Data Sheet

SPD

CURO Series — Surge Protection Devices



ELMEASURE®
Possibilities...Infinite



Limit Damage from Lightning / Switching Surges

Introduction to Surge Protection

Surge Protection Devices (SPDs) are designed to protect low-voltage electrical systems and connected equipment from transient overvoltages caused by lightning-induced surges and switching operations. They help limit excess voltage reaching the installation and improve the reliability of the electrical system.

- **Lightning-Induced Surge Protection**
  Limits transient overvoltages entering the installation during lightning-related events.
- **Protection Against Switching Surges**
  Reduces overvoltages caused by motors, transformers, capacitors, and other switching loads.
- **Protection for Sensitive Equipment**
  Helps reduce the risk of damage to electronics, control circuits, power supplies, meters, and PLCs.



SPD Operation

Under normal operating conditions, the SPD remains in a high-resistance state and does not affect the electrical system. When a transient overvoltage caused by lightning or switching occurs, it responds rapidly and diverts the surge to earth, helping reduce the risk of equipment damage, insulation stress, and downtime. After the event, it automatically returns to its normal state.

Key Features of SPD

- Response time less than 25 ns
- Visual status indication through indicator window
- DIN rail mounting for easy panel integration
- Compact modular design
- Designed for protection against lightning-induced and switching surges

Lightning fast protection against power surges.

Protection for a wide range of applications

Type II, AC

Typical Use Case: Main distribution boards or sub-panels.

Protects AC networks from low-voltage transients, typically generated internally by switching operations, such as the activation of heavy machinery, motors, or HVAC systems. It provides a critical secondary defense layer for sensitive downstream equipment.

Type II, DC

Typical Use Case: Solar PV string boxes and DC-side inverter protection.

Specifically designed for DC applications, including solar photovoltaic systems. It safeguards against low-voltage DC surges induced by switching operations or indirect environmental factors. By clamping overvoltages, it prevents damage to the DC components of inverters and connected solar modules.

Type I + Type II

Typical Use Case: Buildings with external lightning protection systems or overhead supply lines.

A comprehensive solution providing dual-stage protection. It is built to withstand high-energy surges from direct lightning strikes (Type I) while simultaneously managing the fast-rising transients caused by switching operations (Type II). This combined protection is essential for high-risk installations requiring maximum resilience.

Applications



Facility distribution panels
Ideal for safeguarding main power distribution boards in commercial or industrial facilities. SPDs protects heavy machinery, HVAC systems, and electronic infrastructure from internal transient surges caused by routine operational switching.



Solar Photovoltaic (PV) systems
suitable for installation in low-voltage distribution cabinets in buildings, such as floor distribution boxes, roof fans, roof advertising lighting, power distribution boxes in elevator control rooms and other important places.



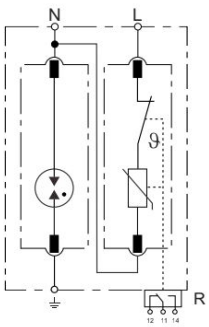
High-Risk Infrastructures
Critical for facilities equipped with external lightning rods or those fed by overhead supply lines. Positioned at the main incomer of high-rise buildings, it absorbs massive energy from direct lightning strikes while filtering the subsequent internal surges.

Technical Specifications — Type 2, SPD

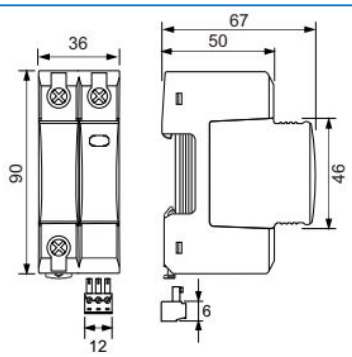
Parameter	IEC Symbol	1P+N	3P+N
SYSTEM CONFIGURATION			
No. of Poles	—	1P+N	3P+N
Nominal AC Voltage (50/60 Hz)	Uo / Un	230 V	230 V
Number of Ports	—	1	
OPERATING VOLTAGE			
Maximum Continuous Operating Voltage (L-N)	(L-N) Uc	275 V	385 V
Maximum Continuous Operating Voltage (N-PE)	(N-PE) Uc	255 V	
SURGE CURRENT RATING			
Nominal Discharge Current (8/20 µs)	(L-N) / (N-PE) In	40 kA	
Maximum Discharge Current (8/20 µs)	(L-N) / (N-PE) Imax	40 kA	
Open Circuit Voltage (1.2/50 µs)	Uoc	6 kV	
PROTECTION CHARACTERISTICS			
Voltage Protection Level	(L-N) / (N-PE) Up	1.5 kV / 1.5 kV	1.8 kV / 1.5 kV
Residual Current at Uc	IPE	none	
Response Time	(L-N) / (N-PE) tA	<25 ns / <100 ns	
COORDINATION & SAFETY			
Follow Current Interrupt Rating	(N-PE) If	100 ARMS	
Max. Backup Fuse	—	125 A gG	
Short-Circuit Current Rating (AC)	(L-N) ISCCR	25 kA	
TOV WITHSTAND			
TOV Withstand 5 s	(L-N) UT	335 V	
TOV 120 min	(L-N) UT	440 V	
TOV Withstand 200 ms	(N-PE) UT	1200 V	

Configuration

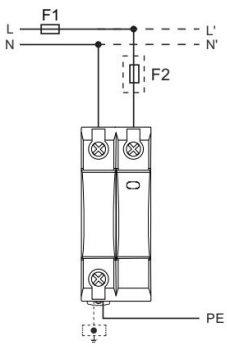
1P+N



Dimensions

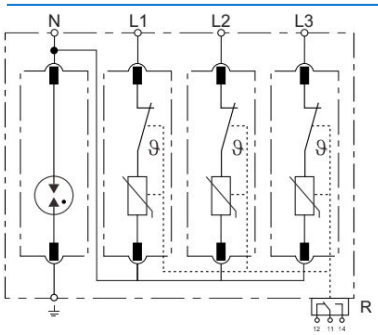


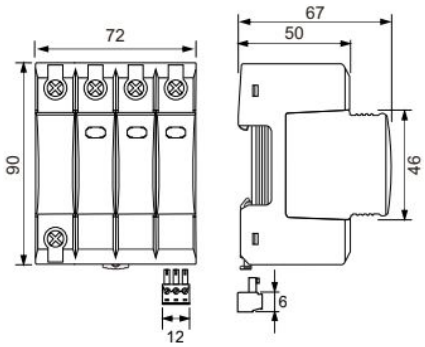
Connection

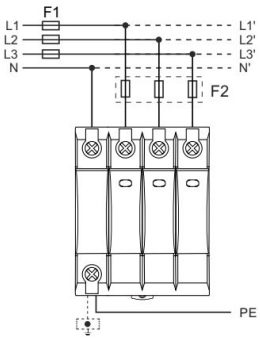


TT, TN-S (Single-phase, 1+1)

3P+N







TT, TN-S (Three-phase, 3+1)

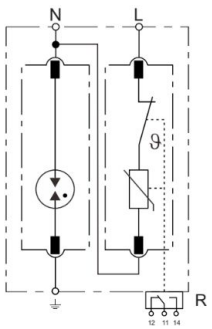
R — Signalling contacts *(optional)*

Technical Specifications — Type 1+2, SPD

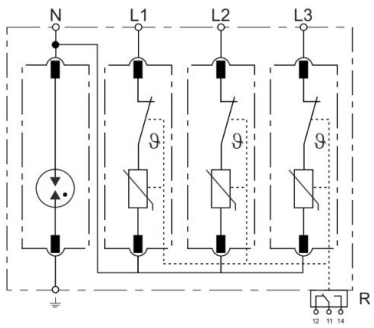
Parameter	IEC Symbol	1P+N	3P+N
SYSTEM CONFIGURATION			
No. of Poles	—	1P+N	3P+N
Nominal AC Voltage (50/60 Hz)	Uo / Un	230 V	230 V
Number of Ports	—	1	
OPERATING VOLTAGE			
Maximum Continuous Operating Voltage (L-N)	(L-N) Uc	275 V	385 V
Maximum Continuous Operating Voltage (N-PE)	(N-PE) Uc	255 V	
SURGE CURRENT RATING			
Nominal Discharge Current (8/20 µs)	(L-N) / (N-PE) In	40 kA	
Maximum Discharge Current (8/20 µs)	(L-N) / (N-PE) Imax	40 kA	
Open Circuit Voltage (1.2/50 µs)	Uoc	6 kV	
Impulse Discharge Current (10/350 µç)	(L-N) / (N-PE) Iimp	12.5 kA	
Total Discharge Current (10/350 µç)	Itotal	25 kA	40 kA
Specific Energy	(L-N)/(N-PE) W/R	39 kJ/Ω	
Charge	(L-N)/(N-PE) Q	6.25 As	
PROTECTION CHARACTERISTICS			
Voltage Protection Level	(L-N) / (N-PE) Up	1.5 kV / 1.5 kV	1.8 kV / 1.5 kV
Residual Current at Uc	IPE	none	
Response Time	(L-N) / (N-PE) tA	<25 ns / <100 ns	
COORDINATION & SAFETY			
Follow Current Interrupt Rating	(N-PE) If	100 ARMS	
Max. Backup Fuse	—	250 A gG	
Short-Circuit Current Rating (AC)	(L-N) ISCCR	25 kA	
TOV WITHSTAND			
TOV Withstand 5 s	(L-N) UT	335 V	
TOV 120 min	(L-N) UT	440 V	
TOV Withstand 200 ms	(N-PE) UT	1200 V	

Configuration

1P+N

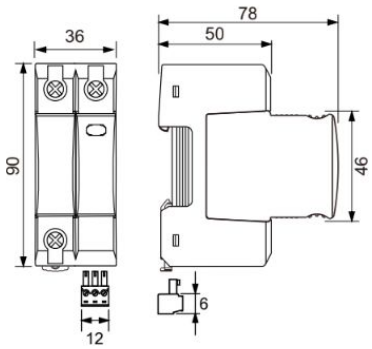


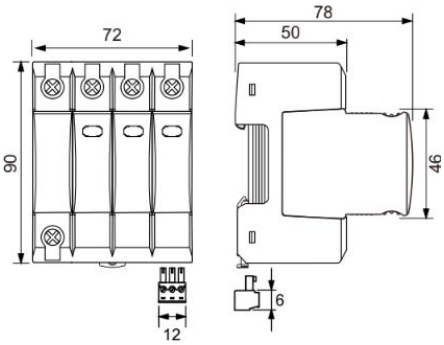
3P+N



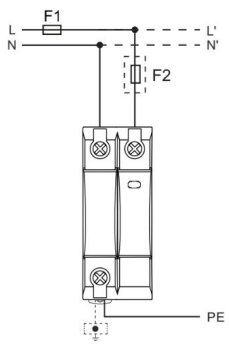
R — Signalling contacts *(optional)*

Dimensions

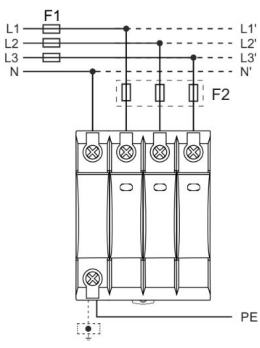




Connection



TT, TN-S (Single-phase, 1+1)



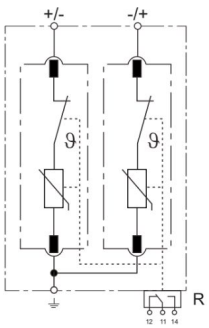
TT, TN-S (Three-phase, 3+1)

Technical Specifications — Type 2, DC SPD

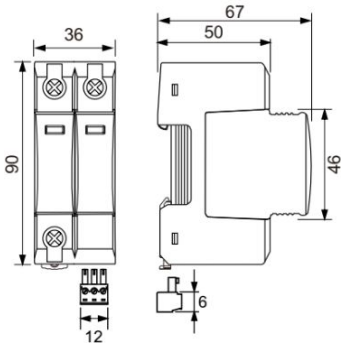
Parameter	IEC Symbol	2P	3P
SYSTEM CONFIGURATION			
No. of Poles	—	2P	3P
Number of Ports	—	1	
OPERATING VOLTAGE			
Maximum Continuous Operating Voltage (DC)	Ucpv	600 V	1000 V
SURGE CURRENT RATING			
Nominal Discharge Current (8/20 µs)	In	20 kA	
Maximum Discharge Current (8/20 µs)	Imax	40 kA	
Total Discharge Current (8/20 µç)	Itotal	40 kA	
PROTECTION CHARACTERISTICS			
Voltage Protection Level	Up	2.2 kV	4.0 kV
Residual Current at Uc	IPE	<0.5 mA	
Response Time	tA	<25 ns	
COORDINATION & SAFETY			
Short-Circuit Current Rating (DC)	Iscpv	10 kA	

Configuration

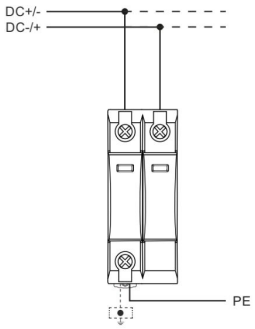
2P



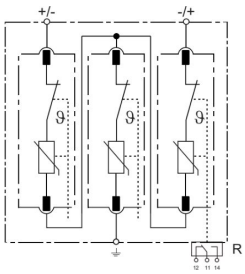
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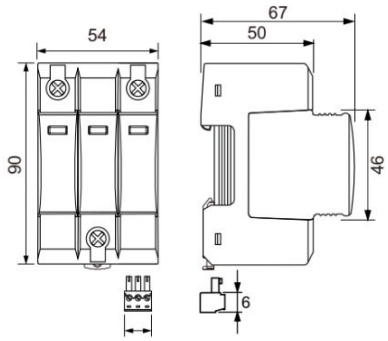


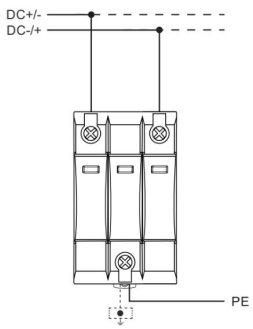
Connection



3P







R — Signalling contacts *(optional)*

Mechanical / Environmental Specifications

Parameter	Value
ENVIRONMENTAL CONDITIONS	
Operating Temperature Range	-40 °C to +85 °C
Permissible Operating Humidity	5% to 95%
Atmospheric Pressure and Altitude	80 kPa to 106 kPa / -500 m to 2000 m
TERMINAL CONNECTION	
Terminal Screw Torque	2.5 Nm
Conductor Cross Section (max.)	2 AWG (Solid, Stranded) / 4 AWG (Flexible) 35 mm^2 (Solid, Stranded) / 25 mm^2 (Flexible)
MOUNTING & CONSTRUCTION	
Mounting	35 mm DIN Rail, EN 60715
Degree of Protection	IP20 (built-in)
Housing Material	Thermoplastic: Extinguishing Degree UL 94 V-0
SAFETY / INDICATION	
Thermal Protection	Yes
Operating State / Fault Indication	Green ok / Off defect
REMOTE CONTACT (Optional)	
Remote Contacts (RC)	Optional
RC Switching Capacity	AC: 250 V / 0.5
RC Conductor Cross Section (max.)	16 AWG (Solid) / 1.5 mm^2 (Solid)

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MAKE IN INDIA

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