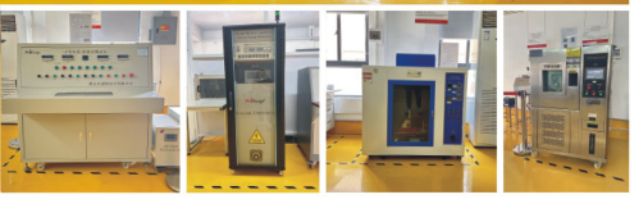
ProSurge®

Maximum Safety in
Surge Protection

www.Prosurge.com

SURGE PROTECTION SOLUTIONS

FOR RENEWABLE ENERGY



20 YEARS' R&D EXPERIENCE | **4.0 INDUSTRY SYSTEM** | **80+ COUNTRIES COVERED** | **WITH INHOUSE LAB**

COMPANY INTRODUCTION

ISO 9001 CERTIFIED · ISO 14001 CERTIFIED · ISO 45001 CERTIFIED

ProSurge®

Founded in 2006, Prosurge is a world leader in manufacturing a full line of Surge Protective Devices (SPDs) for complete solutions across applications in the home, commercial, industrial, electricity system,telecommunications, transportation, and renewable energy sectors, etc.

The past 20 years' specialized endeavor has positioned Prosurge as a highest-quality supplier with QEHS Management holders of ISO9001/14001/45001 awards. With a robust global sales network covering over 80 countries, Prosurge ensures unparalleled service and support to customers worldwide with competitive UL,CSA,TUV and KEMA certificate. Prosurge is committed to excellence. The proof is that Prosurge has an inhouse test lab appointed TUV SUD External Test Laboratory, which is complementary, in terms of the available resources, to be able to offer the widest range of tests to IEEE, UL,CSA and IEC standards. Focused on MAXIMUM SAFETY IN SURGE PROTECTION, Prosurge will continually innovate in the surge protection market and struggle for ideal solution to customized installation.

PRODUCT CLASSIFICATION

Prosurge SPDs are mainly divided into 6 categories and cover over 80 countries worldwide, meeting a wide range of surge protection applications.

SPD Components	Panel SPDs	DIN-rail SPDs for AC & PV / DC	SPDs for Information System	Surge Monitoring & Measurement	Intelligent SPDs (iSPDs)
					

PATENT & CERTIFICATE


UL


KEMA


TUV


ISO 14001:2015


ISO 45001:2018


ISO 9001:2015


KOREA PATENT


US PATENT

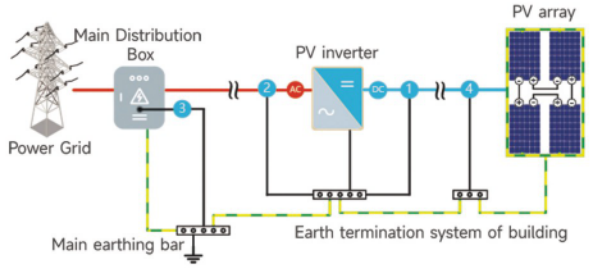

GERMANY PATENT


CHINA PATENT

PHOTOVOLTAIC(PV) SYSTEM

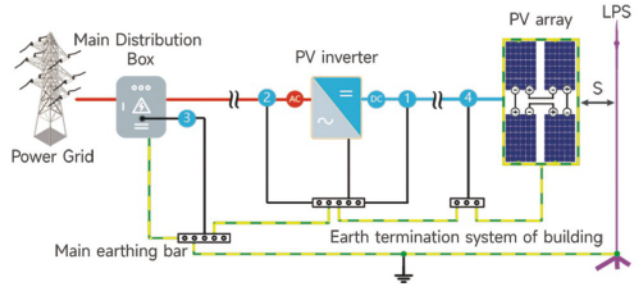
The SPDs of PV system selected should conform to IEC/EN 61643-11(AC) and -31(PV DC), and be installed in line with the guidance provided in IEC/EN 61643-12 (AC) and -32 (PV DC). The appropriate SPD to protect each side of the inverter is dependent on whether the PV array is protected by an external lightning protection system (LPS), and the minimum separation distance (according to IEC/EN 62305-3) between the LPS and the metallic parts of the PV array has been kept.

01 PV installation without an external LPS



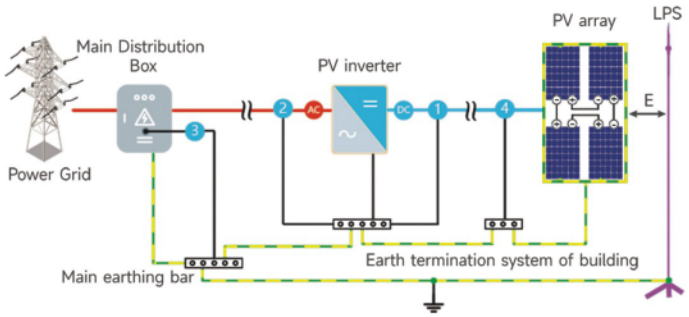
SPD location	Category IEC/EN/VDE	Part No.
1 4	II/2/C	PV50/1500-V-CD-S
2	II/2/C	DT50/320-(3V+T)-S
3	I/1/B II/2/C	BP25V(T)/320-S/3PN100

02 PV installation with an external LPS where the separation distance(s) is maintained



SPD location	Category IEC/EN/VDE	Part No.
1 4	II/2/C	PV50/1500-V-CD-S
2	II/2/C	DT50/320-(3V+T)-S
3	I/1/B	BP25V(T)/320-S/3PN100

03 PV installation with an external LPS where the separation distance(s) can not be maintained



SPD location	Category IEC/EN/VDE	Part No.
1 4	I/1/B	PVB12.5/1500-V-CD-S
2	I/1/B	BPS12.5V/320-S/3PN50
3	I/1/B	BP25V(T)/320-S/3PN100

AC SPD IEC/EN 61643-11 compliance

DC SPD IEC/EN 61643-31 compliance

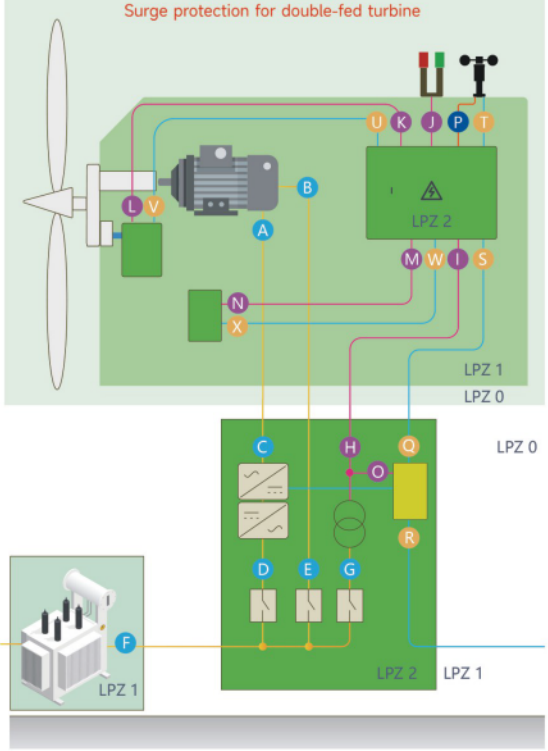
Part No.	BP25V(T)/320-S/3PN100	BPS12.5V/320-S/3PN50	DT50/320-(3V+T)-S	PVB12.5/1500-V-CD-S	PV50/1500-V-CD-S
Product image					
Category IEC/EN/VDE	I+II /1+2/ B+C			I+II /1+2/ B+C PV DC SPD	
Un	230Vac			1500Vdc	
Uc/Ucpv	320Vac			1500Vdc	
In(8/20μs)	25kA	25kA	20kA	25kA	20kA
Imax(8/20μs)	100kA	80kA	50kA	65kA	50kA
Iimp(10/350μs)	25kA/100kA(NPE)	12.5kA/50kA(NPE)	7.5kA/12.5kA(NPE)	8kA	4.5kA
Up	1.2kV/1.5kV(NPE)	1.4kV/1.5kV(NPE)	1.4kV/1.5kV(NPE)	4.5kV	4.5kV
Isccr/Iscpv	50kArms	50kArms	25kArms	25kA	25kA
Approval	TUV, CE	TUV, CE	TUV, CE	TUV, CE	TUV, CE
SPD location	3	2	2	1 4	1 4

WIND TURBINE

With modern wind turbines now typically exceeding 150m in height and featuring increasingly complex electrical systems, their lightning vulnerability rises significantly. Studies indicate a 5%-8% surge in lightning strike probability per additional 10m of height (IEC 61400-24), making lightning protection design a critical safeguard for wind energy reliability.
The SPDs of wind turbine system selected should conform to IEC/ EN 61643-11: 2011 and EN50539-22:2010.

Power system	SPD location	To be protected	PROSURGE SPD model
Generator lines 690Vac	B	The stator of generator	BPS12.5V/1000-S/3P-WD
	A	The rotor winding of generator	BPS12.5V/1000-S/3PT-WD
	D,E,G	Main power service	BPS12.5V/1000-S/3P-WD
	C	Converter	BPS12.5V/1000-S/3PT-WD
	F	The low voltage side of the transformer	BP25VT/960-S/3PI-WD
Power supply 277/480Vac	L,K	Pinch-control cabinet	DT50/320-3V-S or DT50/320-(3V+T)-S
	J	The aircraft warning light	DS50/320-(V+T)-S
	I,H	Nacelle Control cabinet	DT50/320-3V-S or DT50/320-(3V+T)-S
	N,M	Yaw-control cabinet	DT50/320-3V-S or DT50/320-(3V+T)-S
	O	Tower-base Control cabinet	DT50/320-3V-S or DT50/320-(3V+T)-S
DC power supply 24,48V	T	Anemometer	PV50/48-V-C-S
	...	Other DC equipment	PV50/48-V-C-S
Ethernet communication	R, ...	Ethernet network	D-48/RJ45-CAT6/H(POE) D-05/RJ45-CAT6/H
Measuring and control	Q,S,T,U,V,W,X,...	Sensors, measuring and control equipment,Bus system	DM-XX-M2N2 DM-XX-M2N4 (shielded pairs)

Application Example
Surge protection for double-fed turbine



AC 690Vac Power system

Part No.	BP25VT/960-S/3PI-WD	BPS12.5V/1000-S/3P-WD	BPS12.5V/1000-S/3PT-WD
Product image			
In accordance with	IEC/EN 61643-11:2011; UL1449 5th; EN50539-22:2010		
Category IEC/EU/VDE	I+ II /1+2/ B+C	II /2/ C	II /2/ C
Un	690Vac, 3-Phase TN-C/IT	690Vac, 3-Phase TN-C/IT	690Vac, 3-Phase TN-C/IT
Uc	960Vac	1000Vac	1000Vac
In(8/20μs)	25kA	20kA	20kA
Imax(8/20μs)	100kA	40kA	40kA
Iimp(10/350μs)	22kA	-	-
Up	4.0kV (L-L, L-PE)	4.0kV (L-PE)	4.0kV (L-PE)
Isccr	50kArms	50kArms	50kArms
Approval	TUV (Single pole), CE	CE	CE
SPD location	F	B D E G	A C

AC 277/480 Vac Power system

Part No.	DS50/320-(V+T)-S	DT50/320-3V-S	DT50/320-(3V+T)-S
Product image			
In accordance with	IEC/EN 61643-11;UL1449-5th;EN50539-22:2010		
Category IEC/EN/VDE	I+II /1+2/ B+C		
Un	220/380Vac~277/480Vac		
Power system	Single phase	Three phase TN-C	Three phase TN-S/TT
Uc(VAC/VDC)	320/420V		
In(8/20us)	20kA		
Imax(8/20μs)	50kA		
Iimp(10/350μs)	7.5kA/12.5kA(NPE)	7.5kA	7.5kA/12.5kA(NPE)
Up	1.4kV/1.5kV(NPE)	1.4kV	1.4kV/1.5kV(NPE)
Isccr	25kArms		
Approval	TUV,CE		
SPD location	J	L K H I N M O	

DC 48Vdc Power system

Part No.	PV50/48-V-C-S
Product image	
In accordance with	IEC/EN 61643-31/11;UL1449-5th;EN 50539-11
Category IEC/EN/VDE	I+II /1+2/B+C
Un	48Vdc
Ucpv	85Vdc
In(8/20μs)	20kA
Imax(8/20μs)	50kA
Iimp(10/350μs)	7.5kV
Up("+/-" - PE)	0.6kV
Up("+" – "-")	1.0kV
Iscpv	25kA
Approval	TUV,CE
SPD location	T

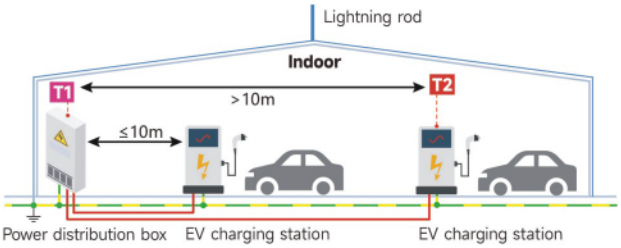
ELECTRIC VEHICLE(EV) CHARGER

With the new IEC 61851 - 23:2023 standard implemented, DC charging pile SPD design must meet stricter safety and reliability requirements. It stipulates that charging piles should suppress lightning and switching over - voltage for equipment and personnel safety.
The SPDs of EV system selected should conform to IEC/EN 61643-11(AC), prIEC 61643-41(DC) and IEC 61643-21(Data network) standard .
The appropriate SPD to protect each side of the EVSE(Electric Vehicle Supply Equipment) is dependent on whether the EVSEs protected by an external lightning protection system (LPS), and the minimum separation distance (according to IEC/EN 62305-3) between the LPS and the metallic parts of the EVSE has been kept.

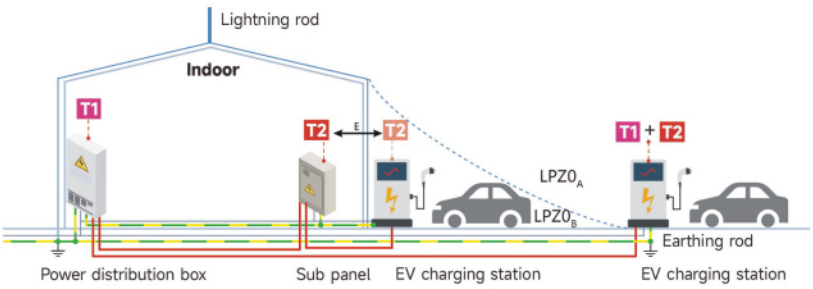
Power supply
Earthing

T1 SPD mandatory,Class I/T1 SPD per IEC/EN 61643-11/41
T2 SPD mandatory,Class II/T2 SPD per IEC/EN 61643-11/41
T3 SPD (Class II/T2 SPD per IEC/EN 61643-11/41) not required if distance E≤10m

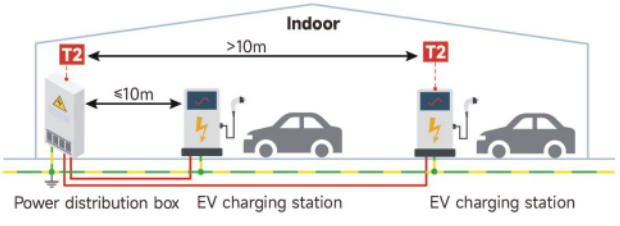
SCENE 1 SPD for Indoor EVSE – with lightning protection system (LPS)



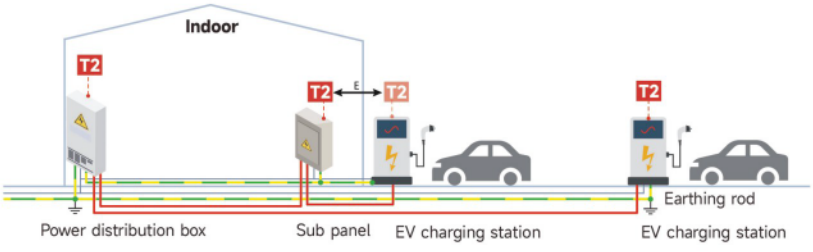
SCENE 3 SPD for outdoor EVSE – with lightning protection system (LPS)



SCENE 2 SPD for indoor EVSE – without lightning protection system (LPS)



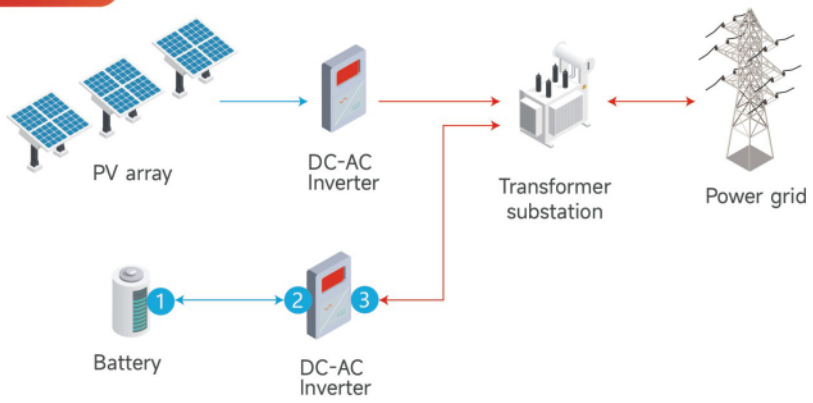
SCENE 4 SPD for outdoor EVSE – without lightning protection system (LPS)



ENERGY STORAGE SYSTEM(ESS)

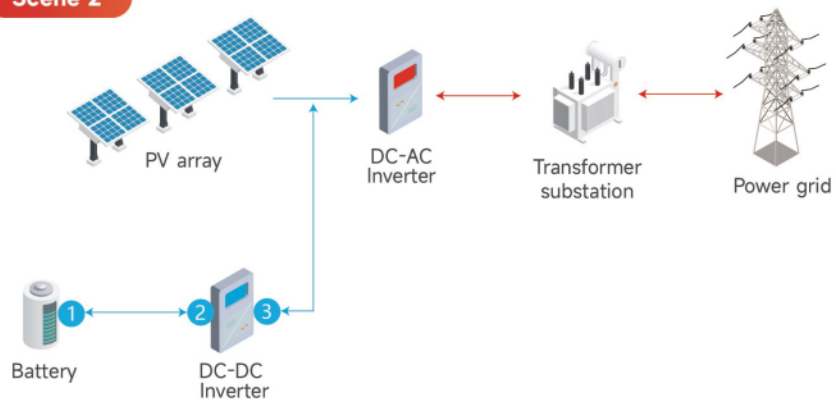
Energy Storage Systems(ESS) must account for continuous operating voltages (Uc) up to 1000~1500 Vdc on the DC side. Surge protection solutions must strictly comply with the forthcoming IEC 61643-41 standard updates, ensuring SPD withstand capability under high-energy transient surges to guarantee equipment safety in compliance with safety benchmarks. In addition, appropriate SPDs also need to be selected for the AC side and the data network side according to the IEC61643-11/21.

Scene 1



Power system	SPD location	To be protecteed	SPD model
DC	1	Battery	DB12.5/1000-V2T-CD-S or DP50/1000-V2T-CD-S
	2	Inverter	
AC	3	Inverter	BPS12.5/320-S/4P or DT50/320-4V-S

Scene 2



Power system	SPD location	To be protecteed	SPD model
DC	1	Battery	DB12.5/1000-V2T-CD-S or DP50/1000-V2T-CD-S
	2	Inverter	
DC PV	3	Inverter	PVB12.5/1000-V-CD-S or PV50/1000-V-CD-S

DC SPD for EV Charger & ESS

Part No.	DB12.5/1000-V2T-CD-S	DP50/1000-V2T-CD-S
Product image		
In accordance with	prIEC/EN 61643-41	
Power system	DC Systems, EV Chargers	
Category IEC/EN/VDE	I+II/ 1+2/ B+C DC SPD	II /2/ C DC SPD
Un	1000Vdc	
In(8/20μs)	20kA	20kA
Imax(8/20μs)	60kA	50kA
Itotal(10/350μs)	12.5kA	–
Up	2.5kV	2.5kV
Isccr	50kA	25kA
Approval	TUV(pending), CE	TUV(pending), CE
SPD location	1 2	

AC SPD for EV Charger & ESS

Part No.	BPS12.5/320-S/3PN50 (3-phase) BPS12.5/320-S/PN50 (1-phase)	DT50/320-(3V+T)-S (3-phase) DS50/320-(V+T)-S (1-phase)
Product image		
In accordance with	IEC/EN 61643-11	
Category IEC/EN/VDE	I+II /1+2/ B+C	II /2/ C
Un	230Vac	
Uc	320Vac	
In(8/20μs)	25kA	20kA
Imax(8/20μs)	80kA	50kA
Iimp(10/350μs)	12.5kA/50kA(NPE)	7.5kA/12.5kA(NPE)
Up	1.4kV/1.5kV(NPE)	1.4kV/1.5kV(NPE)
Isccr	50kArms	25kArms
Approval	TUV, CE	TUV, CE
SPD location	3	

DATA NETWORK SPD

DM SERIES

Model	DM-...-M2N2 DM-...-M4N2
Lines protected	1-pair / 2-pair
Un(Vdc)	5V/12V/24V/48V/110V
In(8/20μs)	10kA
IL	1A
Iimp(10/350μs)	2.5kA
Cut-off Frequency	100MHz

DM series are designed to provide surge protection for 1-pair or 2-pair data lines with common reference potential in data, signal and communication systems. The series are UL 497B listed and comply with the IEC/EN 61643-21 standard.

- UL 497B Listed data line protector (File No.E504171)
- Universal data signal SPDs for 1-pair/2-pair measurement, control and regulation circuits, Bus systems and twisted pairs
- Pluggable design and signal transmission is not interrupted when exchanging module

CAT6 RJ45 PROTECTOR

Model	D-05/RJ45(B) D-48/RJ45(B)-POE	D-05/RJ45-24P D-48/RJ45-24P-POE
Connection Ports	1	24
Un(Vdc)	5V/48V (PoE)	5V/48V (PoE)
Uc (Vdc)	6V/68V	6V/57V
In(8/20μs)	2.5kA	2.5kA
Imax(8/20μs)	10kA	10kA
Iimp(10/350μs)	1.0kA	1.0kA

CAT6 RJ45 protectors are designed to provide surge protection for Gigabit Ethernet terminals such as for Telecommunication, server, router, computer, suitable for use in category location B, C (ANSI/IEEE C62.41) or directly at the upstream near the protected devices. PoE models are designed for Internet camera, IP Telephone sets, and wireless access point etc.

- UL 497B Listed data line protector (File No.E504171 ,pending)
- Universal RJ45 protector for Gigabit Ethernet, Power over Ethernet (PoE, PoE+)
- Suitable for Cat. 5 (up to 100MHz) and Cat.6 (up to 250MHz Class E)
- DIN Rail mounting design for single port SPD
- 19" bay design for multi-port SPD

OTHER PRODUCTS

SPD Components

- Compliant with IEC/EN 61643-11/31/41, UL1449 5th standard
- PCB mounting design, compatible with reflow and wave soldering procedure
- Compact size to save installation space
- Quick thermal response and perfect circuit cutoff function due to special thermal disconnector design
- Higher discharge capacity up to 25kA/50kA/75kA 8/20μs
- Wide operating temperature range and high reliability
- Application in the AC/DC, DC PV power electronics, power supply and energy industry etc.

Panel SPDs

- Listed to UL 1449 5th Edition for Type 1 and Type 2 SPD applications
- A compact and economical design for use in medium exposure, distribution, or branch panels
- Come in a waterproof enclosure and come standard with indication lights,audible alarm and dry contacts
- Surge capacity ratings are available from 25kA ~ 900kA per phase

Lightning & surge monitoring devies (iSPM)

- Monitor and record 500/999/5000's lightning and surge event
- Monitor and record the surge event included surge amplitude, polarity, time, quantity, etc.
- SPD working status with alarm
- SPD's leakage current measurement
- SPD's aging and alarm while close to end-of life
- Power line and grounding monitor with alarm while lost
- Backup over-current protection device working status with alarm
- Voltage on SPD in real-time, overvoltage alarm

Intelligent SPDs (iSPDs)

- iSPD includes SPD, iSPM or Lightning/Surge event counter and Surge Circuit Breaker (SCB)
- iSPD can communicate with computer or smart terminal
- Easy to get accurate information through softwares or Apps
- An innovative solution to make your surge protection smart and intelligent

- Rated trip current 3±1A (SCB)
- Rated trip time ≤40ms (SCB)
- Rated short circuit capacity up to 100kArms (SCB)

Surge Circuit Breaker (SCB)

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