

Ideally it is a best practice to have electrical protection in both areas (electrical panel, pole base) as a best practice for longevity of LED street lighting as well as to avoid frequent maintenance and replacements. Mersen offers a wide range of products for outdoor LED lighting protection.

Family	Description
FEB	Single Pole Midget
FEC	Single Pole Class CC
FEG	Single Pole Class G
FEX	Dual Pole Midget
FEY	Dual Pole Class CC
FEBN	Single Pole Neutral
STMT	UL Type 4 DIN-Rail SPD
STP	UL Type 1 DIN-Rail SPD

Inline fuse holders-available in both breakaway and non-breakaway versions

Mersen's complete line of single and dual pole in-line fuse holders accommodate either 1-1/2" x 13/32" (10 x 38 mm) midget, Class CC, or Class G fuses. Designed for quick installation with watertight and breakaway feature

FEB and FEX holders use with:



Midget (1-1/2" x 13/32", 10 x 38 mm): ATQ, ATM, TRM, OTM, GGU, GFN, A13X-2, A25Z-2, A60Q-2, A6Y-2B

FEC and FEY holders use with:
Class CC: ATDR, ATMR, ATQR

FEG holders use with:
Class G: AG35-60A

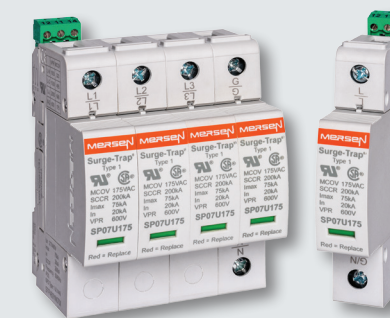


STP:
Surge-Trap® Pluggable Surge Protective Device (SPD) is a no-fuse, fail-safe surge suppressor featuring Mersen's patented TPMOV® technology inside. UL 1449 4th Edition approved, it is DIN-rail mountable featuring a fail-safe self-protected design, visual indicator, and a small footprint.



OUTDOOR STREET LIGHTING

BEST PRACTICES FOR LED LIGHTING PROTECTION



ELECTRICAL PROTECTION COMPONENTS FOR OUTDOOR STREET LIGHTING

INTRODUCTION

With the introduction of LED lights, outdoor street lighting has taken a step forward towards energy efficiency, longevity, and ease of control. Innovative smart lighting technologies are helping cater various aspects of outdoor application requirements such as manage, maintain and monitor to ensure smooth traffic flow, people safety and cost savings for the city. Flexibility of being able to incorporate/integrate smart technologies has made LED lighting the most viable lighting solution for Outdoor Street lighting. Today more and more states are exploring and adapting to LED lighting.

WHY ELECTRICAL PROTECTION

The advantages of LED lighting can be rendered ineffective if they fail prematurely and have to be often replaced. LED luminaire are built with sensitive electronic components. Designed for low operating voltages these luminaires are prone to lightning surges, transient over voltage, over currents and sudden interruptions of power supply.

Lightning:

Lightning surges caused by direct lightning strike to LED luminaire or indirect lightning. This is the most recognizable form, although infrequent, is the most catastrophic.

Overvoltages (Surges):

A transient wave of current, potential, or power in an electric circuit. Brief (microseconds) disturbances (up to tens of thousands of volts) on a power waveform that can damage, degrade or destroy electronic equipment.

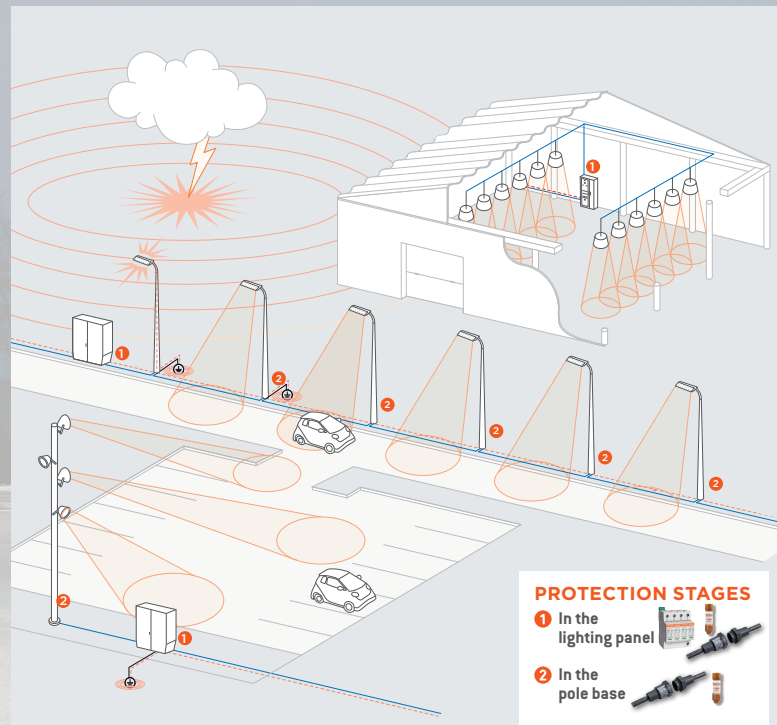
Transient switching:

Caused by switching (on and off) of electrical loads. This includes all of the luminaires being switched on at once, outages, or sudden interruption of power supply.

APPLICATION

The typical configuration of an outdoor lighting installation consists of a general distribution panel and a set of luminaires. Two areas of electrical protection can be identified as follows:

1. Electrical distribution panel
2. Base of the lighting pole



BEST PRACTICES FOR LED LIGHTING PROTECTION

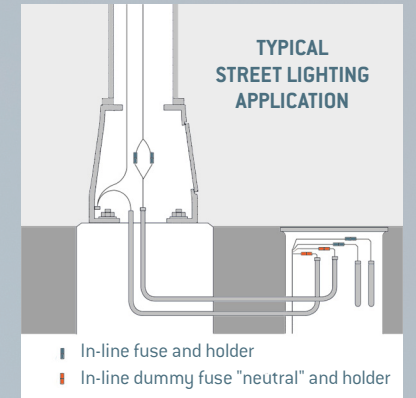
Electrical distribution panel or lighting panel:

The power is distributed to individual poles via the main distribution cabinet, while providing electrical protection via fuses and or circuit breakers for each circuit in a common enclosure. Overvoltages and transient can be absorbed at the distribution panel before reaching individual lights. Although protection in the lighting panel is absolutely necessary, it by itself is insufficient because overvoltages can also be induced in long cable runs, which means that the final protection should always be as close as possible to the equipment being protected.



At the pole base:

The connection of power supply to the LED luminaire head is made in pole base or a junction box located next to the pole.



A typical street lighting application with protection at base of the pole involves Midget fuses, CC fuses, and inline fuse holders as shown in the above picture. Using in-line fuse holder that can adequately withstand the lighting environment can make it easier to apply superior circuit protection. Electrical protection at the pole base also allows for easy access for maintenance and replacements

Breakaway capability and submergibility are quickly becoming preferred features. Many states already mandate breakaway fuse holders in roadway lighting applications

to ensure safe disconnection in the event of a knockdown or if maintenance is required. Submergibility and waterproof requirements have also been enforced as street lighting is prone to wet conditions.

