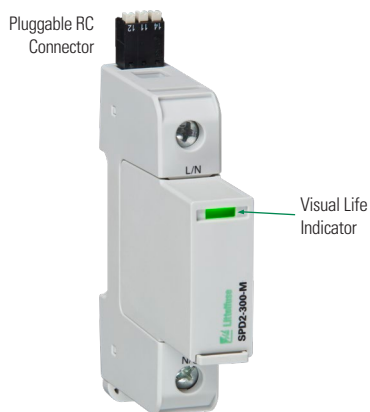


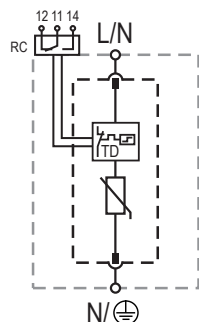
# Surge Protection Devices

## SPD2 1P+0 SERIES

Class II/Type 2/Type 1 CA Pluggable Single-Pole



### Internal Configuration



#### Legend

|   |                  |    |                       |
|---|------------------|----|-----------------------|
| L | Line             | RC | Remote Contacts       |
| N | Neutral          | TD | Thermal Disconnection |
| ⊕ | Protective Earth |    |                       |

### Description

Surge protection devices (SPDs) provide equipment protection from transient overvoltage events lasting micro-seconds. By limiting the overvoltage to the equipment during these events, costly damage and downtime can be mitigated.

The surge protection devices for the 1+0 configuration are available for 60 V to 600 V nominal voltage sub-distribution board applications.

### Features & Benefits

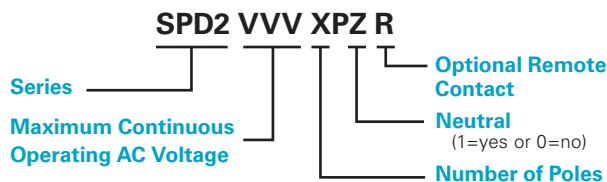
| FEATURES                                                                        | BENEFITS                                                                                                                                                                  |
|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Capability to clamp and withstand high-energy transients</b>                 | Ensures low-residual voltage during high-energy surge events and higher nominal discharge current to prevent disruption, downtime, and degradation or damage to equipment |
| <b>UL Recognized and VDE-IEC compliant in single part number</b>                | One component can be utilized globally, reducing inventory needs and simplifying allocation of parts                                                                      |
| <b>Interlocking tab mechanism</b>                                               | Secures module to withstand vibration                                                                                                                                     |
| <b>No additional overcurrent protection devices required in UL applications</b> | Reduces the number of components and costs required for protection                                                                                                        |
| <b>Compact footprint</b>                                                        | Increases panel design flexibility                                                                                                                                        |
| <b>Visual life indicator</b>                                                    | Quick visual determines module replacement status to avoid loss of protection                                                                                             |
| <b>Pluggable modules</b>                                                        | Fast and simple to replace, minimizing maintenance and downtime. No tools required                                                                                        |
| <b>Thermal protection</b>                                                       | Eliminates catastrophic failure                                                                                                                                           |
| <b>IP20 protection rating</b>                                                   | Finger-safe design increases worker protection                                                                                                                            |

### Module & Base Ordering Information

| Ordering Number | IEC Electrical                          |                                                   |                                                    |                                                        |                                    |                                                |                             |                              | UL Electrical                                  |                                 |                                                    |                                     | Single Unit Weight |
|-----------------|-----------------------------------------|---------------------------------------------------|----------------------------------------------------|--------------------------------------------------------|------------------------------------|------------------------------------------------|-----------------------------|------------------------------|------------------------------------------------|---------------------------------|----------------------------------------------------|-------------------------------------|--------------------|
|                 | Nominal AC Voltage (50/60 Hz) ( $U_n$ ) | Maximum Continuous Operating AC Voltage ( $U_c$ ) | Nominal Discharge Current (8/20 $\mu$ s) ( $I_n$ ) | Maximum Discharge Current (8/20 $\mu$ s) ( $I_{max}$ ) | Voltage Protection Level ( $U_p$ ) | Short-Circuit AC Current Rating ( $I_{SCCR}$ ) | TOV Withstand 5 s ( $U_t$ ) | TOV 120 min ( $U_t$ ) / Mode | Maximum Continuous AC Operating Voltage (MCOV) | Voltage Protection Rating (VPR) | Nominal Discharge Current (8/20 $\mu$ s) ( $I_n$ ) | Short-Circuit Current Rating (SCCR) |                    |
| SPD2-075-1P0-R  | 60 V                                    | 75 V                                              | 20 kA                                              | 50 kA                                                  | 800 V                              | 25 kA / 50 kA                                  | 114 V                       | 114 V / Withstand            | 75 V                                           | 330 V                           | 20 kA                                              | 100 kA                              | 124 g (0.274 lb)   |
| SPD2-150-1P0-R  | 120 V                                   | 150 V                                             | 20 kA                                              | 50 kA                                                  | 1250 V                             | 25 kA / 50 kA                                  | 229 V                       | 229 V / Withstand            | 150 V                                          | 600 V                           | 20 kA                                              | 200 kA                              | 128 g (0.283 lb)   |
| SPD2-300-1P0-R  | 240 V                                   | 300 V                                             | 20 kA                                              | 50 kA                                                  | 1500 V                             | 25 kA / 50 kA                                  | 337 V                       | 442 V / Safe Fail            | 300 V                                          | 900 V                           | 20 kA                                              | 150 kA                              | 135 g (0.298 lb)   |
| SPD2-350-1P0-R  | 277 V                                   | 350 V                                             | 20 kA                                              | 50 kA                                                  | 1750 V                             | 25 kA / 50 kA                                  | 403 V                       | 529 V / Safe Fail            | 350 V                                          | 1000 V                          | 20 kA                                              | 200 kA                              | 140 g (0.309 lb)   |
| SPD2-480-1P0-R  | 400 V                                   | 480 V                                             | 20 kA                                              | 50 kA                                                  | 2300 V                             | 25 kA / 50 kA                                  | 581 V                       | 762 V / Safe Fail            | 480 V                                          | 1500 V                          | 20 kA                                              | 200 kA                              | 145 g (0.320 lb)   |
| SPD2-550-1P0-R* | 480 V                                   | 550 V                                             | 20 kA                                              | 50 kA                                                  | 2500 V                             | 25 kA / 50 kA                                  | 697 V                       | 915 V / Safe Fail            | 550 V                                          | 2000 V                          | 20 kA                                              | 200 kA                              | 148 g (0.326 lb)   |
| SPD2-750-1P0-R  | 600 V                                   | 750 V                                             | 20 kA                                              | 35 kA                                                  | 3400 V                             | 25 kA / 50 kA                                  | 871 V                       | 1143 V / Safe Fail           | 750 V                                          | 2500 V                          | 20 kA                                              | 200 kA                              | 161 g (0.355 lb)   |

## SPD2 1P+0 SERIES

## Module & Base Part Numbering System



## Module Only Part Numbering System



## Replacement Module Ordering Information

| Ordering Number | IEC Electrical                                                   |                                                           |                                                       |                                                         |                                            |                                                      |                                     |                                      | UL Electrical                                  |                                 |                                                       |                                     | Single Unit Weight |
|-----------------|------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------|--------------------------------------------|------------------------------------------------------|-------------------------------------|--------------------------------------|------------------------------------------------|---------------------------------|-------------------------------------------------------|-------------------------------------|--------------------|
|                 | Nominal AC Voltage (50/60 Hz) (U <sub>d</sub> / U <sub>n</sub> ) | Maximum Continuous Operating AC Voltage (U <sub>c</sub> ) | Nominal Discharge Current (8/20 μs) (I <sub>n</sub> ) | Maximum Discharge Current (8/20 μs) (I <sub>max</sub> ) | Voltage Protection Level (U <sub>p</sub> ) | Short-Circuit AC Current Rating (I <sub>SCCR</sub> ) | TOV Withstand 5 s (U <sub>1</sub> ) | TOV 120 min (U <sub>1</sub> ) / Mode | Maximum Continuous AC Operating Voltage (MCOV) | Voltage Protection Rating (VPR) | Nominal Discharge Current (8/20 μs) (I <sub>n</sub> ) | Short-Circuit Current Rating (SCCR) |                    |
| SPD2-075-M      | 60 V                                                             | 75 V                                                      | 20 kA                                                 | 50 kA                                                   | 800 V                                      | 25 kA / 50 kA                                        | 114 V                               | 114 V / Withstand                    | 75 V                                           | 330 V                           | 20 kA                                                 | 100 kA                              | 50 g (0.111 lb)    |
| SPD2-150-M      | 120 V                                                            | 150 V                                                     | 20 kA                                                 | 50 kA                                                   | 1250 V                                     | 25 kA / 50 kA                                        | 229 V                               | 229 V / Withstand                    | 150 V                                          | 600 V                           | 20 kA                                                 | 200 kA                              | 54 g (0.120 lb)    |
| SPD2-300-M      | 240 V                                                            | 300 V                                                     | 20 kA                                                 | 50 kA                                                   | 1500 V                                     | 25 kA / 50 kA                                        | 337 V                               | 442 V / Safe Fail                    | 300 V                                          | 900 V                           | 20 kA                                                 | 150 kA                              | 61 g (0.135 lb)    |
| SPD2-350-M      | 277 V                                                            | 350 V                                                     | 20 kA                                                 | 50 kA                                                   | 1750 V                                     | 25 kA / 50 kA                                        | 403 V                               | 529 V / Safe Fail                    | 350 V                                          | 1000 V                          | 20 kA                                                 | 200 kA                              | 66 g (0.146 lb)    |
| SPD2-480-M      | 400 V                                                            | 480 V                                                     | 20 kA                                                 | 50 kA                                                   | 2300 V                                     | 25 kA / 50 kA                                        | 581 V                               | 762 V / Safe Fail                    | 480 V                                          | 1500 V                          | 20 kA                                                 | 200 kA                              | 71 g (0.157 lb)    |
| SPD2-550-M*     | 480 V                                                            | 550 V                                                     | 20 kA                                                 | 50 kA                                                   | 2500 V                                     | 25 kA / 50 kA                                        | 697 V                               | 915 V / Safe Fail                    | 550 V                                          | 2000 V                          | 20 kA                                                 | 200 kA                              | 74 g (0.163 lb)    |
| SPD2-750-M      | 600 V                                                            | 750 V                                                     | 20 kA                                                 | 35 kA                                                   | 3400 V                                     | 25 kA / 50 kA                                        | 871 V                               | 1143 V / Safe Fail                   | 750 V                                          | 2500 V                          | 20 kA                                                 | 200 kA                              | 87 g (0.192 lb)    |

## Specifications

|                                                                  |                                                                                        |
|------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Network Systems</b>                                           | IT, TN-S, TN-C, TT (only L-N)                                                          |
| <b>Mode of Protection</b>                                        | L-PE, N-PE (only TN-S), L-PEN, L-N                                                     |
| <b>Nominal Discharge Current</b><br>(8/20 $\mu$ s) ( $I_n$ )     | 20 kA                                                                                  |
| <b>Maximum Discharge Current</b><br>(8/20 $\mu$ s) ( $I_{max}$ ) | Up to 50 kA                                                                            |
| <b>Protective Elements</b>                                       | High Energy MOV                                                                        |
| <b>Response Time</b><br>(L-N / N-PE $t_A$ )                      | < 25 ns                                                                                |
| <b>Back-Up Fuse (max)</b>                                        | 315 A / 250 A Gg                                                                       |
| <b>Number of Ports</b>                                           | 1                                                                                      |
| <b>Mechanical &amp; Environmental</b>                            |                                                                                        |
| <b>Operating Temperature Range (<math>T_a</math>)</b>            | -40 °C to +80 °C (-40 °F to +185 °F)                                                   |
| <b>Permissible Operating Humidity (RH)</b>                       | 5% to 95%                                                                              |
| <b>Altitude (max)</b>                                            | 4,000 m (13,123 ft)                                                                    |
| <b>Terminal Screw Torque) (<math>M_{max}</math>)</b>             | 4.5 Nm (39.9 lbf-in)                                                                   |
| <b>Conductor Cross Section (max)</b>                             | 35 mm <sup>2</sup> (2 AWG) (Solid, Stranded)/<br>25 mm <sup>2</sup> (4 AWG) (Flexible) |
| <b>Mounting</b>                                                  | 35 mm DIN Rail, EN60715                                                                |
| <b>Degree of Protection</b>                                      | IP20 (built-in)                                                                        |

|                                                     |                                                                                  |
|-----------------------------------------------------|----------------------------------------------------------------------------------|
| <b>Housing Material</b>                             | Thermoplastic: Extinguishing Degree<br>UL 94 V-0                                 |
| <b>Thermal Protection</b>                           | Yes                                                                              |
| <b>Operating State/Fault Indication</b>             | Green Flag/No Green Flag                                                         |
| <b>Remote Contact Switching Capacity</b>            | AC: 250 V/1 A, 125 V/1 A;<br>DC: 48 V/0.5 A, 24 V/0.5 A, 12 V/0.5 A              |
| <b>Remote Contact Conductor Cross Section (max)</b> | 1.5 mm <sup>2</sup> (16 AWG) (Solid)                                             |
| <b>Standards Passed*</b>                            | IEC 61643-11:2011<br>EN 61643-11:2012<br>UL 1449, 4th edition; E302116           |
| <b>Product Dimensions</b>                           |                                                                                  |
| <b>1TE Module and Base</b>                          | <b>H</b> 90.0 mm (3.54"); <b>W</b> 18.0 mm (0.71")<br><b>D</b> 70.0 mm (2.76")   |
| <b>1TE Replacement Module</b>                       | <b>H</b> 45.0 mm (1.77"); <b>W</b> 18.0 mm (0.71")<br><b>D</b> 57.2mm (2.25")    |
| <b>Package Dimensions</b>                           |                                                                                  |
| <b>1TE Module and Base</b>                          | <b>H</b> 102.0 mm (4.01"); <b>W</b> 28.0 mm (1.10")<br><b>D</b> 110.0 mm (4.33") |
| <b>1TE Replacement Module</b>                       | <b>H</b> 102.0 mm (4.01"); <b>W</b> 28.0 mm (1.10")<br><b>D</b> 110.0 mm (4.33") |

\*SPD2-550-1P0-R and SPD2-550-M are UL Listed only

**Warranty** – Visit [www.littelfuse.com/warranty](http://www.littelfuse.com/warranty) for details.

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