Maximum Surge Protection for Outdoor LED Lighting

The Littelfuse Surge Protection Modules are self-protected devices that can be used in outdoor and commercial LED lighting fixtures for transient overvoltage protection. They are constructed with Littelfuse thermally protected varistor technology.

The built-in thermal disconnect provides additional protection against catastrophic failure/fire hazard under varistor end-of-life or sustained overvoltage conditions. The LSP product series facilitates surge immunity compliance to IEEE C62.41.2 Location Category C High Exposure, ANSI C136.2, and US Dept of Energy MSSLC Model Spec.

Applications
- Digital Signage
- Flood Lighting
- Parking Garage Lighting
- Roadway Lighting
- Street Lighting
- Traffic Lighting
- Tunnel Lighting
- Wall Wash Lighting

Global Award Winner:
2014 High-Performance Component Award (EDN/EE Times/ESM - China)
2015 ACE Award: Ultimate Product - LED Lighting (EDN & EE Times)
Surge Protection Module - Self-protected device designed for transient overvoltage protection of outdoor/commercial LED lighting fixtures

Features

- Maximum lightning surge current 20kA
- Thermally protected varistor technology
- Parallel-connected and series-connected options
- Complies with UL1449/IEC61643-11
- Ingress protection IP66
- Wide operation voltage 120Vac–480Vac

Benefits

- Optimized surge immunity solution to protect the outdoor LED fixture investment to get the long term reduction in maintenance costs and energy savings. Without surge protection, the value proposition of LED lighting is at risk.
- Thermal fail-safe protection to prevent a hazard to the light or facility due to ‘end-of-life’ or extreme failure conditions of internal components.
- Series Version – Clear indication for SPD module replacement by turning luminaire off when the thermal fail-safe protection is activated.
- Parallel Version – External wire option for LED indication or adaptive lighting circuit
- Confidence in the quality and integrity of specifications will be met since it is subjected to regular, independent 3rd party analysis
- Surge protector is less susceptible to damage from water or environment
- Flexibility to select optimal protection for each lighting installation input voltage

Series Version

1. Fuse and inline fuse holder at pole base – overcurrent protection for wiring in the pole to the luminaire (may or may not be installed)
2. Thermal protection inside surge protection module (SPD)
3. Fuse inside power supply – overcurrent protection for power supply circuitry

Parallel Version

1. Thermal protection prevents MOV fire hazard caused by unstable line voltage and end-of-life failure.
2. LED indicator shows when to replace the SPD
3. Series-connected SPD cuts luminaire power off to provide a clearly visible indication that SPD replacement is required.

LED Street Light Protection Scheme

Surge Protection Module Portfolio

<table>
<thead>
<tr>
<th>Model</th>
<th>LSP10</th>
<th>LSP05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection Type</td>
<td>Parallel/Series</td>
<td>Parallel</td>
</tr>
<tr>
<td>Indication for SPD Replacement</td>
<td>External LED indicator/ Luminaire turned off</td>
<td>External LED indicator</td>
</tr>
<tr>
<td>Thermal Protection</td>
<td>MOV thermal disconnection when overheated</td>
<td>MOV thermal disconnection when overheated</td>
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<tr>
<td>Recognition/Compliance</td>
<td>MSSLC Roadway Elevated ANSI C136.2 Extreme UL1449 Type 4 CA EN/IEC 61643-11 Class II</td>
<td>MSSLC Roadway Enhanced ANSI C136.2 Enhanced UL1449 Type 4 CA EN/IEC 6143-11 Class II</td>
</tr>
<tr>
<td>Un (nominal operating voltage)</td>
<td>120/240/277/347/480 VAC</td>
<td>120/240/277/347/480 VAC</td>
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<tr>
<td>Imax (max. surge current, 1-hit)</td>
<td>20kA</td>
<td>10kA</td>
</tr>
<tr>
<td>In (nominal surge current, 15-hit)</td>
<td>10kA (20kV OCV)</td>
<td>5kA (10kV OCV)</td>
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<tr>
<td>Luminaire Insulation Class</td>
<td>Class I earthed/ Class II unearthed</td>
<td>Class I earthed/ Class II unearthed</td>
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<tr>
<td>Water-proof and Dust-proof</td>
<td>IP66</td>
<td>IP66</td>
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<tr>
<td>Dimensions</td>
<td>48 x 48 x 30 mm</td>
<td>48 x 48 x 30 mm</td>
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<tr>
<td>Applicable Markets</td>
<td>America/Africa/India/SEA</td>
<td>Europe/Asia/Australia</td>
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Note: 1. Self-declared compliance.