Surge Protection Module
LSP05 and LSP10 Series
New Product Introduction
March 2014
Transient Surge Threats to Outdoor Devices

- Lightning strikes are traveling electrostatic discharges, usually coming from clouds to the ground with a magnitude of millions of volts.
- Surges up to thousands of volts are applied to copper wires carrying induced current from lightning strikes occurring up to a few miles away.
- These *indirect strikes usually occur in exposed outdoor wires*, transmitting surges to devices like streetlights or traffic lights.
- The **Surge Protection Module**, at the upstream of the circuitry, is directly facing surge interference coming from the power line. It diverts or absorbs surge energy, *minimizing surge threats to downstream devices* like the AC/DC power supply unit in an LED lighting fixture.
Street Light Protection Scheme

1. Circuit breaker at pole base – overcurrent protection for wiring in the pole to the luminaire (CB 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
Product Overview

- Protection Module Maximum Lightning Surge Current
  - LSP10 Series - 20,000 Amps
  - LSP05 Series - 10,000 Amps
- Meets ANSI C136.2/IEEE C62.41.2 Location Category C High Exposure
- Thermally protected Varistor technology
- Parallel connected and Series connected SPD options
- IP66 water-proof and dust-proof
- Indication wire lead options for parallel connected modules
- Recognized to UL1449 Type 4 Component Assembly
- Compliance to IEC61643-11 Class II / EN61643-11 Type 2
- Compact form factor (48x48x30mm) with mounting tabs
LSP05 & LSP10 Features and Benefits

Protection Module Maximum Lightning Surge Current
LSP10 Series: 20,000 Amps, LSP05 Series: 10,000 Amps
Meets ANSI C136.2/IEEE C62.41.2 Location Category C High and Low Exposure

- Optimized surge immunity solution to protect the outdoor LED fixture investment

Thermally protected varistor technology
- Internal varistors thermally protected to prevent failure due to end of life or continuous overvoltage faults

Parallel connected and series connected SPD options
- Series – Clear indication for SPD module replacement by turning luminaire off when the thermal fail-safe protection is activated
- Parallel – External wire option for LED indication or adaptive lighting circuit

Recognized to UL1449/IEC61643-11
- Enabling lighting fixture worldwide marketing
LED SPD Module Value Proposition

Before and after the conversion to LED street lighting. Credit: Los Angeles Bureau of Street Lighting

- Up to 20kA lightning surge protection
- MOV thermal protection for end of life
- SPD replacement indication
- LED fixture investment protected
LSP10 Series Connection

The world’s first series connected, 20kA capable indicating surge arrester

Transient voltage from lightning or load switching in the neighborhood

Thermal protection prevents MOV fire hazard caused by unstable line voltage and end-of-life failure

If SPD that has activated its thermal protection is not replaced, subsequent surge events can damage luminaire. Series connected SPD cuts luminaire power off to provide a clearly visible indication that SPD replacement is required.
LSP05 & LSP10
Parallel Connection

Transient voltage from lightning or load switching in the neighborhood

Parallel connection, the most common method of SPD installation to protect PSU from transient strikes

Thermal protection prevents MOV fire hazard caused by unstable line voltage and end-of-life failure

LED indicator shows when to replace the SPD
LSP05 & LSP10 Series
Surge Protection Module Key Applications

- Roadway Lighting
- Parking Garage Lighting
- Wash wall Lighting
- Traffic Lighting
- Flood Lighting
- Digital Signage
- Tunnel Lighting
- Street Lighting
Product Availability & Contacts

- Samples and pricing are available by contacting your Littelfuse sales representative
- Standard lead time: 10 weeks
- Please contact your local Littelfuse sales representative for fast support.
- Additional Contacts:
  - Product Manager – Johnny Chang (Jchang@littelfuse.com); Contact for sample availability & initial pricing
  - Product Engineer: Kite Hou (Khou2@littelfuse.com); Contact for general technical issues, qualification data
- Commercial and Industrial LED Lighting Sample Kit
  - Angela Chou (achou@littelfuse.com)