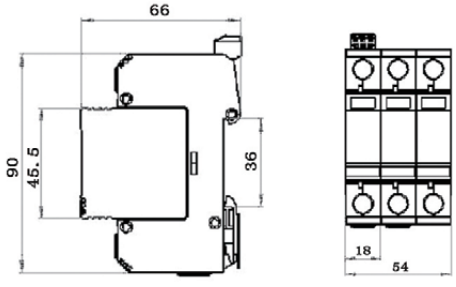


1+1(2P)

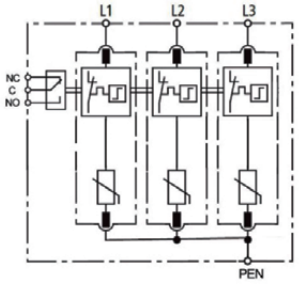
3 poles

Part No.	Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
					L-N	L-G	N-G	L-N	L-G	N-G	
DT50/150-3V-S	3	50	20	120	-	150	-	-	0.7	-	200
DT50/180-3V-S	3	50	20	127	-	180	-	-	0.7	-	200
DT50/275-3V-S	3	50	20	240	-	275	-	-	1.0	-	200
DS50/320-3V-S	3	50	20	277	-	320	-	-	1.0	-	200
DT50/420-3V-S	3	50	20	347	-	420	-	-	1.2	-	200
DS50/550-3V-S	3	50	20	480	-	550	-	-	1.5	-	200

- Dimension drawing



- Basic circuit diagram



3+0 (3P)

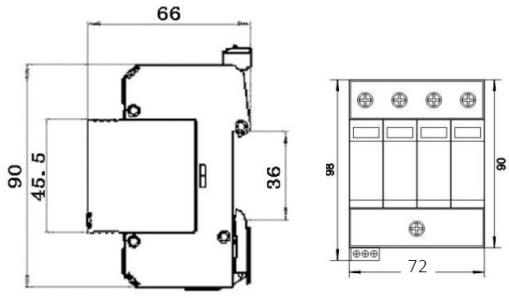
AC Power DIN-rail SPDs ETL

ProSurge®
Maximum Safety in Surge Protection

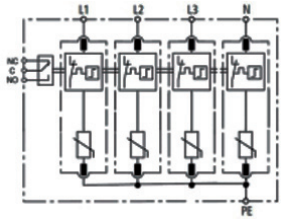
4 poles

Part No.	Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
					L-N	L-G	N-G	L-N	L-G	N-G	
DT50/150-4V-S	4	50	20	120	-	150	150	-	0.7	0.7	200
DT50/150-(3V+T)-S	4	50	20	120	150	-	150	0.7	-	0.8	200
DT50/180-4V-S	4	50	20	127	-	180	180	-	0.7	0.7	200
DT50/180-(3V+T)-S	4	50	20	127	180	-	150	0.7	-	0.8	200
DT50/275-4V-S	4	50	20	240	-	275	275	-	1.0	1.0	200
DT50/275-(3V+T)-S	4	50	20	240	275	-	255	1.0	-	1.0	200
DT50/320-4V-S	4	50	20	277	-	320	320	-	1.0	1.0	200
DT50/320-(3V+T)-S	4	50	20	277	320	-	255	1.0	-	1.0	200
DT50/420-4V-S	4	50	20	347	-	420	420	-	1.2	1.2	200
DT50/420-(3V+T)-S	4	50	20	347	420	-	350	1.2	-	1.2	200
DT50/550-4V-S	4	50	20	480	-	550	550	-	1.5	1.5	200

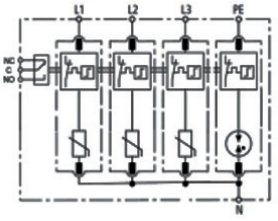
- Dimension drawing



- Basic circuit diagram



4+0 (4P)

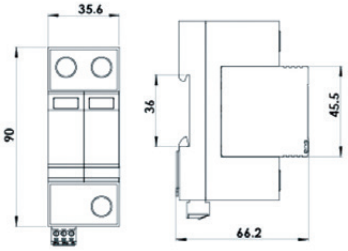


3+1 (4P)

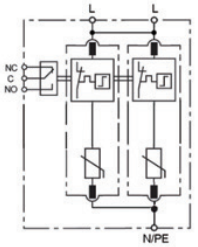
V100E & G100E
1 pole

Part No.	Pole	Max. Discharge Current, Imax (8/20μs) (kA)	Nominal Discharge Current, In (8/20μs) (kA)	Nominal Voltage (VAC)	Max. Continuous Operating Voltage, MCOV (VAC)			Voltage Protection Rating, VPR (kV)			SCCR Rating (kArms)
					L-N	L-G	N-G	L-N	L-G	N-G	
V100E/150-S	1	50	20	150	150	150	-	0.7	0.7	-	200
V100E/180-S	1	50	20	180	180	180	-	0.7	0.7	-	200
V100E/250-S	1	50	20	250	250	250	-	1.0	1.0	-	200
V100E/275-S	1	50	20	275	275	275	-	1.0	1.0	-	200
V100E/320-S	1	50	20	320	320	320	-	1.0	1.0	-	200
V100E/420-S	1	50	20	420	420	420	-	1.2	1.2	-	200
V100E/510-S	1	50	20	510	510	510	-	1.5	1.5	-	200
V100E/550-S	1	50	20	550	550	550	-	1.5	1.5	-	200
G100E/150-S	1	50	20	150	-	-	150	-	-	0.8	200
G100E/255-S	1	50	20	255	-	-	255	-	-	1.0	200
G100E/350-S	1	50	20	350	-	-	350	-	-	1.2	200
G100E/440-S	1	50	20	440	-	-	440	-	-	1.5	200

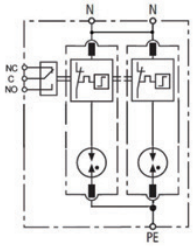
- Dimension drawing



- Basic circuit diagram



L-N/PE (1P)



N-PE (1P)

DC Power / Photovoltaic System SPDs SPV

Prosurge SPV series is a Type 1CA SPD according to UL 1449 4th, designed for Photovoltaic system DC-side protection against the damage from surges caused by lightning and other electrical sources.

Rating:

- **Max. permitted DC voltage (Vpvdc): 85V~1500Vdc**
- **Surge capacity (8/20μs): 50kA**
- **Short circuit current rating (SCCR): 100kArms - tested without external CB or fuse**

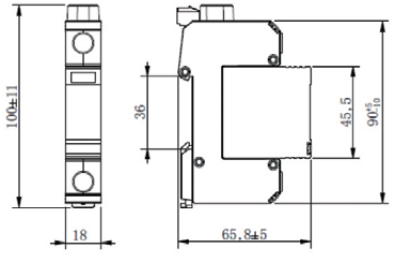
Technical Features:

- UL recognized Type 1CA SPD (ANSI/UL1449 4th), Type 2CA SPD (CSA-C22.2) for PV/ Photovoltaic system. (UL File No. E319871).
- Pluggable design with window fault indication
- Remote alarm signal optional
- Meet worldwide standards of UL 1449-4th, IEC 61643-31:2018 & EN50539-11:2013
- Global patented thermal disconnector design with arc extinguishing device, fail-safe & self-protected, quick thermal response and perfect circuit cutoff function. No additional over-current protection devices required.

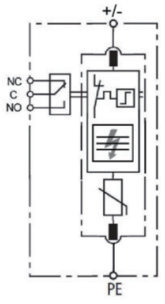
Single mode or I Configuration protection

Part No.		Pole	Nominal Voltage (Vdc)	Max. Permitted DC Voltage, Vpvdc (V)	Nominal Discharge Current, In (8/20μs) (kA)	Max. Discharge Current, Imax (8/20μs) (kA)	Voltage Protection Rating, VPR (kV)	SCCR Rating (kArms)
Type 1ca	Type 2ca							
SPV48-V-S	SPV48-V-S/C	1	48	85	20	50	0.4	30
SPV500-V-S	SPV500-V-S/C	1	500	560	20	50	1.5	100
SPV600-V-S	SPV600-V-S/C	1	600	670	20	50	1.5	50

- Dimension drawing



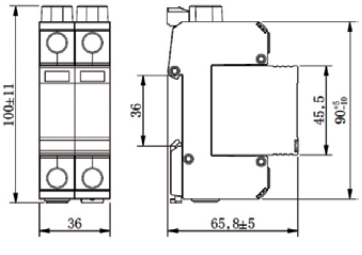
- Basic circuit diagram



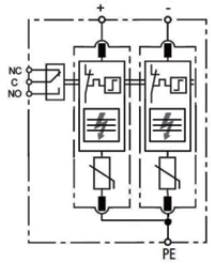
V Configuration protection

Part No.		Pole	Nominal Voltage (Vdc)	Max. Permitted DC Voltage, Vpvdc (V)	Nominal Discharge Current, In (8/20μs) (kA)	Max. Discharge Current, Imax (8/20μs) (kA)	Voltage Protection Rating, VPR (kV)	SCCR Rating (kArms)
Type 1ca	Type 2ca							
SPV48-V-C-S	SPV48-V-C-S/C	2	48	85	20	50	0.4	30
SPV500-V-C-S	SPV500-V-C-S/C	2	500	560	20	50	1.5	100
SPV600-V-C-S	SPV600-V-C-S/C	2	600	670	20	50	1.5	50

- Dimension drawing



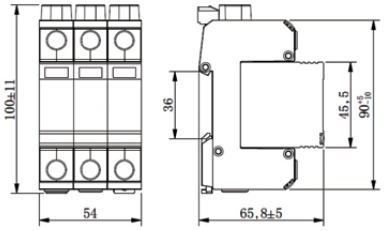
- Basic circuit diagram



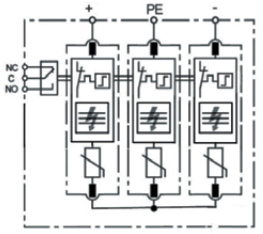
Y Configuration protection

Part No.		Pole	Nominal Voltage (Vdc)	Max. Permitted DC Voltage, Vpvdc (V)	Nominal Discharge Current, In (8/20μs) (kA)	Max. Discharge Current, Imax (8/20μs) (kA)	Voltage Protection Rating, VPR (kV)	SCCR Rating (kArms)
Type 1ca	Type 2ca							
SPV600-V-CD-S	SPV600-V-CD-S/C	3	600	700	20	50	1.8	50
SPV800-V-CD-S	SPV800-V-CD-S/C	3	800	920	20	50	2.5	50
SPV1000-V-CD-S	SPV1000-V-CD-S/C	3	1000	1120	20	50	2.5	50
SPV1200-V-CD-S	SPV1200-V-CD-S/C	3	1200	1340	20	50	3.0	50
SPV1500-V-CD-S	SPV1500-V-CD-S/C	3	1500	1500	20	50	4.0	50

- Dimension drawing



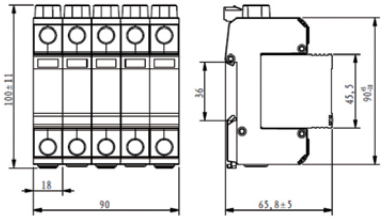
- Basic circuit diagram



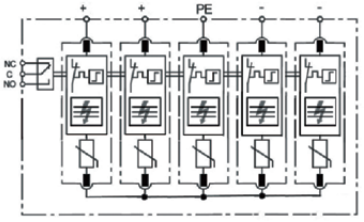
2Y Configuration protection

Part No.		Pole	Nominal Voltage (Vdc)	Max. Permitted DC Voltage, Vpvdc (V)	Nominal Discharge Current, In (8/20μs) (kA)	Max. Discharge Current, Imax (8/20μs) (kA)	Voltage Protection Rating, VPR (kV)	SCCR Rating (kArms)
Type 1ca	Type 2ca							
SPV600-V-CD2-S	SPV600-V-CD2-S/C	3	600	700	20	50	1.8	50
SPV800-V-CD2-S	SPV800-V-CD2-S/C	3	800	920	20	50	2.5	50
SPV1000-V-CD2-S	SPV1000-V-CD2-S/C	3	1000	1120	20	50	2.5	50
SPV1200-V-CD2-S	SPV1200-V-CD2-S/C	3	1200	1340	20	50	3.0	50
SPV1500-V-CD2-S	SPV1500-V-CD2-S/C	3	1500	1500	20	50	4.0	50

- Dimension drawing



- Basic circuit diagram



Modules for DC PV SPD

Prosurge's SPM series are surge protection modules which are heavy MOV based devices and are constructed with Prosurge thermal protection and arc extinguishing technology, can be easily integrated in or mounted on PCBs. They are the best choice for global customers to develop PV SPD at minimum cost.

Rating:

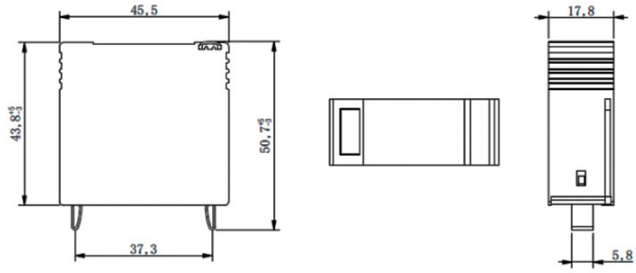
- **Max. permitted DC voltage (Vpvdc): 85V~825Vdc**
- **Surge capacity (8/20μs): 50kA**
- **Short circuit current rating (SCCR): 100kArms - tested without external CB or fuse**

Technical Features:

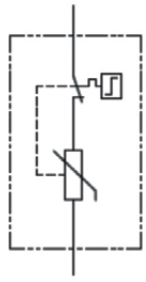
- UL recognized Type 1CA SPD (ANSI/UL1449 4th), Type 2CA SPD (CSA-C22.2) for PV/ Photovoltaic system. (UL File No. E319871).
- Completely meet IEC61643-31:2018 & EN50539-11:2013.
- Quick thermal response and perfect circuit cutoff function due to special thermal disconnector design with arc extinguishing device (Patent pending)
- Wide operating temperature range and high reliability
- High surge current capacity and low leakage current
- Provide a number of ways to use on PCB, such as permanent soldering or pluggable
- Floating remote signaling contact for fault indication while additional uses of PVD_Base

Part No.		Nominal Voltage (Vdc)	Max. Permitted DC Voltage, Vpvdc (V)	Nominal Discharge Current, In (8/20μs) (kA)	Max. Discharge Current, Imax (8/20μs) (kA)	Voltage Protection Rating, VPR (kV)	Leakage (Quiescent)	SCCR Rating (kArms)
Type 1ca	Type 2ca							
SP85D	SP85D/C	48	85	20	50	0.4	< 2.5 μA	30
SP350D	SP350D/C	300	350	20	50	0.9	< 2.5 μA	100
SP460D	SP460D/C	400	460	20	50	1.2	< 2.5 μA	100
SP560D	SP560D/C	500	560	20	50	1.5	< 2.5 μA	100
SP670D	SP670D/C	600	670	20	50	1.5	< 2.5 μA	50
SP825D	SP825D/C	750	825	20	50	1.8	< 2.5 μA	50

- Dimension drawing

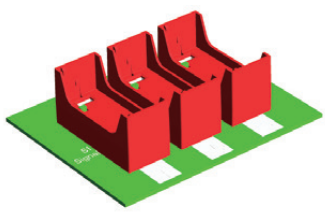


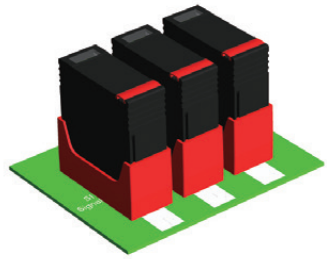
- Basic circuit diagram



PCB mounting method and illustration

PVD_Base is designed for pluggable SPM module to be mounted on the PCB and can be replaced easily, and with floating remote signaling contact for fault indication.





DC Power / Photovoltaic System SPDs MDSS

ProSurge®
Maximum Safety in Surge Protection

Prosurge MDSS series is designed for low-voltage DC power supply system protection against the damaging from surges and spikes caused by lightning and other electrical sources, suitable for use in category location B,C (ANSI/IEEE C62.41)

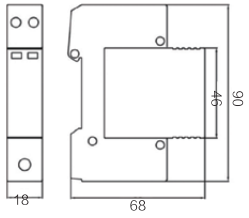
Technical Features

- Type 4CA design according to ANSI/UL1449 4th, Class III design to EN/ IEC61643-11:2011
- MCOV (Vdc): 24V~110Vdc
- Large surge capacity up to 20kA 8/20μs
- For common mode & differential mode protection
- Thermally protected MOV and GDT technology
- DIN-rail mount configuration and compact design, 18mm width (1 module, DIN 43880)
- Pluggable design with window fault indication
- Remote alarm signal optional

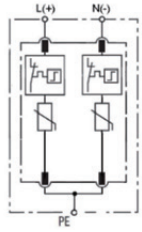
Common mode protection

Part No.	Nominal Voltage (Vdc)	Nominal Discharge Current, In (8/20μs) (kA)	Max. Discharge Current, Imax (8/20μs) (kA)	Open Circuit Voltage, Uoc (kV)	Voltage Protection Level, Up (V)
MDSS10/12-2V-S	12	5	10	10	160
MDSS10/24-2V-S	24	5	10	10	180
MDSS20/36-2V-S	36	10	20	20	330
MDSS20/48-2V-S	48	10	20	20	370
MDSS20/60-2V-S	60	10	20	20	460
MDSS20/110-2V-S	110	10	20	20	700

- Dimension drawing



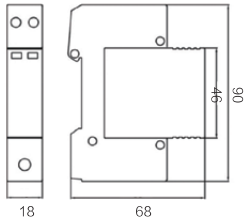
- Basic circuit diagram



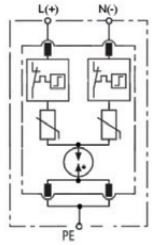
Common mode & differential mode protection

Part No.	Nominal Voltage (Vdc)	Nominal Discharge Current, In (8/20μs) (kA)	Max. Discharge Current, Imax (8/20μs) (kA)	Open Circuit Voltage, Uoc (kV)	Voltage Protection Level, Up (V)
MDSS10/12-(2V+T)-S	12	5	10	10	160
MDSS10/24-(2V+T)-S	24	5	10	10	180
MDSS20/36-(2V+T)-S	36	10	20	20	330
MDSS20/48-(2V+T)-S	48	10	20	20	370
MDSS20/60-(2V+T)-S	60	10	20	20	460
MDSS20/110-(2V+T)-S	110	10	20	20	700

- Dimension drawing



- Basic circuit diagram



Surge Protection for Information System

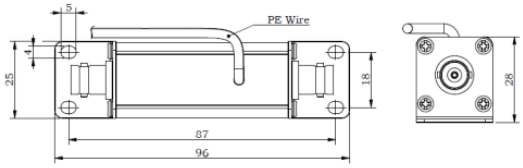
Prosurge D-05/BNC surge arrester is designed for coaxial systems such as camera and video system protection against the damage from surges and spikes caused by lightning and other electrical sources, suitable for use in category location B, C (ANSI/IEEE C62.41) or directly at the upstream near the protected devices.

Technical Features

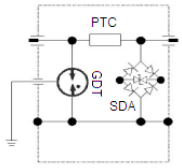
- Data network protector in according with UL 497b, IEC 61643-21:2012
- High discharge capacity, total nominal discharge current up to 20kA 8/20μs
- Two-stage protection circuit
- Limit the transient with gas discharge tubes and transzorb diodes
- Comprising a PTC for overcurrent fault and short-circuit fault protection
- BNC connector for protection of video signal, cameras or TV system
- Low insertion loss

Part No.		D-05/BNC-FF50-B
Nominal Voltage (Vdc)	Un	5V
Max. Continuous Operating Voltage (Vdc/Vac)	Uc	6/5V
C2 Nominal Discharge Current (8/20μs)	In	10kA
C2 Total Nominal Discharge Current (8/20μs)	In	20kA
Voltage Protection Level	L-SG@C2 (8/20μs) Up	≤30V
	L-SG@C3 (1KV/μs) Up	≤24V
Frequency Range	f	0~20MHz
Nominal Current	IL	0.35A
Technology		Two-stage protection circuit, GDT/SAD & PTC technology
Insertion Loss at 20MHz		< 0.2dB
VSWR		< 1.2dB
Continuous Power	P	0.77 Watts
Series Impedance per Line	R	0.6 Ohm (PTC)
Input / Output Connection Type		BNC, 50 Ohm

- Dimension drawing



- Basic circuit diagram



Multiport Coaxial Protector

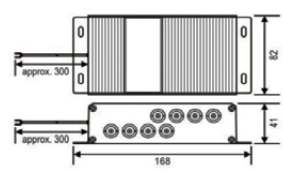
8-ports protector DSB05/BNC-8P

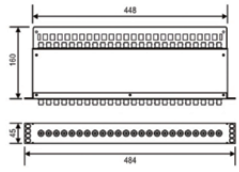
16-ports protector DSB05/BNC-16P 19" bay design

24-ports protector DSB05/BNC-24P 19" bay design

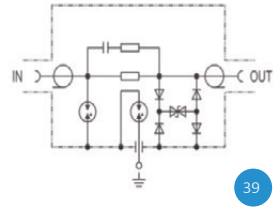
Part No.		DSB05/BNC-8P	DSB05/BNC-16P	DSB05/BNC-24P
Number of Connection Ports		8	16	24
Nominal Voltage (Vdc)	Un	5V		
Max. Continuous Operating Voltage (Vdc)	Uc	8V		
Open Circuit Voltage (1.2/50μs)	Uoc	5kV (L-SG), 10kV (SG-PG)		
Lightning Impulse Current (10/350μs)	Iimp	0.5kA		
Nominal Discharge Current (8/20μs)	In	2.5kA (L-SG), 5kA (SG-PG)		
Max. Discharge Current (8/20μs)	Imax	5kA (L-SG), 10kA(SG-PG)		
Voltage Protection Level at In	Up	≤25V (L-SG)		
Voltage Protection Level at 1kV/μs	Up	≤15V (L-SG), ≤600V (L/SG-PG)		
Bandwidth	fG	300MHz		

- Dimension drawing





- Basic circuit diagram



Surge Protection for Information System

ProSurge®
Maximum Safety in Surge Protection

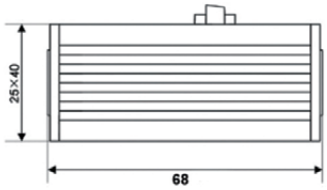
Prosurge D-05/RJ45-CAT6/H Protector is designed for Gigabit Ethernet terminals against surges. It is suitable for use in category location B, C (ANSI/IEEE C62.41) or directly at the upstream near the protected devices.

Technical Features

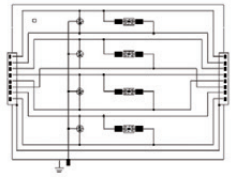
- Data network protector In according with standard UL 497b, EN 50173 Category 6, IEC 61643-21:2012
- Ethernet CAT6 & CAT5 system protection
- Applied in offices and industries like Gigabit Ethernet, ATM or ISDN system, and VoIP system (e.g. switch, router, hub, modem and so on)
- High discharge capacity, total nominal discharge current 10kA 8/20μs and Lightning current up to 1.0kA 10/350μs
- RJ45 connector for CAT6 & CAT 5 network technology, 100BaseT, 1000BaseT, 8 wires protection.
- DIN-rail type is available

Part No.		D-05/RJ45-CAT6/H
Nominal Voltage (Vdc)	Un	5V
Max. Continuous Operating Voltage (Vdc)	Uc	6V
C2 Nominal Discharge Current (8/20μs)	In	2.5kA
C2 Total nominal Discharge Current (8/20μs)		10kA
Voltage Protection Level	L-SG@C2 (8/20μs) Up	≤55V
	L-SG@C3 (1KV/μs) Up	≤25V
Lightning Impulse Current (10/350μs)	Iimp	1.0kA
Nominal Current	IL	200mA
Transmission Speed		1000Mbps
Insertion Loss at 250MHz		≤ 3.0dB
Transmission Standards		100BaseT / 1000BaseT / 1000BaseTX (CAT6)

- Dimension drawing



- Basic circuit diagram

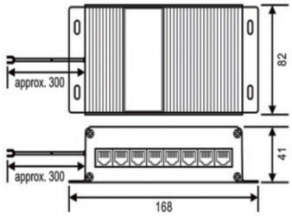


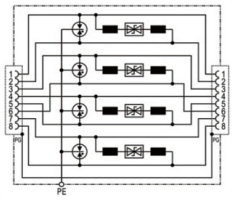
Multiport 1Gb Protector

24-ports protector DSB05/RJ45-1000M-24P/1000M 19"bay design

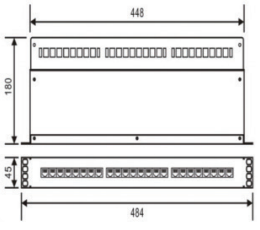
Part No.		DSB05/RJ45-1000M-24P
Number of Connection Ports		24
Nominal Voltage (Vdc)	Un	5V
Max. Continuous Operating Voltage (Vdc)	Uc	6V
C2 Nominal Discharge Current (8/20μs)	In	2.5kA
C2 Total nominal Discharge Current (8/20μs)		10kA
Voltage Protection Level	@C2 (8/20μs) Up	≤30V (L-L); ≤500V (L-G)
	@C3 (1KV/μs) Up	≤24V (L-L); ≤600V (L-G)
Lightning Impulse Current (10/350μs)	Iimp	1kA
Nominal Current	IL	150mA
Insertion Loss		≤0.1dB
Transmission Speed		1000Mbps
Technology		Two-stage protection circuit, GDT/SAD technology
Transmission Standards		1000BaseT/Tx

- Dimension drawing





- Basic circuit diagram



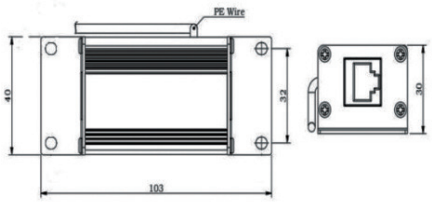
Prosurge D-48 CAT6-PoE Protector is designed for protecting Gigabit Ethernet & Power-over Ethernet (PoE) terminals such as Internet camera, IP Telephone sets, and wireless access point, and are suitable for use in category location B, C (ANSI/IEEE C62.41) or directly at the upstream near the protected devices.

Technical Features

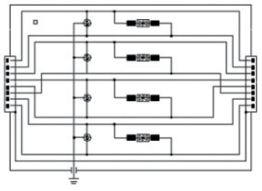
- Data network protector In according with standard IEEE802.3 at/af, UL 497b, EN 50173 Category 6, IEC 61643-21:2012
- PoE compatible, Ethernet CAT6 & CAT5 system protection
- High discharge capacity, total nominal discharge current 10kA 8/20μs and Lightning current up to 1.0kA 10/350μs
- In aluminum housing
- RJ45 connector for CAT6 & CAT5 network technology, 100BaseT, 1000BaseT, 8 wires protection

Part No.		D-48/RJ45-CAT6/H(POE)-B
Nominal Voltage (Vdc)	Un	48V
Max. Continuous Operating Voltage (Vdc)	Uc	68V
C2 Nominal Discharge Current (8/20μs)	In	2.5kA
C2 Total nominal Discharge Current (8/20μs)		10kA
Voltage Protection Level	@C2 (8/20μs) Up	≤190V (L-L); ≤500V (L-G)
	@C3 (1KV/μs) Up	≤145V (L-L); ≤600V (L-G)
Lightning Impulse Current (10/350μs)	Iimp	1kA
Nominal Current	IL	800mA
Insertion Loss		≤0.1dB
Transmission Speed		1000Mbps
Technology		Two-stage protection circuit, GDT/SAD technology
Transmission Standards		10BaseT / 100BaseT / 1000BaseT / 1000BaseTX (CAT6) / PoE
Pinning		1/2, 3/6, 4/5, 7/8 for data; 1&2 / 3&6, 4&5 / 7&8 for PoE

- Dimension drawing



- Basic circuit diagram

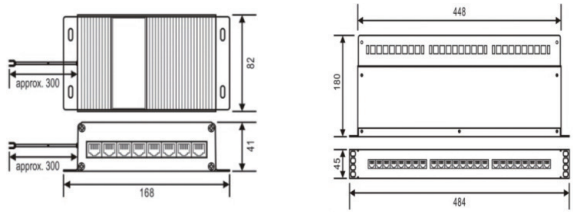


Multiport 1Gb-PoE Protector

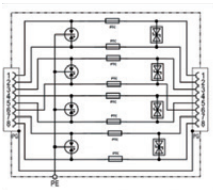
24-ports protector DSB48/RJ45-1000M-24P 19" bay design

Part No.		DSB48/RJ45-1000M-24P
Number of Connection Ports		24
Nominal Voltage (Vdc)	Un	48V
Max. Continuous Operating Voltage (Vdc)	Uc	60V
C2 Nominal Discharge Current (8/20μs)	In	2.5kA
C2 Total nominal Discharge Current (8/20μs)		10kA
Voltage Protection Level	@C2 (8/20μs) Up	≤190V (L-L); ≤500V (L-G)
	@C3 (1KV/μs) Up	≤145V (L-L); ≤600V (L-G)
Lightning Impulse Current (10/350μs)	Iimp	1kA
Nominal Current	IL	750mA
Series Impedance per Line	R	0.5 Ω (PTC)
Insertion Loss		≤0.1dB
Transmission Speed		1000Mbps

- Dimension drawing



- Basic circuit diagram

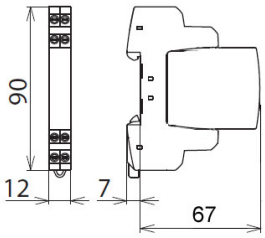


PROSURGE DM../M4N… data network surge arrester are designed for universal 1 or 2-pairs data lines against the damaging from surges and spikes caused by lightning and other electrical sources, suitable for use in category location B, C (ANSI/IEEE C62.41) or directly at the upstream near the protected devices.

Technical Features

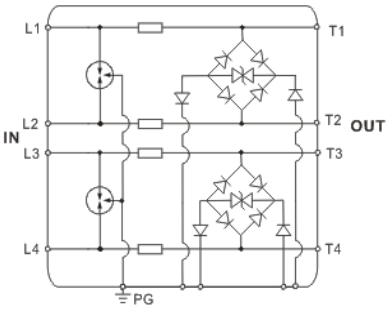
- Data network protector in according with UL497b, IEC61643-21:2012;
- 12mm pluggable surge protector for DIN mounting;
- Signal transmission is not interrupted when exchanging module
- Two-stage protection circuit. Limit the transients with gas discharge tubes and transzorb diodes
- Earthing is possible on DIN rail
- Different model are suitable to use for universal 20mA current loop, TTL, analog telephone line, measurement system and high-frequency bus and data transmission systems etc.

- Dimension drawing

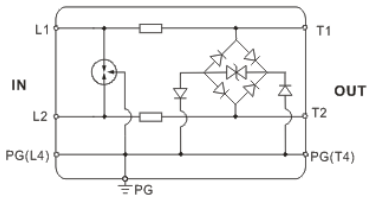


Model		DM-05/M4N1	DM-12/M4N1	DM-24/M4N1	DM-48/M4N1	DM-110/M4N1
Lines Protected		2-Pair				
Nominal Voltage (Vdc)	Un	5V	12V	24V	48V	110V
Max. Continuous Operating Voltage (Vdc/Vac)	Uc	6V/4.2V	15V/10.6V	33V/23.3V	54V/38.1V	170V/120V
C2 Nominal Discharge Current (8/20μs)	In	10kA				
Lightning Impulse Current (10/350μs)	Iimp	2.5kA				
Voltage Protection Level	@C2 (8/20μs) Up	≤30V(L-L); ≤30V(L-G)	≤45V(L-L) ≤45V(L-G)	≤55V(L-L) ≤55V(L-G)	≤100V(L-L); ≤100V(L-G)	≤300V(L-L) ≤300V(L-G)
	@C3 (1KV/μs) Up	≤24V(L-L); ≤24V(L-G)	≤38V(L-L); ≤38V(L-G)	≤48V(L-L); ≤48V(L-G)	≤75V(L-L); ≤75V(L-G)	≤250V(L-L) ≤250V(L-G)
Rated Load Current	IL	500mA				
Cut-off Frequency	fG	>30 MHz				
Series Impedance per Line	R	2.2 Ω				

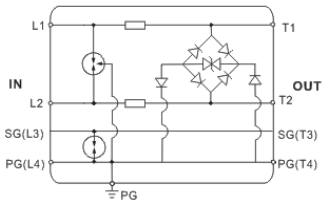
- Basic circuit diagram



For 2-pair data line
DM-…/M4N1



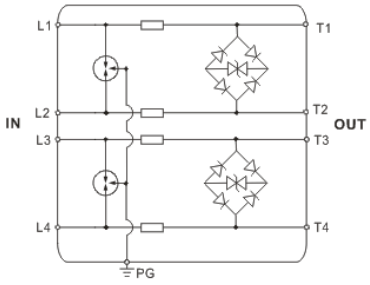
For 1-pair data line
DM-…/M2N1



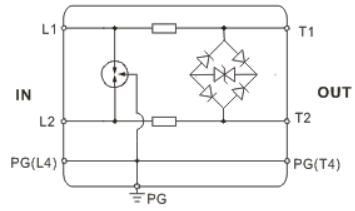
For 1-pair+shield data line
DM-…/M2N3

Model		DM-05/M4N2	DM-12/M4N2	DM-24/M4N2	DM-48/M4N2	DM-110/M4N2
Lines Protected		2-Pair				
Nominal Voltage (Vdc)	Un	5V	12V	24V	48V	110V
Max. Continuous Operating Voltage (Vdc/Vac)	Uc	6V/4.2V	15V/10.6V	33V/23.3V	54V/38.1V	170V/120V
C2 Nominal Discharge Current (8/20μs)	In	10kA				
C2 Total nominal Discharge Current (8/20μs)		20kA				
Lightning Impulse Current (10/350μs)	Iimp	2.5kA				
Voltage Protection Level	@C2 (8/20μs) Up	≤30V(L-L); ≤500V(L-G)	≤45V(L-L) ≤500V(L-G)	≤55V(L-L) ≤500V(L-G)	≤100V(L-L); ≤500V(L-G)	≤300V(L-L); ≤500V(L-G)
	@C3 (1KV/μs) Up	≤24V(L-L); ≤600V(L-G)	≤38V(L-L); ≤600V(L-G)	≤48V(L-L); ≤600V(L-G)	≤75V(L-L); ≤600V(L-G)	≤250V(L-L); ≤600V(L-G)
Rated Load Current	IL	500mA				
Cut-off Frequency	fG	>30 MHz				
Series Impedance per Line	R	2.2 Ω				

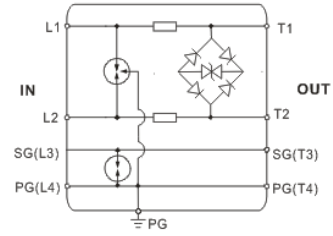
- Basic circuit diagram



For 2-pair data line
DM-…/M4N2



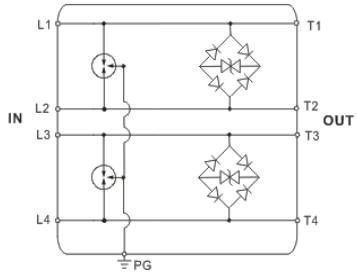
For 1-pair data line
DM-…/M2N2



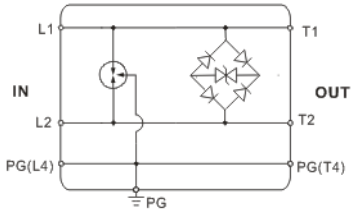
For 1-pair+shield data line
DM-…/M2N4

Model		DM-05/M4N6	DM-12/M4N6	DM-24/M4N6	DM-48/M4N6	DM-110/M4N6
Lines Protected		2-Pair				
Nominal Voltage (Vdc)	Un	5V	12V	24V	48V	110V
Max. Continuous Operating Voltage (Vdc/Vac)	Uc	6V/4.2V	15V/10.6V	33V/23.3V	54V/38.1V	170V/120V
C2 Nominal Discharge Current (8/20μs)	In	10kA				
C2 Total nominal Discharge Current (8/20μs)		20kA				
Lightning Impulse Current (10/350μs)	Iimp	2.5kA				
Voltage Protection Level	@C2 (8/20μs) Up	≤30V(L-L); ≤500V(L-G)	≤45V(L-L) ≤500V(L-G)	≤55V(L-L) ≤500V(L-G)	≤100V(L-L); ≤500V(L-G)	≤300V(L-L); ≤500V(L-G)
	@C3 (1KV/μs) Up	≤24V(L-L); ≤600V(L-G)	≤38V(L-L); ≤600V(L-G)	≤48V(L-L); ≤600V(L-G)	≤75V(L-L); ≤600V(L-G)	≤250V(L-L); ≤600V(L-G)
Rated Load Current	IL	2000mA				
Cut-off Frequency	fG	>30 MHz				
Series Impedance per Line	R	0 Ω				

- Basic circuit diagram



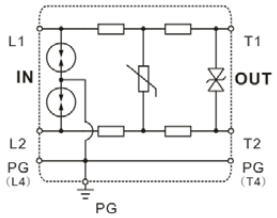
For 2-pair data line
DM-…/M4N6



For 1-pair data line
DM-…/M2N6

Model		DM-12/M2N5	DM-24/M2N5	DM-48/M2N5	DM-110/M2N5
Lines Protected		1-Pair			
Nominal Voltage (Vdc)	Un	12V	24V	48V	110V
Max. Continuous Operating Voltage (Vdc/Vac)	Uc	15V/10.6V	33V/23.3V	54V/38.1V	170V/120V
C2 Nominal Discharge Current (8/20μs)	In	10kA			
C2 Total Nominal Discharge Current (8/20μs)		20kA			
Lightning Impulse Current (10/350μs)	Iimp	2.5kA			
Voltage Protection Level	@C2 (8/20μs) Up	≤25V(L-L); ≤500V(L-G)	≤50V(L-L) ≤500V(L-G)	≤100V(L-L) ≤500V(L-G)	≤260V(L-L); ≤500V(L-G)
	@C3 (1KV/μs) Up	≤19V(L-L); ≤600V(L-G)	≤45V(L-L); ≤600V(L-G)	≤70V(L-L); ≤600V(L-G)	≤230V(L-L); ≤600V(L-G)
Rated Load Current	IL	500mA			
Cut-off Frequency	fG	>2 MHz			
Series Impedance per Line	R	4 Ω			

- Basic circuit diagram

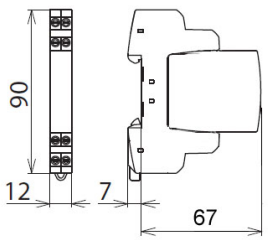


For 1-pair data line

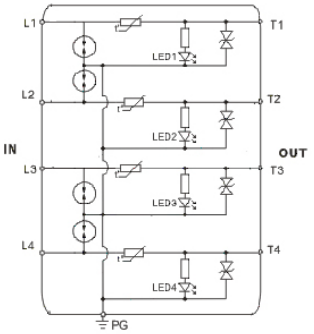
DM-../M..N7 data network protector is with **failure indication and fault-current** protection inside to make protection module replacement timely and prevent failure or even destruction of signal or communication system.
These modules are suitable for digital I/O signal or analog power surge protection.

Model		DM-05/M4N7	DM-12/M4N7	DM-24/M4N7	DM-48/M4N7
Lines Protected		2-Pair			
Nominal Voltage (Vdc)	Un	5V	12V	24V	48V
Max. Continuous Operating Voltage (Vdc/Vac)	Uc	6V/4.2V	15V/10.6V	33V/23.3V	54V/38.1V
C2 Nominal Discharge Current (8/20μs)	In	10kA			
C2 Total Nominal Discharge Current (8/20μs)		20kA			
Lightning Impulse Current (10/350μs)	Iimp	2.5kA			
Voltage Protection Level	@C2 (8/20μs) Up	≤30V(L-L); ≤500V(L-G)	≤45V(L-L) ≤500V(L-G)	≤55V(L-L) ≤500V(L-G)	≤100V(L-L); ≤500V(L-G)
	@C3 (1KV/μs) Up	≤24V(L-L); ≤600V(L-G)	≤38V(L-L); ≤600V(L-G)	≤48V(L-L); ≤600V(L-G)	≤75V(L-L); ≤600V(L-G)
Rated Load Current	IL	500mA			
Cut-off Frequency	fG	>2 MHz			
Series Impedance per Line	R	0.5 Ω (PTC)			

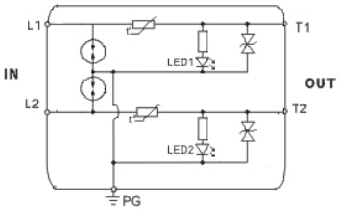
- Dimension drawing



- Basic circuit diagram



For 2-pair data line
DM-…/M4N7



For 1-pair data line
DM-…/M2N7

Prosurge DM S2 data network arrester is applied in protection for 2 single wires of balanced interfaces with measuring and controlling system, providing coarse and fine protection, suitable for use in category location B, C (ANSI/IEEE C62.41) or directly at the upstream near the protected devices.

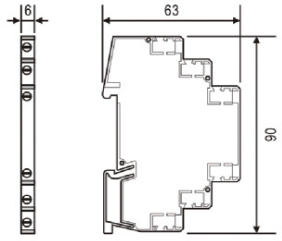
Technical Features

- Data network protector in according with UL497b, IEC61643-21:2012;
- 35mm Din-rail mounting design;
- Three-stage protection circuit;
- Compact size of 6.2mm to save much installation space;
- Limit the transients with gas discharge tubes and transzorb diodes;
- One-pair line protection

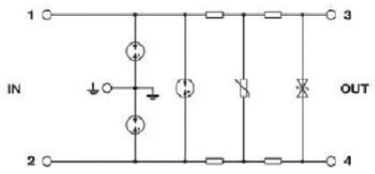
6.2mm Width

Model		DM-12/S2	DM-24/S2	DM-48/S2	DM-110/S2
Nominal Voltage	Un	12V	24V	48V	110V
Rated Voltage (max. continuous dc/ac)	Uc	14V/9.5V	33V/23V	55V/38.5V	170V/120V
Norminal Current	IL	0.5A			
Lightning Impulse Current (10/350μs) per line	limp	1kA			
Nominal Discharge Current (8/20μs) per line	In	5kA			
Nominal Discharge Current (8/20μs) Total	In	10kA			
Voltage Protection Level at In line-line	Up	≤25V	≤50V	≤100V	≤260V
Voltage Protection Level at In line-PG	Up	≤750V	≤750V	≤750V	≤750V
Voltage Protection Level at 1kV/μs line-line	Up	≤19V	≤45V	≤70V	≤230V
Voltage Protection Level at 1kV/μs line-PG	Up	≤650V	≤650V	≤650V	≤650V
Bandwith line-line	fG	2.5MHz	6MHz	10MHz	16MHz

- Dimension drawing



- Basic circuit diagram



Prosurge DM S4 Data network arrester provides protection for four single lines in the high-frequency bus systems or video transmissions, suitable for use in category location B, C (ANSI/IEEE C62.41) or directly at the upstream near the protected devices.

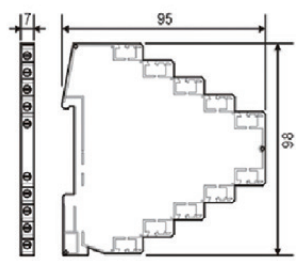
Technical Features

- Data network protector in according with UL497b, IEC61643-21:2012;
- 35mm Din-rail mounting design;
- Two-stage protection circuit;
- Compact size of 7mm to save much installation space;
- Limit the transients with gas discharge tubes and transzorb diodes;
- Two-pair line protection

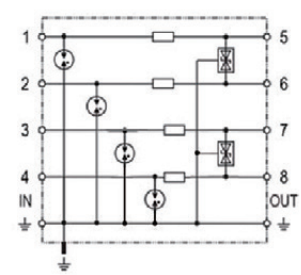
7mm Width

Model		DM-05/S4	DM-12/S4	DM-24/S4	DM-32/S4	DM-48/S4	DM-110/S4
Nominal Voltage	Un	5V	12V	24V	32V	48V	110V
Rated Voltage (max. continuous dc/ac)	Uc	6V/4.2V	15V/10.6V	33V/23.3V	36V/29V	54V/38V	170V/120V
Norminal Current	IL	0.5A					
Lightning Impulse Current (10/350μs) per line	limp	1kA					
Nominal Discharge Current (8/20μs) per line	In	5kA					
Nominal Discharge Current (8/20μs) Total	In	20kA					
Voltage Protection Level at In line-line	Up	≤26V	≤40V	≤55V	≤75V	≤100V	≤400V
Voltage Protection Level at In line-PG	Up	≤26V	≤40V	≤55V	≤75V	≤100V	≤400V
Voltage Protection Level at 1kV/μs line-line	Up	≤11V	≤25V	≤48V	≤65V	≤75V	≤350V
Voltage Protection Level at 1kV/μs line-PG	Up	≤11V	≤25V	≤48V	≤65V	≤75V	≤350V
Bandwith line-line	fG	100MHz					

- Dimension drawing



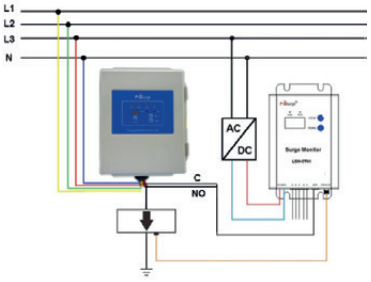
- Basic circuit diagram

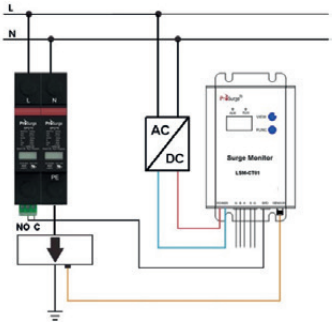


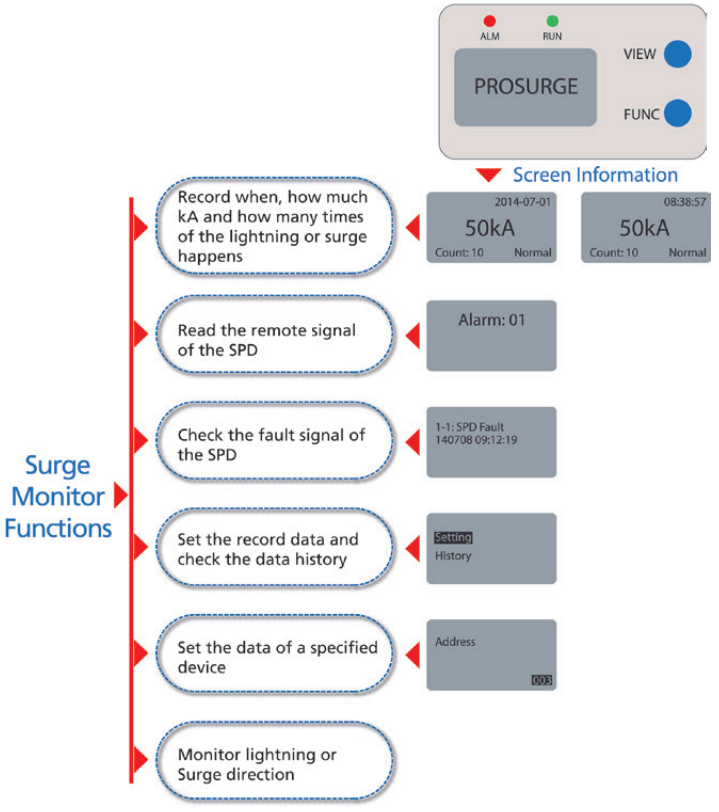
Prosurge's surge monitor is designed to monitor lightning and surge. It can indicate the time, the frequency and the capacity of the lightning or surge passing through. It can be widely used in railway, photovoltaic and wind turbine power plant, communication room, building and other electric systems.

LSM-CT01

Part No.	LSM-CT01
Rated Input Voltage	10~28Vdc (DC Switching Power Supply is not recommended)
Overall Power Consumption	≤1W
Output Voltage	0~5V (correspond to 0~50kA)
Lightning Current Sensor	One way, 1~50kA, tolerance:±5%
Fault Switch of the Surge Protective Device	One way, give alarm when the switch is closing
Input Current for Lightning Protection	10/700μs@5kV, 5 times each for positive and negative polarity with interval 1 minute
RS485	10/700μs@1kV, 5 times each for positive and negative polarity with interval 1 minute
MTBF	100 thousand hours (based on Bellcore TR-332), 25°C
Degree of Protection	IP40







This catalogue is intended as an overview of Prosurge's surge protection devices. More detailed product information can be found at www.Prosurge.com or contact us.

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