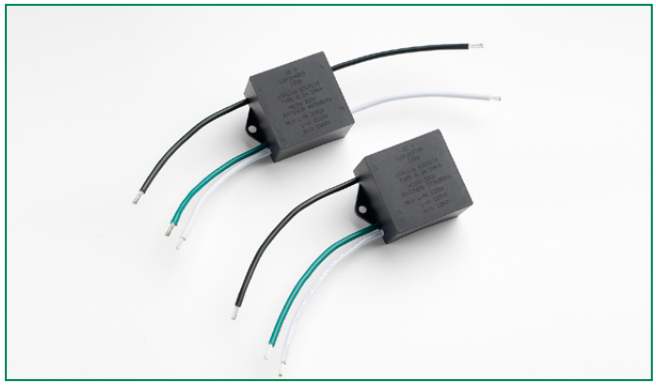
# LSP10 Module Series



## Description

The Littelfuse LSP10 thermally protected Surge Protective Device is a self-protected device which is specially designed to be used in outdoor and commercial LED lighting fixtures for transient overvoltage protection. It is constructed with Littelfuse thermally protected varistor technology. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure and fire hazard even under the extreme circumstances of varistor end-of-life or sustaining over voltage conditions. LSP10 series connected option allows clear indication of thermal fault protection by disconnecting power to luminaire thereby signally SPD module replacement. The LSP10 SPD facilitates customer's product compliance to IEEE C62.41.2 Location Category C High and US Dept of Energy MSSLC Model Spec.

## Agency Approvals

| Agency | Standard | Agency File Number |
|---|---|---|
| cULus | UL1449 3rd Edition | E320116 |

## Features

- Maximum Discharge Current, 20kA, 8/20us
- Meets ANSI C136.2/ IEEE C62.41.2 Location Category C High Exposure
- Parallel connected and Series connected SPD options
- Thermally protected Varistor technology
- IP66 Water-proof and Dust-proof
- Series connected – Varistor thermal protection indication by removal of power to luminaire
- Indication wire lead options for Parallel connected modules
- CE Compliance IEC61643-11 Class II/ EN61643-11 Type 2
- Compact form factor (48x48x30mm) with mounting tabs
- 240Vac and 277Vac voltage ratings are CE compliant and available for Class I and Class II installation based on IEC protection classes

## Applications

- Outdoor and Commercial LED Lighting
- Roadway lighting
- Traffic lighting
- Digital signage
- Wash wall lighting
- Parking garage/lot lighting
- Flood lighting
- Tunnel lighting
- Street lighting

## Additional Information

**Datasheet** | **Resources** | **Samples**

Notes:
1. These parts are in compliance with IEC61643-11 Class II (Low Voltage System) and EN61643-11 Type 2 (Low Voltage System).
2. Tested for temporary overvoltage from low-voltage system faults per IEC 61643-11

## Absolute Maximum Ratings

• For ratings of individual members of a series, see Device Ratings and Specifications chart

| | LSP10 Series | Units |
|---|---|---|
| Continous: | | |
| Steady State Applied Voltage: | | |
| AC Voltage Range ($V_{M(AC)RMS}$) | 150 to 510 | V |
| Transient: | | |
| Maximum Discharge Current 8/20µs Waveform (Imax) | 20,000 | A |
| Nominal Discharge Current 8/20µs Waveform ($I_n$) | 10,000 | A |
| Operating Ambient Temperature Range ($T_A$) | -45 to +85 | °C |
| Storage Temperature Range ($T_{STG}$) | -45 to +110 | °C |
| Isolation Voltage Capability (When the thermal disconnect opens) | 600 | V |
| Insulation Resistance | >1,000 | MΩ |

*CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.*

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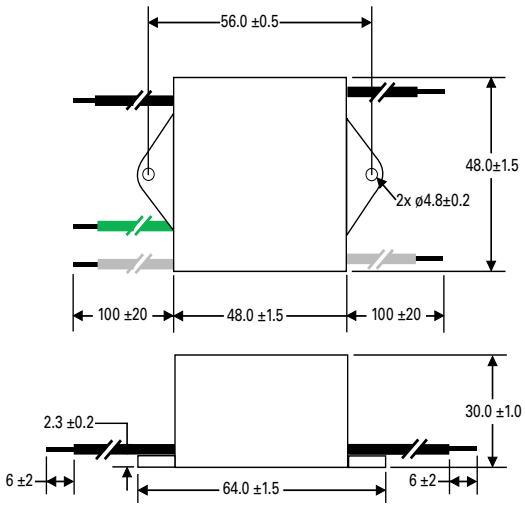
## LSP10 Series Device Ratings & Specifications

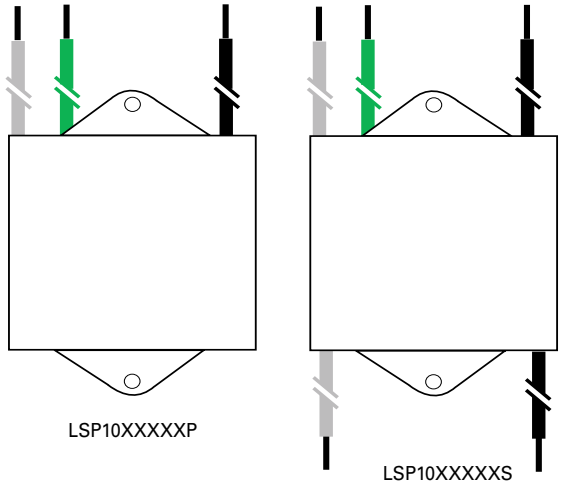
| Part Number | Operating Voltage (VAC) | MCOV/Uc (VAC) | Maximum Discharge Current (Imax)(A)[3] | Nominal Discharge Current (In)(A)[2] | MLV (V)[4] | Up (V)[5] |
|---|---|---|---|---|---|---|
| LSP10120P | 120 | 150 | 20,000 | 10,000 | L-N:740<br>L-G:740<br>N-G:670 | 900 |
| LSP10240P | 240 | 275 | 20,000 | 10,000 | L-N:1130<br>L-G:1130<br>N-G:1060 | 1200 |
| LSP10277P | 277 | 320 | 20,000 | 10,000 | L-N:1330<br>L-G:1330<br>N-G:1260 | 1400 |
| LSP10347P | 347 | 420 | 20,000 | 10,000 | L-N:1750<br>L-G:1750<br>N-G:1680 | 1900 |
| LSP10480P | 480 | 510 | 20,000 | 10,000 | L-N:2020<br>L-G:2020<br>N-G:1960 | 2100 |
| LSP10240LLP | L-L:240 | L-L:275 | 20,000 | 10,000 | L-L:1130 | L-L:1200 |
| | L-N/G:120 | L-N/G:150 | | | L-N/G:740 | L-N/G:900 |
| LSP10480LLP | L-L:480 | L-L:510 | 20,000 | 10,000 | L-L:2020 | L-L:2100 |
| | L-N/G:277 | L-N/G:320 | | | L-N/G:1330 | L-N/G:1400 |

Notes:
1. 5A max. continuous current for series connection.
2. Nominal Discharge Current (In)(A): The nominal discharge current is a measure of the SPDs endurance capability; 15 impulses of discharge current uses the 8/20us current waveform.
3. Maximum Discharge Current (Imax)(A): The maximum discharge current is a measure of the SPDs maximum capability; single impulse of discharge current uses the 8/20us current waveform. All Devices pass maximum discharge current with possible, safe opening of thermal disconnect.
4. MLV – UL1449 Measured limiting voltage; the highest value of residual voltage measurements during the application of impulses of 8/20us nominal discharge current (In); an average voltage value of 15 impulses.
5. Up – IEC 61643-11 Voltage protection level; the highest value of residual voltage measurements during the application of impulses of 8/20us nominal discharge current (In); a rounding voltage value of maximum measurement.

## Dimensions

Typical Dimensions (mm)

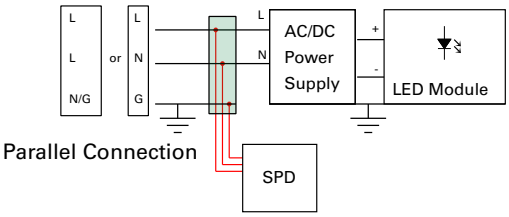


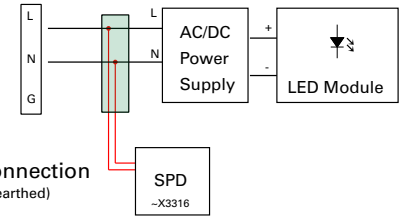

Notes:
1. Black: Line; White: Neutral; Green: Ground.
   (P/N with suffix X3333/X3316: Brown: Line; Blue: Neutral; Green-Yellow stripe: Ground)
2. Wire Gauge: AWG14 wire Line in/out; Wire Length: 100mm or customized.

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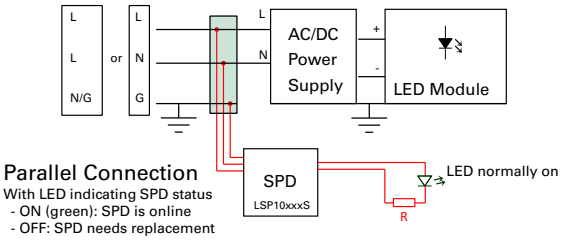
## Application/Installation Schematic




Parallel Connection

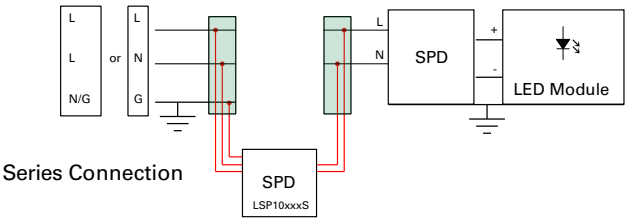



Parallel Connection
(for Class II Unearthed)

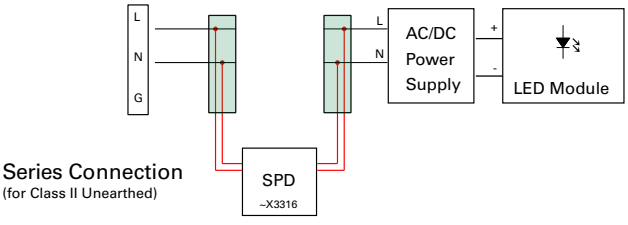



Parallel Connection
With LED indicating SPD status
- ON (green): SPD is online
- OFF: SPD needs replacement

Notes:
1. Series module used in parallel connection for indication circuit connection.
2. LED indicator and associated circuitry are not included in the module.




Series Connection




Series Connection
(for Class II Unearthed)

## Part Numbering System

**LSP 10 480LL P Xxxxx**

**Device Family**
Littelfuse Surge Protection Module

**Nominal Discharge Current (In)**

**Operating Voltage**

**Connection mode**
LL: for L,L,N/G
Blank: L-N, L-G, N-G

**P or S**
(P: parallel connection; S: series connection)

**Other options:**
X3333: with GND wire connection, available for 240Vac and 277Vac rating with CE Marking for Class I earthed installation.

X3316: without GND wire connection, available for 240Vac and 277Vac rating with CE Marking for Class II unearthed installation.

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