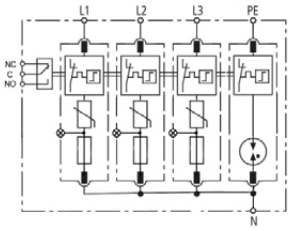
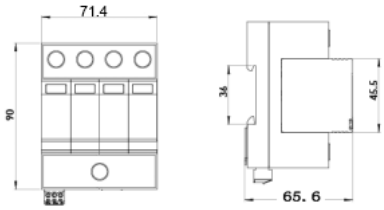
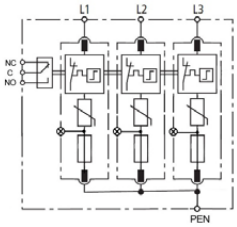
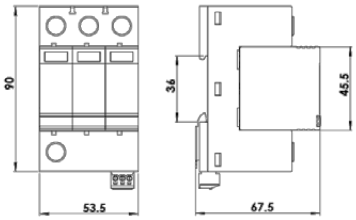
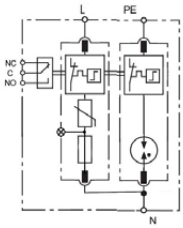
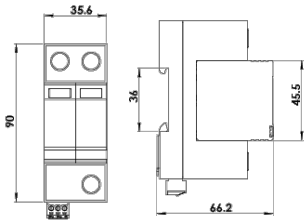
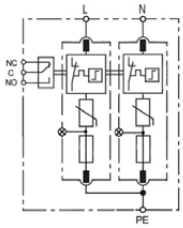
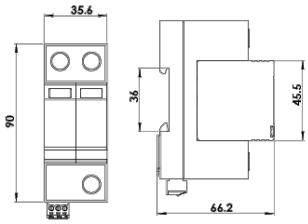
Prewired Multi-pole SPD

Part No.	Pole	Power System	Nominal Voltage (phase voltage) U_n	Max. Operating Voltage U_c	Max. Discharge Current (8/20μs) I_{max}	Voltage Protection Level U_p	Diagram
DS25/150-2VF-S	2	Single phase 2W+G	120~127Vac	150Vac	25kA	L/N-G: 0.8kV	4
DS25/275-2VF-S	2	Single phase 2W+G	220~230Vac	275Vac	25kA	L/N-G: 1.4kV	4
DS25/320-2VF-S	2	Single phase 2W+G	240Vac	320Vac	25kA	L/N-G: 1.5kV	4
DS25/385-2VF-S	2	Single phase 2W+G	240~277Vac	385Vac	25kA	L/N-G:1.8kV	4
DS25/150-(VF+T)-S	2	Single phase 2W+G	120~127Vac	150Vac	25kA	L-N: 0.8kV, N-PE: 1.5kV	3
DS25/275-(VF+T)-S	2	Single phase 2W+G	220~230Vac	275Vac	25kA	L-N: 1.4kV, N-PE: 1.5kV	3
DS25/320-(VF+T)-S	2	Single phase 2W+G	240Vac	320Vac	25kA	L-N: 1.5kV, N-PE: 1.5kV	3
DS25/385-(VF+T)-S	2	Single phase 2W+G	240~277Vac	385Vac	25kA	L-N: 1.8kV, N-PE: 1.5kV	3
DT25/150-3VF-S	3	Three phase 3W+G	120~127Vac	150Vac	25kA	L-G: 0.8kV	2
DT25/275-3VF-S	3	Three phase 3W+G	220~230Vac	275Vac	25kA	L-G: 1.4kV	2
DT25/320-3VF-S	3	Three phase 3W+G	240Vac	320Vac	25kA	L-G: 1.5kV	2
DT25/385-3VF-S	3	Three phase 3W+G	240~277Vac	385Vac	25kA	L-G:1.8kV	2
DT25/150-(3VF+T)-S	4	Three phase 4W+G	120~127Vac	150Vac	25kA	L-N: 0.8kV, N-PE: 1.5kV	1
DT25/275-(3VF+T)-S	4	Three phase 4W+G	220~230Vac	275Vac	25kA	L-N: 1.4kV, N-PE: 1.5kV	1
DT25/320-(3VF+T)-S	4	Three phase 4W+G	240Vac	320Vac	25kA	L-N: 1.5kV, N-PE: 1.5kV	1
DT25/385-(3VF+T)-S	4	Three phase 4W+G	240~277Vac	385Vac	25kA	L-N: 1.8kV, N-PE: 1.5kV	1

Diagram	Basic Circuit Diagram	Dimension Drawing
1) 3+1		
2) 3+0		
3) 1+1		
4) 2+0		

Single Pole SPD

• U_{oc} 20kV

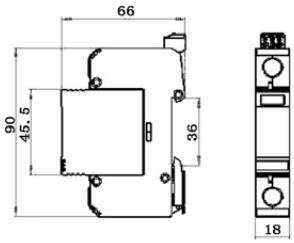
V20…-S

- T3 SPD with high energy MOV technology
- Max discharge current up to 20kA 8/20μs and open circuit voltage U_{oc} to 20kV.
- Pluggable module for easy replacement
- Reliable thermal disconnector to be fail-safe.
- Degradation failure indication & optional remote signal contact.
- Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41, CSA C22.2

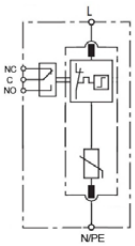
Model		V20/75-S	V20/150-S	V20/275-S	V20/320-S	V20/385-S	V20/420-S	V20/440-S	V20/550-S		
Compliance		EN/IEC 61643-11/ UL 1449 4th									
Category IEC/EN/UL		Class III / T3 / Type 1ca									
Max. Continuous Operating Voltage (AC/DC) U_c		75V / 100V	150V / 200V	275V / 370V	320V / 420V	385V / 500V	420V / 560V	440V / 585V	550V / 710V		
Technology		MOV Technology Thermal disconnector									
Ports/Protection Mode		1 / L-PE or L-N or N-PE									
Nominal Discharge Current (8/20μs)	I_n	10kA									
Max. Discharge Current (8/20μs)	I_{max}	20kA									
Open Circuit Voltage (1.2/50μs)	U_{oc}	20kV									
Voltage Protection Rating 6kV/3kA UL 1449 VPR		≤ 0.4kV	≤ 0.7kV	≤ 1.0kV	≤ 1.0kV	≤ 1.2kV	≤ 1.3kV	≤ 1.4kV	≤ 1.8kV		
Voltage Protection Level @I_n IEC 61643-11	U_p	≤ 0.4kV	≤ 0.7kV	≤ 1.2kV	≤ 1.3kV	≤ 1.4kV	≤ 1.6kV	≤ 1.6kV	≤ 2.0kV		
Temporary Overvoltage TOV — Withstand Mode	U_{tov}	92V/5s	175V/5s	335V/5s	335V/5s	403V/5s	504V/5s	580V/5s	697V/5s		
Residual Current	I_{PE}	<0.1mA									
Short Circuit Current Rating per UL 1449	I_{sccr}	200kArms									
Short-Circuit Current Rating per IEC 61643	I_{sc}	10kArms									
Response Time	t_A	≤ 25ns									
Backup Fuse (only required if not already provided in mains)		100A gL/gG									
Environment		Temperature Range: - 40ºC ~ +85ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m									
Cross-Section of Connection Wire		Single-strand 35mm2; multi-strand 25mm2									
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3									
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0									
Degree of Protection		IP20									
Installation Width		1 module, DIN 43880									
Failure Indication /Status		RED- Failure									
Remote Alarm Contact		Yes									
Approvals, certification		CE									
Additional Data for Remote Alarm Contacts Remote Alarm											
Contact Type		Isolated Form C									
Switching Capability U_N/ I_n		AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A									
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)									

Note: Please see Page 35 and 36 for prewired multi-pole combination.

• **Dimension Drawing**



• **Basic Circuit Diagram**



Single Pole SPD

• N-PE Module • U_{oc} 20kV

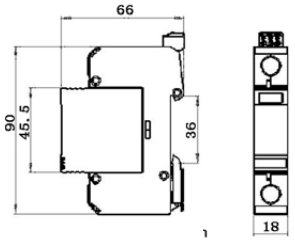
T20… -S

- T3 SPD for NPE mode protection with high energy GDT technology
- **Max discharge current up to 20kA 8/20μs and open circuit voltage U_{oc} to 20kV.**
- Pluggable module for easy replacement
- Reliable thermal disconnector to be fail-safe.
- Degradation failure indication & optional remote signal contact.
- **Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41**

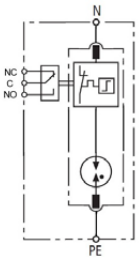
Model		T20/150-S	T20/255-S
Compliance		EN/IEC 61643-11, UL 1449 4th	
Category IEC/EN/UL		Class III / T3 / Type 1ca	
Max. Continuous Operating Voltage (AC)	U_c	150V	255V
Technology		GDT technology Thermal disconnector	
Ports/Protection Mode		1 / N-PE	
Nominal Discharge Current (8/20μs)	I_n	10kA	
Max. Discharge Current (8/20μs)	I_{max}	20kA	
Open Circuit Voltage (1.2/50μs)	U_{oc}	20kV	
Voltage Protection Rating @6kV/3kA UL 1449	VPR	≤ 0.8kV	≤ 1.0kV
Voltage Protection Level @1.2/50μs IEC 61643-11	U_p	≤ 0.8kV	≤ 1.5kV
Temporary Overvoltage TOV — Withstand Mode	U_{tov}	1200V/200ms	1200V/200ms
Residual Current	I_{PE}	No	
Follow Current Interrupt Rating	I_s	100A@255Vac	
Response Time	t_A	≤ 100ns	
Environment		Temperature Range: - 40ºC ~ +85ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m	
Cross-Section of Connection Wire		Single-strand 35mm2; multi-strand 25mm2	
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3	
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0	
Degree of Protection		IP20	
Installation Width		1 module, DIN 43880	
Failure Indication /Status		RED- Failure	
Remote Alarm Contact		Yes	
Approvals, certification		CE	
Additional Data for Remote Alarm Contacts Remote Alarm			
Contact Type		Isolated Form C	
Switching Capability U_N/ I_n		AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A	
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)	

Note: Please see Page 35 and 36 for prewired multi-pole combination.

• **Dimension Drawing**

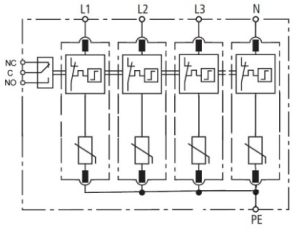
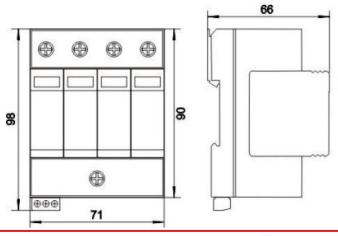
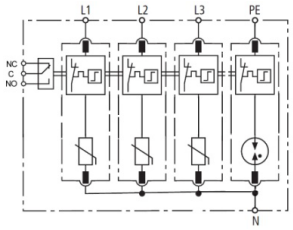
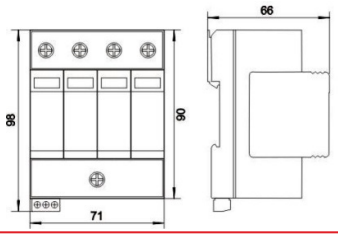
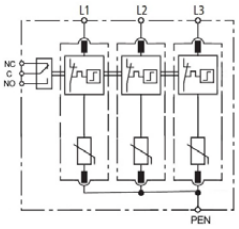
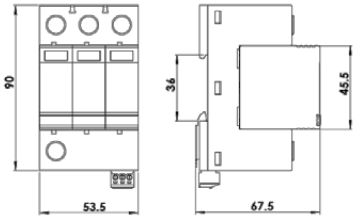
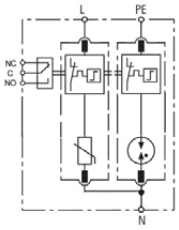
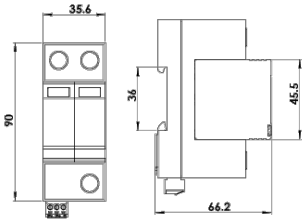
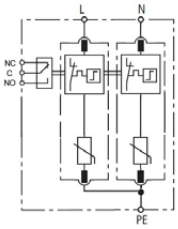
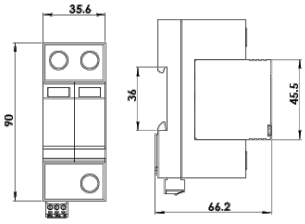


• **Basic Circuit Diagram**



Prewired Multi-pole SPD

Part No.	Pole	Power System	Nominal Voltage (phase voltage) U_n	Max. Operating Voltage U_c	Open Circuit Voltage (1.2/50μs) U_{oc}	Voltage Protection Level U_p	Diagram
DS20/75-2V-S	2	Single phase 2W+G	60Vac	75Vac	20kV	L/N-G: 0.4kV	5
DS20/150-2V-S	2	Single phase 2W+G	120~127Vac	150Vac	20kV	L/N-G: 0.7kV	5
DS20/275-2V-S	2	Single phase 2W+G	220~230Vac	275Vac	20kV	L/N-G: 1.2kV	5
DS20/320-2V-S	2	Single phase 2W+G	240~277Vac	320Vac	20kV	L/N-G: 1.3kV	5
DS20/385-2V-S	2	Single phase 2W+G	240~277Vac	385Vac	20kV	L/N-G:1.4kV	5
DS20/440-2V-S	2	Single phase 2W+G	347~400Vac	440Vac	20kV	L/N-G:1.6kV	5
DS20/550-2V-S	2	Single phase 2W+G	480Vac	550Vac	20kV	L/N-G:2.0kV	5
DS20/150-(V+T)-S	2	Single phase 2W+G	120~127Vac	150Vac	20kV	L-N: 0.7kV, N-PE: 0.8kV	4
DS20/275-(V+T)-S	2	Single phase 2W+G	220~230Vac	275Vac	20kV	L-N: 1.2kV, N-PE: 1.5kV	4
DS20/320-(V+T)-S	2	Single phase 2W+G	240~277Vac	320Vac	20kV	L-N: 1.3kV, N-PE: 1.5kV	4
DS20/385-(V+T)-S	2	Single phase 2W+G	240~277Vac	385Vac	20kV	L-N: 1.4kV, N-PE: 1.5kV	4
DS20/420-(V+T)-S	2	Single phase 2W+G	347Vac	420Vac	20kV	L-N: 1.6kV, N-PE: 1.5kV	4
DT20/75-3V-S	3	Three phase 3W+G	60Vac	75Vac	20kV	L-G: 0.4kV	3
DT20/150-3V-S	3	Three phase 3W+G	120~127Vac	150Vac	20kV	L-G: 0.7kV	3
DT20/275-3V-S	3	Three phase 3W+G	220~230Vac	275Vac	20kV	L-G: 1.2kV	3
DT20/320-3V-S	3	Three phase 3W+G	240~277Vac	320Vac	20kV	L-G: 1.3kV	3
DT20/385-3V-S	3	Three phase 3W+G	240~277Vac	385Vac	20kV	L-G: 1.4kV	3
DT20/440-3V-S	3	Three phase 3W+G	347~400Vac	440Vac	20kV	L-G: 1.6kV	3
DT20/550-3V-S	3	Three phase 3W+G	480Vac	550Vac	20kV	L-G: 2.0kV	3
DT20/150-(3V+T)-S	4	Three phase 4W+G	120~127Vac	150Vac	20kV	L-N: 0.7kV, N-PE: 0.8kV	2
DT20/275-(3V+T)-S	4	Three phase 4W+G	220~230Vac	275Vac	20kV	L-N: 1.2kV, N-PE: 1.5kV	2
DT20/320-(3V+T)-S	4	Three phase 4W+G	240~277Vac	320Vac	20kV	L-N: 1.3kV, N-PE: 1.5kV	2
DT20/385-(3V+T)-S	4	Three phase 4W+G	240~277Vac	385Vac	20kV	L-N: 1.4kV, N-PE: 1.5kV	2
DT20/420-(3V+T)-S	4	Three phase 4W+G	347Vac	420Vac	20kV	L-N: 1.6kV, N-PE: 1.5kV	2
DT20/75-4V-S	4	Three phase 4W+G	60Vac	75Vac	20kV	L/N-G: 0.4kV	1
DT20/150-4V-S	4	Three phase 4W+G	120~127Vac	150Vac	20kV	L/N-G: 0.7kV	1
DT20/275-4V-S	4	Three phase 4W+G	220~230Vac	275Vac	20kV	L/N-G: 1.2kV	1
DT20/320-4V-S	4	Three phase 4W+G	240~277Vac	320Vac	20kV	L/N-G: 1.3kV	1
DT20/385-4V-S	4	Three phase 4W+G	240~277Vac	385Vac	20kV	L/N-G: 1.4kV	1
DT20/440-4V-S	4	Three phase 4W+G	347~400Vac	440Vac	20kV	L/N-G: 1.6kV	1
DT20/550-4V-S	4	Three phase 4W+G	480Vac	550Vac	20kV	L/N-G: 2.0kV	1

Diagram	Basic Circuit diagram	Dimension Drawing
1) 4+0		
2) 3+1		
3) 3+0		
4) 1+1		
5) 2+0		

Single Pole SPD

• 18mm Single Phase • U_{oc} 20kV

MDSS 20/…

- 18mm compact T3 SPD for single phase or two hot lines protection.
- Max discharge current up to 20kA 8/20μs and open circuit voltage U_{oc} to 20kV.
- Pluggable module for easy replacement
- Reliable thermal disconnector to be fail-safe.
- Degradation failure indication & optional remote signal contact.
- Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41, CSA C22.2

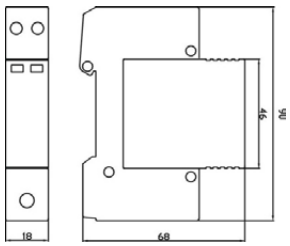
Model		MDSS10/12-2V-S MDSS10/24-2V-S MDSS20/36-2V-S MDSS20/48-2V-S MDSS20/60-2V-S MDSS20/110-2V-S					
Compliance		EN/IEC 61643-11, UL 1449 4th					
Category IEC/EN/UL		Class III / T3 / Type 1ca					
Max. Continuous Operating Voltage (AC/DC)	U_c	30V / 38V	35V / 45V	50V / 65V	60V / 81V	75V / 100V	130V / 170V
Technology		MOV Technology Thermal disconnector					
Ports/Protection Mode		1 / L-PE, N-PE					
Nominal Discharge Current (8/20μs)	I_n	5kA	5kA	10kA	10kA	10kA	10kA
Max. Discharge Current (8/20μs)	I_{max}	10kA	10kA	20kA	20kA	20kA	20kA
Open Circuit Voltage (1.2/50μs)	U_{oc}	10kV	10kV	20kV	20kV	20kV	20kV
Voltage Protection Level	U_p	≤ 160V	≤ 180V	≤ 330V	≤ 370V	≤ 460V	≤ 700V
Temporary Overvoltage TOV — Withstand Mode	U_{tov}	34V/5s	40V/5s	70V/5s	78V/5s	90V/5s	160V/5s
Residual Current	I_{PE}	<0.1mA					
Response Time	t_A	≤ 25ns					
Backup Fuse (only required if not already provided in mains)		32A gL/gG					
Environment		Temperature Range: -40ºC ~ +80ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m					
Cross-Section of Connection Wire		Single-strand 10mm2; multi-strand 6mm2					
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3					
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0					
Degree of Protection		IP20					
Installation Width		1 module, DIN 43880					
Failure Indication /Status		RED- Failure					
Remote Alarm Contact		Yes					
Approvals, certification		CE					
Additional Data for Remote Alarm Contacts Remote Alarm							
Contact Type		Isolated Form C					
Switching Capability U_N/ I_n		AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A					
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)					

(more models in next page...)

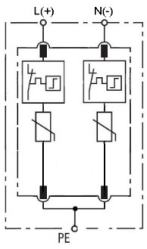
(more models of MDSS 20/...)

Model		MDSS20/150-2V-S	MDSS20/175-2V-S	MDSS20/275-2V-S	MDSS20/320-2V-S	MDSS20/385-2V-S	MDSS20/420-2V-S
Compliance		EN/IEC 61643-11, UL 1449 4th					
Category IEC/EN/UL		Class III / T3 / Type 1ca					
Max. Continuous Operating Voltage (AC/DC)	U_c	150V / 200V	175V / 225V	275V / 350V	320V / 420V	385V / 505V	420V / 560V
Technology		MOV Technology Thermal disconnector					
Ports/Protection Mode		1 / L-PE , N-PE					
Nominal Discharge Current (8/20μs)	I_n	10kA	10kA	10kA	10kA	10kA	10kA
Max. Discharge Current (8/20μs)	I_{max}	20kA	20kA	20kA	20kA	20kA	20kA
Open Circuit Voltage (1.2/50μs)	U_{oc}	20kV	20kV	20kV	20kV	20kV	20kV
Voltage Protection Level	U_p	≤ 0.8kV	≤ 0.9kV	≤ 1.2kV	≤ 1.3kV	≤ 1.4kV	≤ 1.6kV
Temporary Overvoltage TOV — Withstand Mode	U_{tov}	175V/5s	228V/5s	335V/5s	335V/5s	403V/5s	504V/5s
Residual Current	I_{PE}	<0.1mA					
Response Time	t_A	≤ 25ns					
Backup Fuse (only required if not already provided in mains)		32A gL/gG					
Environment		Temperature Range: -40ºC ~ +80ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m					
Cross-Section of Connection Wire		Single-strand 10mm2; multi-strand 6mm2					
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3					
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0					
Degree of Protection		IP20					
Installation Width		1 module, DIN 43880					
Failure Indication /Status		RED- Failure					
Remote Alarm Contact		Yes					
Approvals, certification		CE					
Additional Data for Remote Alarm Contacts Remote Alarm							
Contact Type		Isolated Form C					
Switching Capability U_N/ I_n		AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A					
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)					

• **Dimension Drawing**



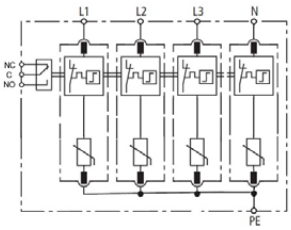
• **Basic Circuit Diagram**



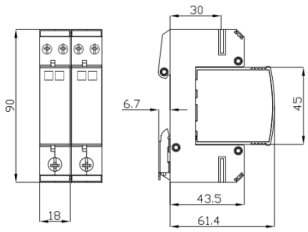
Prewired Multi-pole SPD

1) 4+0

• **Dimension Drawing**



• **Basic Circuit Diagram**



Single Pole SPD

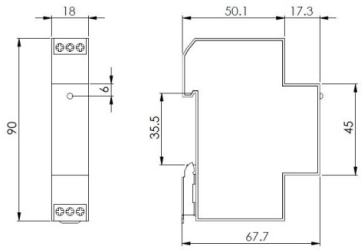
• 18mm Single Phase • U_{oc} 10kV

MDS10/…-F

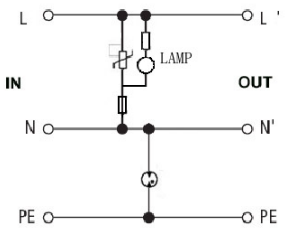
- 18mm monoblock T3 SPD for single phase protection.
- "1+1" protection circuit for TN-S and TT network systems
- Rated nominal current 10A
- Max discharge current up to 20kA 8/20μs and open circuit voltage U_{oc} to 10kV
- Terminal connection module.
- Thermal protection & LED failure indicator.
- Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41, CSA C22.2

Model		MDS10/150-(V+T)-F	MDS10/175-(V+T)-F	MDS10/275-(V+T)-F	MDS10/300-(V+T)-F	MDS10/320-(V+T)-F
Compliance		EN/IEC 61643-11, UL 1449 4th				
Category IEC/EN/UL		Class III / T3 / Type 1ca				
Max. Continuous Operating Voltage (AC/DC)	U_c	150V / 200V	175V / 225V	275V / 350V	300V / 385V	320V / 420V
Technology		MOV+GDT technology Thermally protected				
Ports/Protection Mode		1 / L-N, N-PE				
Nominal Discharge Current (8/20μs)	I_n	5kA				
Max. Discharge Current (8/20μs)	I_{max}	10kA				
Open Circuit Voltage (1.2/50μs)	U_{oc}	10kV				
Voltage Protection Level @I_n L-N	U_p	≤ 0.8kV	≤ 0.8kV	≤ 1.3kV	≤ 1.4kV	≤ 1.5kV
Voltage Protection Level @1.2/50μs N-PE	U_p	≤ 0.8kV	≤ 0.8kV	≤ 1.5kV	≤ 1.5kV	≤ 1.5kV
Temporary Overvoltage TOV L-N — Withstand Mode	U_{tov}	175V/5s	228V/5s	335V/5s	335V/5s	335V/5s
Temporary Overvoltage TOV N-PE — Withstand Mode	U_{tov}	1200V/200ms	1200V/200ms	1200V/200ms	1200V/200ms	1200V/200ms
Residual Current	I_{PE}	<0.1mA				
Nominal Load current	I_L	10A				
Short-Circuit Current Rating per IEC 61643	I_{sc}	6kArms				
Response Time	t_A	≤ 25ns				
Environment		Temperature Range: - 40ºC ~ +70ºC; Humidity: ≤ 95%; wAltitude: ≤ 2000m				
Cross-Section of Connection Wire		Single-strand 4mm^2; multi-strand 2.5 mm^2				
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3				
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0				
Degree of Protection		IP20				
Installation Width		1 module, DIN 43880				
Failure Indication /Status		RED- Failure				
Approvals, certification		CE				

• **Dimension Drawing**



• **Basic Circuit Diagram**



DIN-rail SPD for AC Power Supply (UL Standard)

Single Pole SPD

• TPAE Patent • I_{max} 50kA

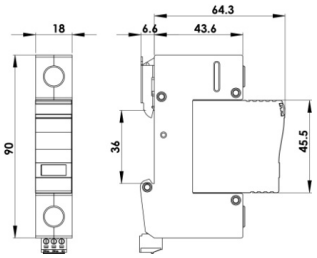
SP…-S

- UL recognized Type 1ca (UL1449 4th), Type 2ca (CSA C22.2) SPD with high energy MOV technology
- High reliability due to global patented thermally protected with special arc-extinguish device (TPAE technology)
- High surge current discharge capacity up to 50kA 8/20
- Short circuit current rating (UL 1449, SCCR) 200kA tested without external fuse or CB
- Pluggable module for easy replacement
- Degradation failure indication & optional remote signal contact
- Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41, CSA C22.2

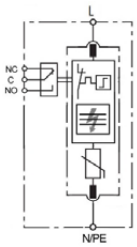
Model		SP150-S	SP180-S	SP275A-S	SP320-S	SP385-S	SP420-S	SP550-S	SP690-S
Compliance		UL1449 4th; EN/IEC 61643-11							
Category UL/EN/IEC		Type 1ca / T2 / Class II							
Max. Continuous Operating Voltage (AC/DC)	U_c	150V / 200V	180V / 230V	275V / 350V	320V / 420V	385V / 505V	420V / 560V	550V / 745V	690V / 895V
Product Technologies		MOV technology TPAE technology (patented)							
Ports/Protection Mode		1 / L-PE or L-N or N-PE							
Nominal Discharge Current (8/20μs)	I_n	20kA							
Max. Discharge Current (8/20μs)	I_{max}	50kA							40kA
Voltage Protection Rating @6kV/3kA UL 1449 VPR		≤ 0.7kV	≤ 1.0kV	≤ 1.0kV	≤ 1.2kV	≤ 1.5kV	≤ 1.5kV	≤ 1.8kV	≤ 2.5kV
Voltage Protection Level @I_n IEC 61643	U_p	≤ 0.8kV	≤ 1.0kV	≤ 1.4kV	≤ 1.5kV	≤ 1.8kV	≤ 2.0kV	≤ 2.5kV	≤ 3.2kV
Temporary Overvoltage TOV — Withstand mode	U_{tov}	175V/5s	228V/5s	335V/5s	335V/5s	403V/5s	504V/5s	697V/5s	872V/5s
Residual Current	I_{PE}	<0.1mA							
Short Circuit Current Rating per UL 1449	I_{sccr}	200kArms							
Short-Circuit Current Rating per IEC 61643	I_{sc}	10kArms							
Response Time	t_A	≤ 25ns							
Backup Fuse(only required if not already provided in mains)		125A gL/gG							
Work Environment		Temperature Range: -40ºC ~ +85ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m							
Cross-Section of Connection Wire		Single-strand 35mm2; multi-strand 25mm2							
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3							
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0							
Degree of Protection		IP20							
Installation Width		1 module, DIN 43880							
Failure Indication /Status		RED- Failure							
Remote Alarm Contact		Yes							
Approvals, certification		UL, CE							
Additional Data for Remote Alarm Contacts Remote Alarm									
Contact Type		Isolated Form C							
Switching Capability	U_N/ I_n	AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A							
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)							

Note: Please see Page 44 and 45 for prewired multi-pole combination.

• **Dimension Drawing**



• **Basic Circuit Diagram**



Pluggable Module for SP series

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

Single Pole SPD

• N-PE Module • TAPE Patent • I_{max} 50kA

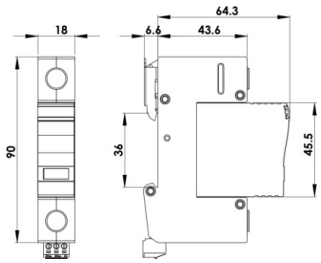
SP…T-S

- UL recognized Type 1ca SPD (UL1449 4th), Type 2ca (CSA C22.2) with high energy GDT technology for NPE protection
- High reliability due to global patented thermally protected with special arc-extinguish device (TPAE technology).
- High surge current discharge capacity up to 50kA 8/20
- Pluggable module for easy replacement
- Degradation failure indication & optional remote signal contact.
- Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41, CSA C22.2

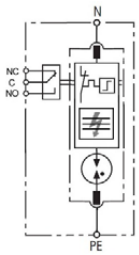
Model		SP150T-S	SP255T-S
Compliance		EN/IEC 61643-11, UL 1449 4th	
Category UL/EN/IEC		Type 1ca / T2 / Class II	
Max. Continuous Operating Voltage (AC)	U_c	150V	255V
Technology		GDT technology TPAE technology (patented)	
Ports/Protection Mode		1 / N-PE	
Nominal Discharge Current (8/20μs)	I_n	20kA	
Max. Discharge Current (8/20μs)	I_{max}	50kA	
Voltage Protection Rating @6kV/3kA UL 1449	VPR	≤ 0.9kV	≤ 0.9kV
Voltage Protection Level @1.2/50μs IEC61643	U_p	≤ 1.5kV	≤ 1.5kV
Temporary Overvoltage TOV — Withstand Mode	U_{tov}	1200V/200ms	1200V/200ms
Residual Current	I_{PE}	No	
Follow Current Interrupt Rating	I_fi	200A@255Vac	
Short-Circuit Current Rating per IEC 61643	I_{sc}	10kArms	
Response Time	t_A	≤ 100ns	
Environment		Temperature Range: - 40ºC ~ +85ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m	
Cross-Section of Connection Wire		Single-strand 35mm2; multi-strand 25mm2	
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3	
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0	
Degree of Protection		IP20	
Installation Width		1 module, DIN 43880	
Failure Indication /Status		RED- Failure	
Remote Alarm Contact		Yes	
Approvals, certification		UL, CE	
Additional Data for Remote Alarm Contacts Remote Alarm			
Contact Type		Isolated Form C	
Switching Capability U_N/ I_n		AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A	
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)	

Note: Please see Page 44 and 45 for prewired multi-pole combination.

• Dimension Drawing

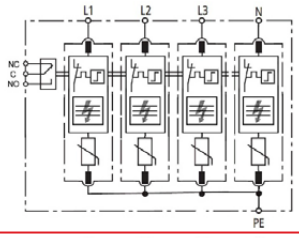
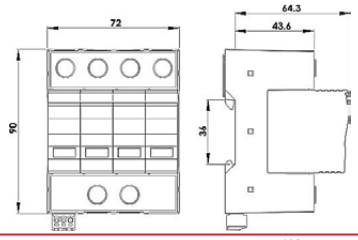
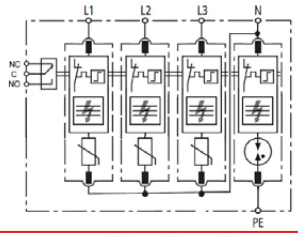
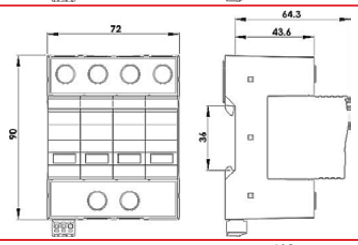
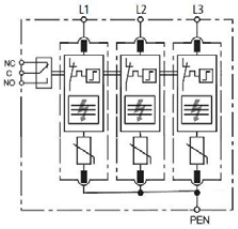
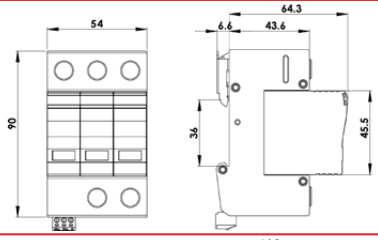
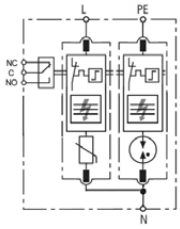
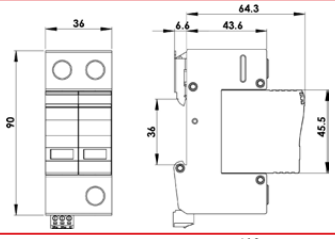
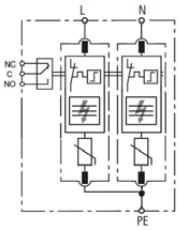
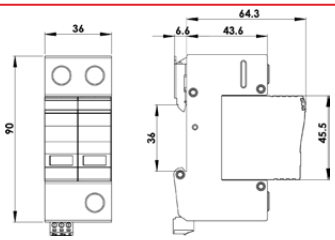


• Basic Circuit Diagram



Prewired Multi-pole SPD

Part No.	Pole	Power System	Nominal Voltage (phase voltage) U_n	Max. Operating Voltage U_c	Max. Discharge Current (8/20μs) I_{max}	Voltage Protection Rating VPR	Diagram
SP150/2P-S	2	Single phase 2W+G	120~127Vac	150Vac	50kA	L/N-G: 0.7kV	5
SP180/2P-S	2	Single phase 2W+G	120~127Vac	175Vac	50kA	L/N-G: 1.0kV	5
SP275A/2P-S	2	Single phase 2W+G	220~230Vac	275Vac	50kA	L/N-G: 1.0kV	5
SP320/2P-S	2	Single phase 2W+G	240~277Vac	320Vac	50kA	L/N-G: 1.2kV	5
SP385/2P-S	2	Single phase 2W+G	240~277Vac	385Vac	50kA	L/N-G: 1.5kV	5
SP420/2P-S	2	Single phase 2W+G	277~347Vac	420Vac	50kA	L/N-G: 1.5kV	5
SP550/2P-S	2	Single phase 2W+G	480Vac	550Vac	50kA	L/N-G: 1.8kV	5
SP690/2P-S	2	Single phase 2W+G	600Vac	690Vac	40kA	L/N-G: 2.5kV	5
SP150/PN-S	2	Single phase 2W+G	120~127Vac	150Vac	50kA	L-N: 0.7kV, N-PE: 0.9kV	4
SP180/PN-S	2	Single phase 2W+G	120~127Vac	175Vac	50kA	L-N: 1.0kV, N-PE: 0.9kV	4
SP275A/PN-S	2	Single phase 2W+G	220~230Vac	275Vac	50kA	L-N: 1.0kV, N-PE: 0.9kV	4
SP320/PN-S	2	Single phase 2W+G	240~277Vac	320Vac	50kA	L-N: 1.2kV, N-PE: 0.9kV	4
SP385/PN-S	2	Single phase 2W+G	240~277Vac	385Vac	50kA	L-N: 1.5kV, N-PE: 0.9kV	4
SP420/PN-S	2	Single phase 2W+G	277~347Vac	420Vac	50kA	L-N: 1.5kV, N-PE: 0.9kV	4
SP150/3P-S	3	Three phase 3W+G	120~127Vac	150Vac	50kA	L-G: 0.7kV	3
SP180/3P-S	3	Three phase 3W+G	120~127Vac	175Vac	50kA	L-G: 1.0kV	3
SP275A/3P-S	3	Three phase 3W+G	220~230Vac	275Vac	50kA	L-G: 1.0kV	3
SP320/3P-S	3	Three phase 3W+G	240~277Vac	320Vac	50kA	L-G: 1.2kV	3
SP385/3P-S	3	Three phase 3W+G	240~277Vac	385Vac	50kA	L-G: 1.5kV	3
SP420/3P-S	3	Three phase 3W+G	277~347Vac	420Vac	50kA	L-G: 1.5kV	3
SP550/3P-S	3	Three phase 3W+G	480Vac	550Vac	50kA	L-G: 1.8kV	3
SP690/3P-S	3	Three phase 3W+G	600Vac	690Vac	40kA	L-G: 2.5kV	3
SP150/3PN-S	4	Three phase 4W+G	120~127Vac	150Vac	50kA	L-N: 0.7kV, N-PE: 0.9kV	2
SP180/3PN-S	4	Three phase 4W+G	120~127Vac	175Vac	50kA	L-N: 1.0kV, N-PE: 0.9kV	2
SP275A/3PN-S	4	Three phase 4W+G	220~230Vac	275Vac	50kA	L-N: 1.0kV, N-PE: 0.9kV	2
SP320/3PN-S	4	Three phase 4W+G	240~277Vac	320Vac	50kA	L-N: 1.2kV, N-PE: 0.9kV	2
SP385/3PN-S	4	Three phase 4W+G	240~277Vac	385Vac	50kA	L-N: 1.5kV, N-PE: 0.9kV	2
SP420/3PN-S	4	Three phase 4W+G	277~347Vac	420Vac	50kA	L-N: 1.5kV, N-PE: 0.9kV	2
SP150/4P-S	4	Three phase 4W+G	120~127Vac	150Vac	50kA	L/N-G: 0.7kV	1
SP180/4P-S	4	Three phase 4W+G	120~127Vac	175Vac	50kA	L/N-G: 1.0kV	1
SP275A/4P-S	4	Three phase 4W+G	220~230Vac	275Vac	50kA	L/N-G: 1.0kV	1
SP320/4P-S	4	Three phase 4W+G	240~277Vac	320Vac	50kA	L/N-G: 1.2kV	1
SP385/4P-S	4	Three phase 4W+G	240~277Vac	385Vac	50kA	L/N-G: 1.5kV	1
SP420/4P-S	4	Three phase 4W+G	277~347Vac	420Vac	50kA	L/N-G: 1.5kV	1
SP550/4P-S	4	Three phase 4W+G	347Vac	550Vac	50kA	L/N-G: 1.8kV	1
SP690/4P-S	4	Three phase 4W+G	347Vac	690Vac	40kA	L/N-G: 2.5kV	1

Diagram	Basic Circuit Diagram	Dimension Drawing
1) 4+0		
2) 3+1		
3) 3+0		
4) 1+1		
5) 2+0		

Single Pole SPD

• TPAE Patent • I_{max} 50kA

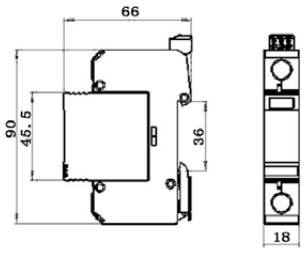
V50… -S

- ETL certified Type 1ca (UL1449 4th), Type 2ca (CSA C22.2) SPD with high energy MOV technology
- High reliability due to global patented thermally protected with special arc-extinguish device (TPAE technology)
- High surge current discharge capacity up to 50kA 8/20
- Short circuit current rating (UL1449, SCCR) 200kA tested without external fuse or CB
- Pluggable module for easy replacement
- Degradation failure indication & optional remote signal contact
- Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41, CSA C22.2

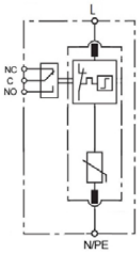
Model		V50/150-S	V50/180-S	V50/250-S	V50/275-S	V50/320-S	V50/420-S	V50/510-S	V50/550-S			
Compliance		UL 1449 4th; EN/IEC 61643-11										
Category UL/EN/IEC		Type 1ca / T2 / Class II										
Max. Continuous Operating Voltage (AC/DC) U_c		150V / 200V	180V / 240V	250V / 330V	275V / 370V	320V / 420V	420V / 560V	510V / 670V	550V / 710V	Technology		
		High energy MOV technology TPAE technology (patented)										
Ports/Protection Mode		1 / L-PE or L-N or N-PE										
Nominal Discharge Current (8/20μs)	I_n	20kA										
Max. Discharge Current (8/20μs)	I_{max}	50kA										
Voltage Protection Rating 6kV/3kA UL 1449 VPR		≤ 0.7kV	≤ 0.7kV	≤ 1.0kV	≤ 1.0kV	≤ 1.0kV	≤ 1.2kV	≤ 1.5kV	≤ 1.5kV			
Temporary Overvoltage TOV — Withstand Mode	U_{tov}	175V/5s	228V/5s	320V/5s	335V/5s	335V/5s	504V/5s	610V/5s	697V/5s			
Residual Current	I_{PE}	<0.1mA										
Short Circuit Current Rating per UL 1449	I_{sccr}	200kArms										
Short-Circuit Current Rating per IEC 61643	I_{sc}	10kArms										
Response Time	t_A	≤ 25ns										
Backup Fuse (only required if not already provided in mains)		125A gL/gG										
Environment		Temperature Range: - 40ºC ~ +85ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m										
Cross-Section of Connection Wire		Single-strand 35mm2; multi-strand 25mm2										
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3										
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0										
Degree of Protection		IP20										
Installation Width		1 module, DIN 43880										
Failure Indication /Status		RED- Failure										
Remote Alarm Contact		Yes										
Approvals, certification		ETL, CE										
Additional Data for Remote Alarm Contacts Remote Alarm												
Contact Type		Isolated Form C										
Switching Capability U_N/ I_n		AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A										
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)										

Note: Please see Page 48 and 49 for prewired multi-pole combination.

• **Dimension Drawing**



• **Basic Circuit Diagram**



Single Pole SPD

• N-PE • I_{max} 50kA

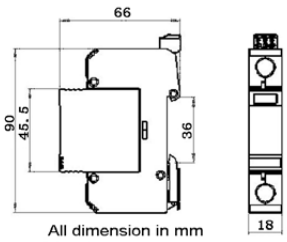
T50… -S

- ETL certified Type 1ca SPD (UL1449 4th), Type 2ca (CSA C22.2) with high energy GDT technology for NPE protection
- High reliability due to global patented thermally protected with special arc-extinguish device (TPAE technology).
- High surge current discharge capacity up to 50kA 8/20
- Pluggable module for easy replacement
- Degradation failure indication & optional remote signal contact.
- Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41, CSA C22.2

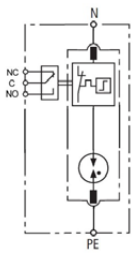
Model		T50/150-S	T50/255-S	T50/350-S	T50/440-S
Compliance		EN/IEC 61643-11, UL 1449 4th			
Category UL/EN/IEC		Type 1ca / T2 / Class II			
Max. Continuous Operating Voltage (AC)	U_c	150V	255V	350V	440V
Technology		GDT technology TPAE technology (patented)			
Ports/Protection Mode		1 / N-PE			
Nominal Discharge Current (8/20μs)	I_n	20kA			
Max. Discharge Current (8/20μs)	I_{max}	50kA			
Voltage Protection Rating @6kV/3kA UL 1449	VPR	≤ 0.8kV	≤ 1.0kV	≤ 1.2kV	≤ 1.5kV
Temporary Overvoltage TOV — Withstand Mode	U_{tov}	1200V/200ms	1200V/200ms	1200V/200ms	1200V/200ms
Residual Current	I_{PE}	No			
Follow Current Interrupt Rating	I_s	200A@255Vac			
Response Time	t_A	≤ 100ns			
Environment		Temperature Range: - 40ºC ~ +85ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m			
Cross-Section of Connection Wire		Single-strand 35mm2; multi-strand 25mm2			
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3			
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0			
Degree of Protection		IP20			
Installation Width		1 module, DIN 43880			
Failure Indication /Status		RED- Failure			
Remote Alarm Contact		Yes			
Approvals, certification		ETL, CE			
Additional Data for Remote Alarm Contacts Remote Alarm					
Contact Type		Isolated Form C			
Switching Capability U_N/ I_n		AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A			
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)			

Note: Please see Page 48 and 49 for prewired multi-pole combination.

• **Dimension Drawing**

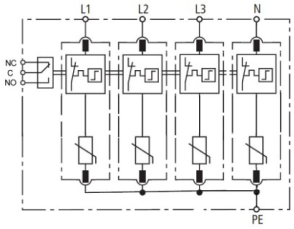
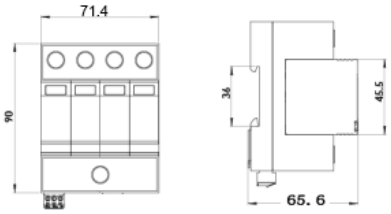
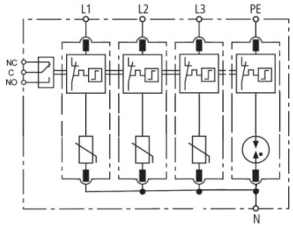
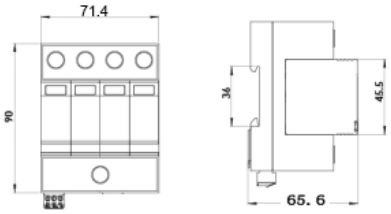
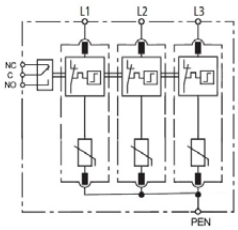
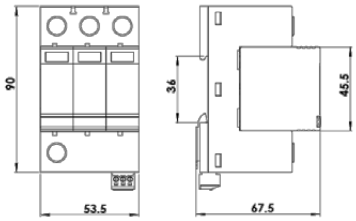
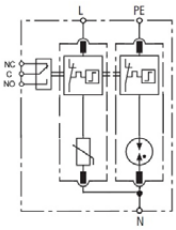
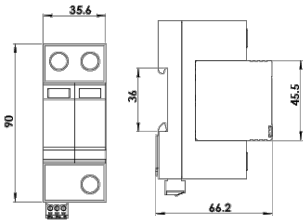
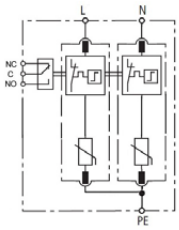
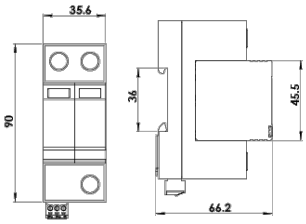


• **Basic Circuit Diagram**



Prewired Multi-pole SPD

Part No.	Pole	Power System	Nominal Voltage (phase voltage) U_n	Max. Operating Voltage U_c	Max. Discharge Current (8/20μs) I_{max}	Voltage protection Rating VPR	Diagram
DS50/150-2V-S	2	Single phase 2W+G	120~127Vac	150Vac	50kA	L/N-G: 0.7kV	5
DS50/180-2V-S	2	Single phase 2W+G	120~127Vac	180Vac	50kA	L/N-G: 0.7kV	5
DS50/250-2V-S	2	Single phase 2W+G	220Vac	250Vac	50kA	L/N-G: 1.0kV	5
DS50/275-2V-S	2	Single phase 2W+G	220~230Vac	275Vac	50kA	L/N-G: 1.0kV	5
DS50/320-2V-S	2	Single phase 2W+G	240~277Vac	320Vac	50kA	L/N-G: 1.0kV	5
DS50/420-2V-S	2	Single phase 2W+G	277~347Vac	420Vac	50kA	L/N-G: 1.2kV	5
DS50/510-2V-S	2	Single phase 2W+G	400Vac	510Vac	50kA	L/N-G: 1.5kV	5
DS50/550-2V-S	2	Single phase 2W+G	480Vac	550Vac	50kA	L/N-G: 1.5kV	5
DS50/150-(V+T)-S	2	Single phase 2W+G	120~127Vac	150Vac	50kA	L-N: 0.7kV, N-PE: 0.8kV	4
DS50/180-(V+T)-S	2	Single phase 2W+G	120~127Vac	180Vac	50kA	L-N: 0.7kV, N-PE: 0.8kV	4
DS50/250-(V+T)-S	2	Single phase 2W+G	220Vac	250Vac	50kA	L-N: 1.0kV, N-PE: 1.0kV	4
DS50/275-(V+T)-S	2	Single phase 2W+G	220~230Vac	275Vac	50kA	L-N: 1.0kV, N-PE: 1.0kV	4
DS50/320-(V+T)-S	2	Single phase 2W+G	240~277Vac	320Vac	50kA	L-N: 1.0kV, N-PE: 1.0kV	4
DS50/420-(V+T)-S	2	Single phase 2W+G	277~347Vac	420Vac	50kA	L-N: 1.2kV, N-PE: 1.2kV	4
DT50/150-3V-S	3	Three phase 3W+G	120~127Vac	150Vac	50kA	L-G: 0.7kV	3
DT50/180-3V-S	3	Three phase 3W+G	120~127Vac	180Vac	50kA	L-G: 0.7kV	3
DT50/250-3V-S	3	Three phase 3W+G	220Vac	250Vac	50kA	L-G: 1.0kV	3
DT50/275-3V-S	3	Three phase 3W+G	220~230Vac	275Vac	50kA	L-G: 1.0kV	3
DT50/320-3V-S	3	Three phase 3W+G	240~277Vac	320Vac	50kA	L-G: 1.0kV	3
DT50/420-3V-S	3	Three phase 3W+G	277~347Vac	420Vac	50kA	L-G: 1.2kV	3
DT50/510-3V-S	3	Three phase 3W+G	400Vac	510Vac	50kA	L-G: 1.5kV	3
DT50/550-3V-S	3	Three phase 3W+G	480Vac	550Vac	50kA	L-G: 1.5kV	3
DT50/150-(3V+T)-S	4	Three phase 4W+G	120~127Vac	150Vac	50kA	L-N: 0.7kV, N-PE: 0.8kV	2
DT50/180-(3V+T)-S	4	Three phase 4W+G	120~127Vac	180Vac	50kA	L-N: 0.7kV, N-PE: 0.8kV	2
DT50/250-(3V+T)-S	4	Three phase 4W+G	220Vac	250Vac	50kA	L-N: 1.0kV, N-PE: 1.0kV	2
DT50/275-(3V+T)-S	4	Three phase 4W+G	220~230Vac	275Vac	50kA	L-N: 1.0kV, N-PE: 1.0kV	2
DT50/320-(3V+T)-S	4	Three phase 4W+G	240~277Vac	320Vac	50kA	L-N: 1.0kV, N-PE: 1.0kV	2
DT50/420-(3V+T)-S	4	Three phase 4W+G	277~347Vac	420Vac	50kA	L-N: 1.2kV, N-PE: 1.2kV	2
DT50/150-4V-S	4	Three phase 4W+G	120~127Vac	150Vac	50kA	L/N-G: 0.7kV	1
DT50/180-4V-S	4	Three phase 4W+G	120~127Vac	180Vac	50kA	L/N-G: 0.7kV	1
DT50/250-4V-S	4	Three phase 4W+G	220Vac	250Vac	50kA	L/N-G: 1.0kV	1
DT50/275-4V-S	4	Three phase 4W+G	220~230Vac	275Vac	50kA	L/N-G: 1.0kV	1
DT50/320-4V-S	4	Three phase 4W+G	240~277Vac	320Vac	50kA	L/N-G: 1.0kV	1
DT50/420-4V-S	4	Three phase 4W+G	277~347Vac	420Vac	50kA	L/N-G: 1.2kV	1
DT50/510-4V-S	4	Three phase 4W+G	400Vac	510Vac	50kA	L/N-G: 1.5kV	1
DT50/550-4V-S	4	Three phase 4W+G	480Vac	550Vac	50kA	L/N-G: 1.5kV	1

Diagram	Basic Circuit Diagram	Dimension Drawing
1) 4+0		
2) 3+1		
3) 3+0		
4) 1+1		
5) 2+0		

Single Pole SPD

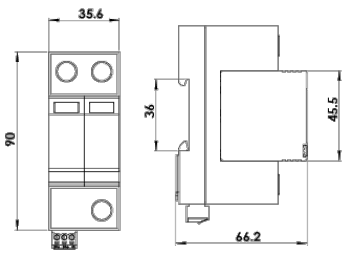
• Redudant Design • TPAE Patent • I_{max} 100kA

V100E…-S

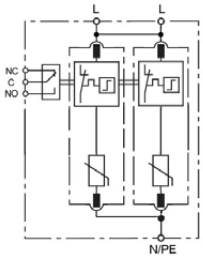
- ETL certified Type 1ca (UL1449 4th), Type 2ca (CSA C22.2) SPD with high energy MOV technology
- Redundant module design, protection will not be interrupted while one overload model need replace
- High reliability due to global patented thermally protected with special arc-extinguish device (TPAE technology)
- High surge current discharge capacity up to 100kA 8/20μs
- Short circuit current rating 200kArms
- Pluggable module for easy replacement
- Degradation failure indication & optional remote signal contact
- Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41, CSA C22.2

Model		V100E/150-S	V100E/180-S	V100E/250-S	V100E/275-S	V100E/320-S	V100E/420-S	V100E/510-S	V100E/550-S
Compliance		UL 1449 4th; EN/IEC 61643-11							
Category UL/EN/IEC		Type 1ca / T2 / Class II							
Max. Continuous Operating Voltage (AC/DC)	U_c	150V / 200V	180V / 240V	250V / 330V	275V / 370V	320V / 420V	420V / 560V	510V / 670V	550V / 710V
Technology		High energy MOV technology; TPAE technology (patented); Two-modules/redundant design							
Ports/Protection Mode		1 / L-PE or L-N or N-PE							
Nominal Discharge Current (8/20μs)	I_n	20kA							
Max. Discharge Current (8/20μs)	I_{max}	100kA							
Voltage Protection Rating 6kV/3kA UL 1449	VPR	≤ 0.7kV	≤ 0.7kV	≤ 1.0kV	≤ 1.0kV	≤ 1.0kV	≤ 1.2kV	≤ 1.5kV	≤ 1.5kV
Temporary Overvoltage TOV — Withstand Mode	U_{tov}	175V/5s	228V/5s	320V/5s	335V/5s	335V/5s	504V/5s	610V/5s	697V/5s
Residual Current	I_{PE}	<0.1mA							
Short Circuit Current Rating per UL 1449	I_{sccr}	200kArms							
Short-Circuit Current Rating per IEC 61643	I_{sc}	10kArms							
Response Time	t_A	≤ 25ns							
Backup Fuse (only required if not already provided in mains)		125A gL/gG							
Environment		Temperature Range: - 40ºC ~ +85ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m							
Cross-Section of Connection Wire		Single-strand 35mm2; multi-strand 25mm2							
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3							
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0							
Degree of Protection		IP20							
Installation Width		2 modules, DIN 43880							
Failure Indication /Status		RED- Failure							
Remote Alarm Contact		Yes							
Approvals, certification		ETL, CE							
Additional Data for Remote Alarm Contacts Remote Alarm									
Contact Type		Isolated Form C							
Switching Capability U_N/ I_n		AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A							
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)							

• Dimension Drawing



• Basic Circuit Diagram



Single Pole SPD

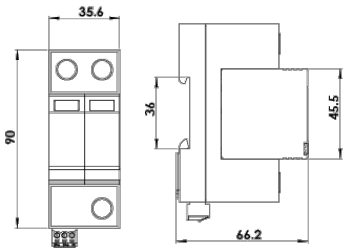
• Redudant Design • N-PE • I_{max} 100kA

G100E…-S

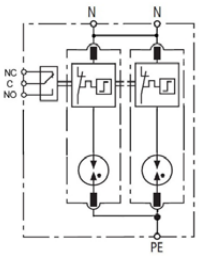
- ETL certified Type 1ca SPD (UL1449 4th), Type 2ca (CSA C22.2) with high energy GDT technology for NPE protection
- Redundant module design, protection will not be interrupted while one overload model need replace
- High reliability due to global patented thermally protected with special arc-extinguish device (TPAE technology).
- High surge current discharge capacity up to 100kA 8/20
- Pluggable module for easy replacement
- Degradation failure indication & optional remote signal contact
- Comply with IEC/EN 61643-11, UL 1449 4th, IEEE C62.41, CSA C22.2

Model		G100E/150-S	G100E/255-S	G100E/350-S	G100E/440-S
Compliance		EN/IEC 61643-11, UL 1449 4th			
Category UL/EN/IEC		Type 1ca / T2 /Class II			
Max. Continuous Operating Voltage (AC)	U_c	150V	255V	350V	440V
Technology		GDT technology TPAE technology (patented) Two-module / redundant design			
Ports/Protection Mode		1 / N-PE			
Nominal Discharge Current (8/20μs)	I_n	20kA			
Max. Discharge Current (8/20μs)	I_{max}	100kA			
Voltage Protection Rating @6kV/3kA UL 1449	VPR	≤ 0.8kV	≤ 1.0kV	≤ 1.2kV	≤ 1.5kV
Temporary Overvoltage TOV — Withstand Mode	U_{tov}	1200V/200ms	1200V/200ms	1200V/200ms	1200V/200ms
Residual Current	I_{PE}	No			
Follow Current Interrupt Rating	I_{fi}	200A@255Vac			
Response Time	t_A	≤ 100ns			
Environment		Temperature Range: -40ºC ~ +85ºC; Humidity: ≤ 95%; Altitude: ≤ 2000m			
Cross-Section of Connection Wire		Single-strand 35mm2; multi-strand 25mm2			
Mounting		35mm DIN-rail in accordance with EN 50022/DIN46277-3			
Enclosure Material		thermoplastic; extinguishing degree UL94 V-0			
Degree of Protection		IP20			
Installation Width		2 modules, DIN 43880			
Failure Indication /Status		RED- Failure			
Remote Alarm Contact		Yes			
Approvals, certification		ETL, CE			
Additional Data for Remote Alarm Contacts Remote Alarm					
Contact Type		Isolated Form C			
Switching Capability U_N/ I_n		AC: 250V/0.5A; DC: 250V/0.1A; 125V/0.2A; 75V/0.5A			
Max. Size of Connecting Wire		Max. 1.5mm2 (or # 16AWG)			

• Dimension Drawing



• Basic Circuit Diagram



Panel SPD

One-Port Panel SPD

Two-Port Surge Filter

Prosurge's one-port Panel SPD can be classified into 2 series:

1) PSP Series Panel SPD

PSP E

25~50kA | Single Phase

PSP B 50kA |

Multi Phase

PSP C 100~300kA |

Multi Phase

PTMOV / 20PTMOV as Key Component

2) PS Series Panel SPD

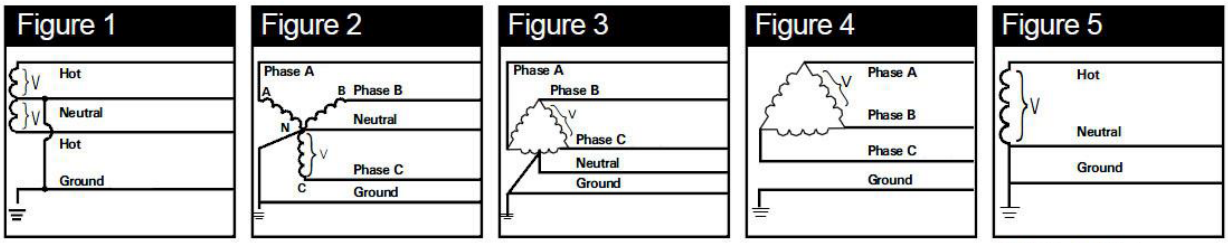
PS series 400~900kA |

Multi Phase

SMTMOV / HSMTMOV as Key Component

Voltage Code for Power Distribution System

- 120SP, 240SP = 120/240V; 240/480V .....Split-phase three-wire +ground (Figure 1)
- 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

PSP Series Panel SPD

• TPAE Patent • PTMOV Inside • 25~300kA • Single & Multi Phase

Prosurge PSP series surge panels 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

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 Applications:

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

PTMOV / 20PTMOV as Key Component

Configure & Ordering Information

PSP	277Y	C	42	M	/T1	CTA
Model	Voltage and system configuration	Protection mode	Surge capacity	Enclosure	SPD Category	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

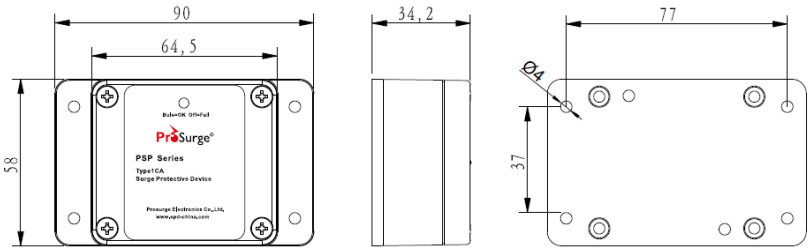
PSP E Series

• 25~50kA • Single Phase

- UL listed Type 1 single-phase compact panel SPD
- Full modes protection
- SCCR (Short circuit current rating) 200kArms - tested without external fuse or CB
- Surge capacity 25~50kA 8/20μs per phase
- Patented PTMOV / 20PTMOV as key component
- Degradation indication
- NEMA 4X enclosure
- Comply with UL1449 4th, IEEE C62.41, CSA C22.2, IEC/EN 61643-11

PSP category		E
Compliance		ANSI / UL 1449 4th, CSA C22.2
Connection Type		Parallel Connected
Ports		1
Surge Capacity per Phase		25~50kA
Nominal Discharge Current	I_n	10kA
Short Circuit Current Rating per UL 1449	I_{sccr}	200kArms
Power Status Indication		Normal= LED ON
Working Status Indication		Fail=LED Off
Power Connecting		# 12 AWG, L=black ; N=white; PE=green
Environment		Temperature: –40ºC ~+80ºC; Humidity: relative 5~95% (25ºC); **Altitude: ≤ 3km**
Dimensions, W x D x H		90 x 58 x 41mm
Enclosure		Plastic enclosure, NEMA 4X
Approvals, certification		UL

• **Dimension Drawing**



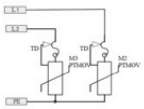
PSP E Series - Technical Data

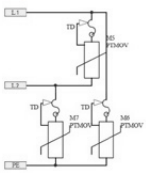
Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6kV/ 3kA), V				Surge Capability per phase	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L		
PSPE120SP11/T1	120/240V split-phase	10	×	√	×	√	-	700	-	1500	25kA	150/300
PSPE120SP12/T1			×	√	×	√	-	700	-	1200	50kA	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	√	√	√	×	1400	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

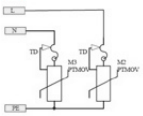
Note: "*" MCOV for L1-L2

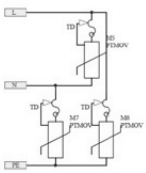
PSP E Series - Basic Circuit Diagram

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 …









PSP B Series

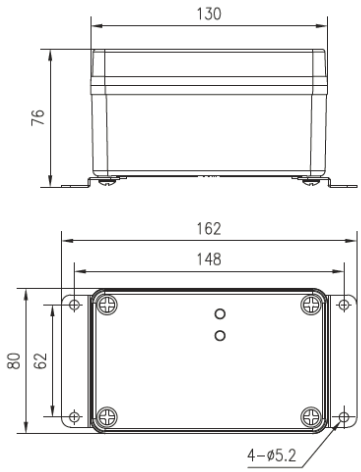
• 50kA • Multi Phase

PSP category		B
Compliance		ANSI / UL 1449 4th, CSA C22.2
Connection Type		Parallel Connected
Ports		1
Surge Capacity per phase		50kA
Nominal Discharge Current	I_n	10kA / 20kA
Short Circuit Current Rating per UL 1449	I_{SCCR}	200kArms
EMI/RFI filtering *		Sine wave tracking (for Type 2)
Power Status Indication		Normal=Blue LED ON
Working Status Indication		Fail=Surge Protection LED on
Power Connecting		# 12 AWG, A(L1)=black; B(L2)=red; C(L3)=blue; N=white; PE=green
Signal Cable (Remote Alarm)*		# 16 AWG, 45mm (17.72") length C=red; NC=blue; NO=brown
Environment		Temperature Range: -40ºC~+75ºC; Humidity: relative 5~95% (25ºC); **Altitude: ≤ 3km**
Dimensions, W x D x H		162 x 80 x 76 mm
Threaded NPT		1/2"NPT
Enclosure		Plastic enclosure, NEMA 4X

Note: * Optional

- UL Listed Type 1/2 compact panel SPD
- Sine wave tracking function optional (for UL Type 2 listed)
- Full modes protection
- Short circuit current rating 200kArms tested without external fuse or CB
- Surge capacity 50kA 8/20μs per phase
- Patented PTMOV technology inside
- NEMA 4X enclosure
- Degradation indication
- Remote Alarm optional
- Comply with UL1449 4th, IEEE C62.41, CSA C22.2, IEC/EN 61643-11

• **Dimension Drawing**



PSP B Series - Technical Data

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6kV/ 3kA), V				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	ü	ü	ü	ü	700	700	700	1200	50kA	150/300
PSP120SPC12/*A	120/240V Split-phase No neutral	10		ü	ü	ü	-	700	-	1200	50kA	150/300
PSP240SP12/*A	240/480V Split-phase	10	ü	ü	ü	ü	1200	1200	1200	2000	50kA	320/640
PSP240SPC12/*A	240/480V Split-phase No neutral	10		ü	ü	ü	-	1200	-	2000	50kA	320/640
PSP120Y12/*A	208Y120V Three-phase wye	10	ü	ü	ü	ü	700	700	700	1200	50kA	150
PSP120YC12/*A	208Y120V Three-phase wye No neutral	10		ü	ü	ü	-	700	-	1200	50kA	150

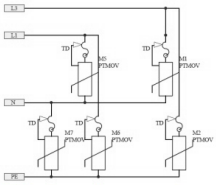
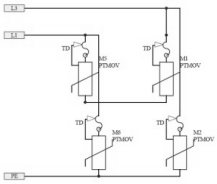
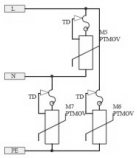
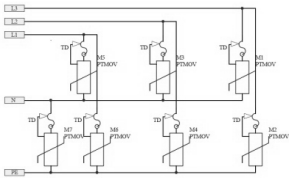
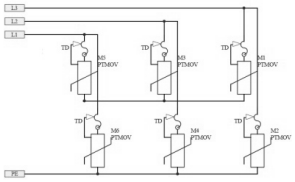
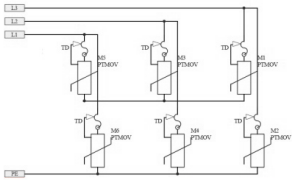
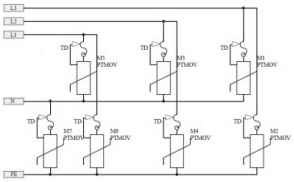
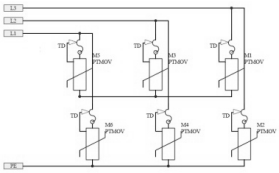
PSP B Series - Technical Data

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

PSP B Series - Technical Data

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6kV/ 3kA), V				Surge Capacity per phase	MCOV (Vac)
			L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L		
20PSP127Y12/*A	220Y127V Three-phase wye	20	ü	ü	ü	ü	700	700	700	1200	50kA	150
20PSP127YC12/*A	220Y127V Three-phase wye No neutral	20		ü	ü	ü	-	700	-	1200	50kA	150
20PSP240Y12/*A	415Y240V Three-phase wye	20	ü	ü	ü	ü	1200	1200	1200	2000	50kA	320
20PSP240YC12/*A	415Y240V Three-phase wye No neutral	20		ü	ü	ü	-	1200	-	2000	50kA	320
20PSP277Y12/*#	480Y277V Three-phase wye	20	ü	ü	ü	ü	1200	1200	1200	2000	50kA	320
20PSP277YC12/*#	480Y277V Three-phase wye No neutral	20		ü	ü	ü	-	1200	-	2000	50kA	320

PSP B Series - 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) 

PSP C Series

• 100~300kA • Multi Phase

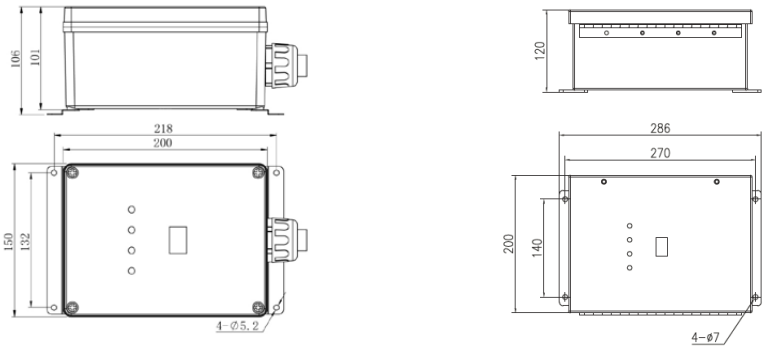
C1: NEMA 4X Plastic Enclosure

C2: NEMA 4 Metal Enclosure

- UL Listed Type 1/2 compact panel SPD
- Sine wave tracking function optional (for UL Type 2 listed)
- Full modes protection
- SCCR (Short circuit current rating) 200kArms tested without external fuse or CB
- Surge capacity 100~300kA 8/20μs per phase
- Patented PTMOV technology inside
- Two type enclosure, NEMA 4X plastic and NEMA 4 metal enclosure
- Degradation indication.
- Surge event counter optional
- Remote Alarm optional
- Comply with UL1449 4th, IEEE C62.41, CSA C22.2, IEC/EN 61643-11

PSP category		C
Compliance		ANSI / UL 1449 4th, CSA C22.2
Connection Type		Parallel Connected
Ports		1
Surge Capacity per Phase		100~300kA
Nominal Discharge Current	I_n	20kA
Short Circuit Current Rating per UL 1449	I_{sccr}	200kArms
EMI/RFI filtering *		Sine wave tracking (for Type 2)
Lightning Counter Current*		≥ 200A (with Reset button)
Failure pre-test *		Press 2S (test button)
Power Status Indication		Normal=Blue LED ON
Working Status Indication		Normal= Blue LED ON; Fail= Blue LED turn to Red
Power Connecting		# 10 AWG, A(L1)=black; B(L2)=red; C(L3)=blue; N=white; PE=green
Signal Cable (Remote Alarm)*		# 16 AWG, C=red; NC=blue; NO=brown
Environment		Temperature: –40ºC~+75ºC; Humidity: relative 5~95% (25ºC); Altitude: ≤ 3km
Dimensions, W x D x H		232 x 150 x 106 mm (C1) 286 x 200 x 120 mm (C2)
Threaded NPT		3/4"NPT
Enclosure		Plastic enclosure, NEMA 4X (C1) Metal enclosure, NEMA 4 (C2)
Approvals, certification		UL

• **Dimension Drawing**

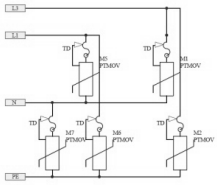
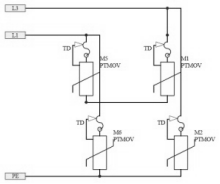
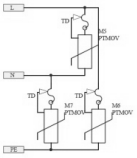
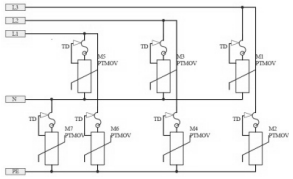
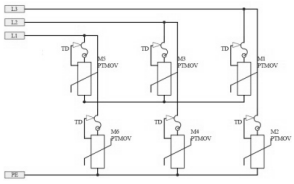
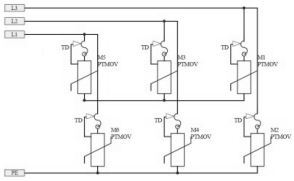
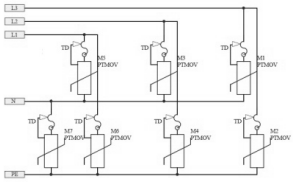
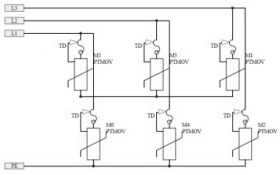


PSP C Series - Technical Data

Note: “%” means 2~6 (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	ü	ü	ü	ü			700	800	800	1200	100~300kA	150/300
PSP120SPC%2/*CTA	120/240V Split-phase No neutral	20	ü	ü	ü	ü			-	800	-	1200	100~300kA	150/300
PSP240SP%2/*CTA	240/480V Split-phase	20	ü	ü	ü	ü			1200	1200	1200	2000	100~300kA	320/640
PSP240SPC%2/*CTA	240/480V Split-phase, No neutral	20	ü	ü	ü	ü			-	1200	-	2000	100~300kA	320/640
PSP120Y%2/*CTA	208Y120V Three-phase wye	20	ü	ü	ü	ü			700	800	800	1200	100~300kA	150
PSP120YC%2/*CTA	208Y120V Three-phase wye No neutral	20	ü	ü	ü	ü			-	800	-	1200	100~300kA	150
PSP127Y%2/*CTA	220Y127V Three-phase wye	20	ü	ü	ü	ü			700	800	800	1200	100~300kA	150
PSP127YC%2/*CTA	220Y127V Three-phase wye, No neutral	20	ü	ü	ü	ü			-	800	-	1200	100~300kA	150
PSP240Y%2/*CTA	415Y240V Three-phase wye	20	ü	ü	ü	ü			1200	1200	1200	2000	100~300kA	320
PSP240YC%2/*CTA	415Y240V Three-phase wye, No neutral	20	ü	ü	ü	ü			-	1200	-	2000	100~300kA	320
PSP277Y%2/*CTA	480Y277V Three-phase wye	20	ü	ü	ü	ü			1200	1200	1200	2000	100~300kA	320
PSP277YC%2/*CTA	480Y277V Three-phase wye, No neutral	20	ü	ü	ü	ü			-	1200	-	2000	100~300kA	320
PSP347Y%2/*CTA	600Y347V Three-phase wye	20	ü	ü	ü	ü			1500	1500	1500	2500	100~300kA	420
PSP347YC%2/*CTA	600Y347V Three-phase wye, No neutral	20	ü	ü	ü	ü			-	1500	-	2500	100~300kA	420
PSP120H%2/*CTA	120/240V High-leg delta	20	ü	ü	ü	ü			700-1200HL	800-1200HL	800	1200-2000HL	100~300kA 150/320(HL)	
PSP120HC%2/*CTA	120/240V High-leg delta, No neutral	20	ü	ü	ü	ü			-	800-1200HL	-	1200-2000HL	100~300kA 150/320(HL)	
PSP240H%2/*CTA	240/480V High-leg delta	20	ü	ü	ü	ü			1200-1800HL	1200-1800HL	1200	2000-3000HL	100~300kA 320/550(HL)	
PSP240HC%2/*CTA	240/480V High-leg delta, No neutral	20	ü	ü	ü	ü			-	1200-1800HL	-	2000-3000HL	100~300kA 320/550(HL)	
PSP240D%2/*CTA	240V Three-phase delta	20	ü	ü	ü	ü			-	1200	-	1200	100~300kA	320
PSP480D%2/*CTA	480V Three-phase delta	20	ü	ü	ü	ü			-	1800	-	2000	100~300kA	550
PSP600D%2/*CTA	600V Three-phase delta	20	ü	ü	ü	ü			-	2000	-	2500	100~300kA	690
PSP120S%2/*CTA	120V Single-phase	20	ü	ü	ü	ü			700	800	800	-	100~300kA	150
PSP127S%2/*CTA	127V Single-phase	20	ü	ü	ü	ü			700	800	800	-	100~300kA	150
PSP240S%2/*CTA	240V Single-phase	20	ü	ü	ü	ü			1200	1200	1200	-	100~300kA	320
PSP277S%2/*CTA	277V Single-phase	20	ü	ü	ü	ü			1200	1200	1200	-	100~300kA	320
PSP347S%2/*CTA	347V Single-phase	20	ü	ü	ü	ü			1500	1500	1500	-	100~300kA	420

PSP C Series - 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) 

PS Series Panel SPD

• TPAE Patent • SMTMOV Inside • 400~900kA • Multi Phase

SMTMOV / HSMTMOV as Key Component

PS Category		D
Compliance		ANSI / UL 1449 4th, CSA C22.2
Connection Type		Parallel Connected
Ports		1
Surge Capacity per phase		150~900kA
Nominal Discharge Current	I_n	20kA
Short Circuit Current Rating per UL 1449	I_{sccr}	200kArms
EMI/RFI Filtering *		Sine wave tracking (for Type 2)
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, A(L1)=black; B(L2)=red; C(L3)=blue; N=white; PE=green
Signal Cable (Remote Alarm)*		# 16 AWG, C=red; NC=blue; NO=brown
Environment		Temperature Range: -40ºC~+85ºC; Humidity: relative 5~95% (25ºC); Altitude: ≤ 3km
Dimensions, W x D x H		350 x 370 x 223mm
Threaded NPT		3/4"NPT
Enclosure		Metal enclosure, NEMA 4
Approvals, certification		UL

Note: * Optional

Features

- UL listed Type 1/2 heavy duty panel SPD
- Sine wave tracking function optional (for UL Type 2 listed)
- Full modes protection
- Short circuit current rating 200kArms tested without external fuse or CB
- Surge capacity 150~900kA 8/20μs per phase
- Patented SMTMOV technology inside
- NEMA 4 metal enclosure
- Degradation indication. Anticipatory Failure Monitoring (AFM) technology to ensure permanent surge protection
- Surge event counter optional
- Remote Alarm optional
- Comply with UL1449 4th, IEEE C62.41, CSA C22.2, IEC/EN 61643-11

Typical Applications

In high exposure locations

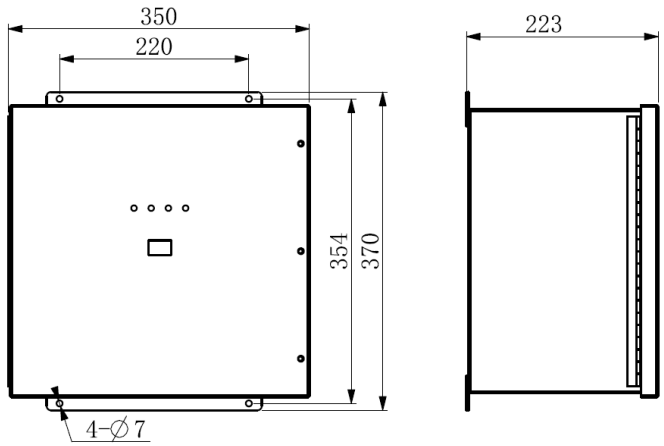
- All power circuit
- Telecommunication application (cell towers, base station, data center, transfer center, etc.
- Industrial
- Commercial
- Renewable energy
- Oil or mineral

Configure & 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 model with higher surge capacity are built with HSMTMOV (Uc range: 150~320)

• **Dimension Drawing**



PS series - Technical Data

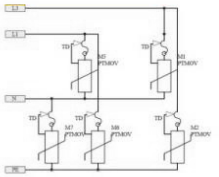
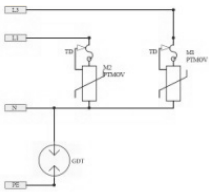
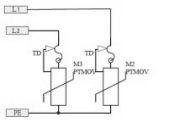
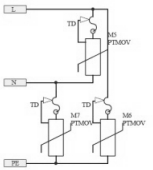
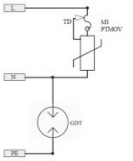
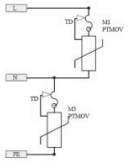
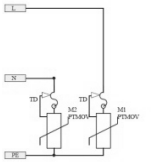
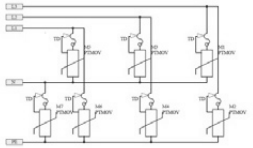
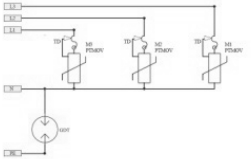
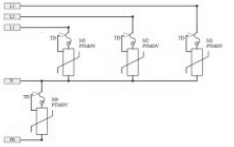
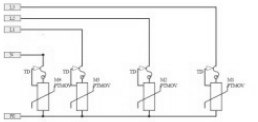
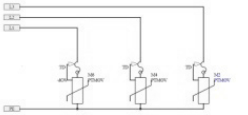
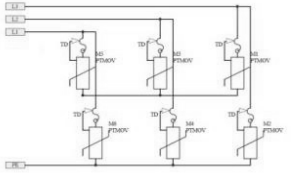
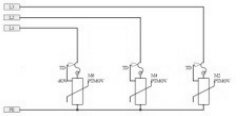
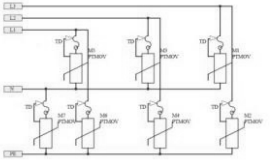
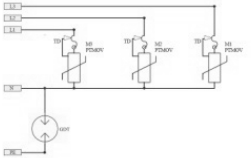
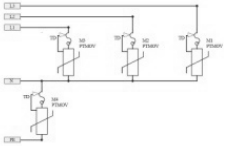
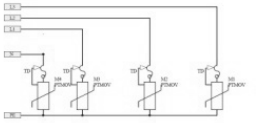
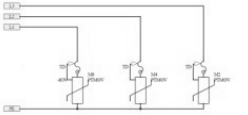
Note: % means 3 to 6 (Surge capacity 150kA~450kA per mode)
(2) lightning capacity of NPE mode is 100kA 10/350μs

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6kV/ 3kA), V				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	ü	ü	ü	ü	700	700	700	1200	300~900kA	25~80kA	150
PS120SPC%1/*CA			ü	ü	ü		-	700	-	1200	150~450kA	12.5~40kA	150
PS120SPN%1T/*CA			ü	ü	ü	ü	700	1500	1500	1200	**150~450kA**	**12.5~40kA(2)**	150
PS240SP%2/*CA	240/480V Split-phase	20	ü	ü	ü	ü	1200	1200	1200	2000	300~900kA	25~80kA	320
PS240SPC%1/*CA			ü	ü	ü		-	1200	-	2000	150~450kA	12.5~40kA	320
PS240SPN%1T/*CA			ü	ü	ü	ü	1200	2000	1500	2000	**150~450kA**	**12.5~40kA(2)**	320
PS120Y%2/*CA	208Y120V Three-phase wye	20	ü	ü	ü	ü	700	700	700	1200	300~900kA	25~80kA	150
PS120YN%1T/*CA			ü	ü	ü	ü	700	1500	1500	1200	**150~450kA**	**12.5~40kA(2)**	150
PS120YN%1/*CA			ü	ü	ü	ü	700	1200	700	1200	150~450kA	12.5~40kA	150
PS120YG%1/*CA			ü	ü	ü	ü	1200	700	700	1200	150~450kA	12.5~40kA	150
PS120YC%1/*CA			ü	ü	ü		-	700	-	1200	150~450kA	12.5~40kA	150
PS127Y%2/*CA	220Y127V Three-phase wye	20	ü	ü	ü	ü	700	700	700	1200	300~900kA	25~80kA	150
PS127YN%1T/*CA			ü	ü	ü	ü	700	1500	1500	1200	**150~450kA**	**12.5~40kA(2)**	150
PS127YN%1/*CA			ü	ü	ü	ü	700	1200	700	1200	150~450kA	12.5~40kA	150
PS127YG%1/*CA			ü	ü	ü	ü	1200	700	700	1200	150~450kA	12.5~40kA	150
PS127YC%1/*CA			ü	ü	ü		-	700	-	1200	150~450kA	12.5~40kA	150
PS230Y%2/*CA	400Y230V Three-phase wye	20	ü	ü	ü	ü	1200	1200	1200	2000	300~900kA	25~80kA	320
PS230YN%1T/*CA			ü	ü	ü	ü	1200	1500	1500	2000	**150~450kA**	**12.5~40kA(2)**	320
PS230YN%1/*CA			ü	ü	ü	ü	1200	2000	1200	2000	150~450kA	12.5~40kA	320
PS230YG%1/*CA			ü	ü	ü	ü	2000	1200	1200	2000	150~450kA	12.5~40kA	320
PS230YC%1/*CA			ü	ü	ü		-	1200	-	2000	150~450kA	12.5~40kA	320
PS240Y%2/*CA	415Y240V Three-phase wye	20	ü	ü	ü	ü	1200	1200	1200	2000	300~900kA	25~80kA	320
PS240YN%1T/*CA			ü	ü	ü	ü	1200	1500	1500	2000	**150~450kA**	**12.5~40kA(2)**	320
PS240YN%1/*CA			ü	ü	ü	ü	1200	2000	1200	2000	150~450kA	12.5~40kA	320
PS240YG%1/*CA			ü	ü	ü	ü	2000	1200	1200	2000	150~450kA	12.5~40kA	320
PS240YC%1/*CA			ü	ü	ü		-	1200	-	2000	150~450kA	12.5~40kA	320
PS277Y%2/*CA	480Y277V Three-phase wye	20	ü	ü	ü	ü	1200	1200	1200	2000	300~900kA	25~80kA	320
PS277YN%1/*CA			ü	ü	ü	ü	1200	2000	1200	2000	150~450kA	12.5~40kA	320
PS277YG%1/*CA			ü	ü	ü	ü	2000	1200	1200	2000	150~450kA	12.5~40kA	320
PS277YC%1/*CA			ü	ü	ü		-	1200	-	2000	150~450kA	12.5~40kA	320

PS series - Technical Data

Model No.	System Voltage (50/60Hz)	In (kA)	Protected Mode				Voltage Protection Ratings (VPR @6kV/ 3kA), V				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			
PS347Y%2/*CA	600Y347V Three-phase wye	20	ü	ü	ü	ü	1500	1500	1500	2500	300~600kA	25~80kA	420
PS347YN%1/*CA			ü	ü	ü	ü	1500	2500	1500	2500	150~300kA	12.5~40kA	420
PS347YG%1/*CA			ü	ü	ü	ü	2500	1500	1500	2500	150~300kA	12.5~40kA	420
PS347YC%1/*CA			ü	ü	ü	ü	-	1500	-	2500	150~300kA	12.5~40kA	420
PS120H%2/*CA	120/240V High-leg delta	20	ü	ü	ü	ü	700-1200HL	700-1200HL			700 1200-2000HL	300~900kA	25~80kA	150/320HL
PS120HN%1T/*CA			ü	ü	ü	ü	700-1200HL	1500-2000HL	1500 1200-2000HL	150~450kA 12.5~40kA(2)				150/320HL
PS120HN%1/*CA			ü	ü	ü	ü	700-1200HL	1200-2000HL	700 1200-2000HL	150~450kA			12.5~40kA	150/320HL
PS120HG%1/*CA			ü	ü	ü	ü	1200-2000HL	700-1200HL			700 1200-2000HL	150~450kA	12.5~40kA	150/320HL
PS120HC%1/*CA			ü	ü	ü	ü	-	700-1200HL	-	1200-2000HL	150~450kA		12.5~40kA	150/320HL
PS240H%2/*CA	240/480V High-leg delta	20	ü	ü	ü	ü	1200-2000HL	1200-2000HL	1200 2000-3000HL	300~600kA			25~50kA	320/550HL
PS240HN%1T/*CA			ü	ü	ü	ü	1200-2000HL	1500-3000HL	1500 2000-3000HL	150~300kA 12.5~25kA(2)				320/550HL
PS240HN%1/*CA			ü	ü	ü	ü	1200-2000HL	2000-3000HL	1200 2000-3000HL	150~300kA			12.5~25kA	320/550HL
PS240HG%1/*CA			ü	ü	ü	ü	2000-3000HL	1200-2000HL	1200 2000-3000HL	150~300kA			12.5~25kA	320/550HL
PS240HC%1/*CA			ü	ü	ü	ü	-	1200-2000HL	-	2000-3000HL	150~300kA		12.5~25kA	320/550HL
PS240D%2/*CA	240V Three-phase delta	20 ü ü ü ü					-	1200	-	1200	300~900kA	25~80kA	320
PS240DG%1/*CA			ü	ü	ü	ü	-	1200	-	1500	150~450kA	12.5~40kA	320
PS480D%N2/*CA	480V Three-phase delta	20 ü ü ü ü					-	1800	-	1800	300~600kA	25~50kA	550
PS480DGx1/*CA			ü	ü	ü	ü	-	1800	-	3000	150~300kA	12.5~25kA	550
PS600D%2/*CA	600V Three-phase delta	20 ü ü ü ü					-	2000	-	2000	300~600kA	25~50kA	690
PS600DG%1/*CA			ü	ü	ü	ü	-	2000	-	4000	150~300kA	12.5~25kA	690
PS120S%2/*CA	120V Single-phase	20	ü	ü	ü	ü	700	700	700	-	300~900kA	25~40kA	150
PS120SN%1T/*CA			ü	ü	ü	ü	700	1500	1500	-	150~450kA 12.5~40kA(2)		150
PS120SN%1/*CA			ü	ü	ü	ü	700	1200	700	-	150~450kA	12.5~40kA	150
PS120SG%1/*CA			ü	ü	ü	ü	1200	700	700	-	150~450kA	12.5~40kA	150
PS127S%2/*CA	127V Single-phase	20	ü	ü	ü	ü	700	700	700	-	300~900kA	25~40kA	150
PS127SN%1T/*CA			ü	ü	ü	ü	700	1500	1500	-	150~450kA 12.5~40kA(2)		150
PS127SN%1/*CA			ü	ü	ü	ü	700	1200	700	-	150~450kA	12.5~40kA	150
PS127SG%1/*CA			ü	ü	ü	ü	1200	700	700	-	150~450kA	12.5~40kA	150
PS230S%2/*CA	230V Single-phase	20	ü	ü	ü	ü	1200	1200	1200	-	300~900kA	25~40kA	320
PS230SN%1T/*CA			ü	ü	ü	ü	1200	1500	1500	-	150~450kA 12.5~40kA(2)		320
PS230SN%1/*CA			ü	ü	ü	ü	1200	2000	1200	-	150~450kA	12.5~40kA	320
PS230SG%1/*CA			ü	ü	ü	ü	2000	1200	1200	-	150~450kA	12.5~40kA	320
PS240S%2/*CA	240V Single-phase	20	ü	ü	ü	ü	1200	1200	1200	-	300~900kA	25~40kA	320
PS240SN%1T/*CA			ü	ü	ü	ü	1200	1500	1500	-	150~450kA 12.5~40kA(2)		320
PS240SN%1/*CA			ü	ü	ü	ü	1200	2000	1200	-	150~450kA	12.5~40kA	320
PS240SG%1/*CA			ü	ü	ü	ü	2000	1200	1200	-	150~450kA	12.5~40kA	320
PS277S%2/*CA	277V Single-phase	20	ü	ü	ü	ü	1200	1200	1200	-	300~600kA	25~50kA	420
PS277SN%1/*CA			ü	ü	ü	ü	1200	2000	1200	-	150~300kA	12.5~25kA	420
PS277SG%1/*CA			ü	ü	ü	ü	2000	1200	1200	-	150~300kA	12.5~25kA	420
PS347S%2/*CA	347V Single-phase	20	ü	ü	ü	ü	1500	1500	1500	-	300~600kA	25~50kA	420
PS347SN%1/*CA			ü	ü	ü	ü	1500	2500	1500	-	150~300kA	12.5~25kA	420
PS347SG%1/*CA			ü	ü	ü	ü	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)