



Thomas Research Products

SSL Solutions Faster Than The Speed Of Light™

SURGE PROTECTORS



APPLICATION GUIDE, BSP3 SERIES FOR LUMINAIRES



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BSP3 SERIES

LED DRIVER & BALLAST SURGE PROTECTOR DEVICES

BSP3 series products are designed for use in conjunction with LED Drivers to provide an additional level of protection from dangerous fast powerline transients in industrial and commercial applications. These devices protect Drivers from surges up to 10,000 amps. Also perfect for protecting electronic fluorescent ballasts, electronic HID ballasts or induction lighting ballasts.

BSP3-LC products offer the same protection in a lower-cost compact housing format.

BSP3-20K products offer additional protection, up to 20,000 Amps, for 277V or 480V power.

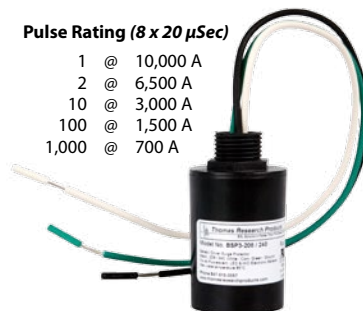
- 3-lead devices protect Line-Ground, Line-Neutral, and Neutral-Ground in accordance with IEEE/ANSI C62.41.2 guidelines
- Protects against surges according to IEEE C62.41.2 C High (10kA and 10kV)
- Each model is universal, handling any voltage up to the rating indicated in the model number
- Surge Location Rated Category C3
- High-temperature, flameproof plastic enclosure, 85°C max surface rating
- Thermally Protected Transient Over-voltage Circuit (BSP3, BSP3-LC)
- UL Recognized Component for the United States and Canada: UL935, UL1029
- Some models Recognized to stringent UL1449 standard (*see below*)
- RoHS Compliant
- IP65

BSP3

Model	Clamping Voltage	Surge Rating (2mS)	UL1449 Recognized
BSP3-120	395	120 Joules	
BSP3-208/240	710	190 Joules	
BSP3-277	840	270 Joules	✓
BSP3-347	1120	320 Joules	✓
BSP3-480	1500	360 Joules	✓

Pulse Rating (8 x 20 µSec)

1 @	10,000 A
2 @	6,500 A
10 @	3,000 A
100 @	1,500 A
1,000 @	700 A

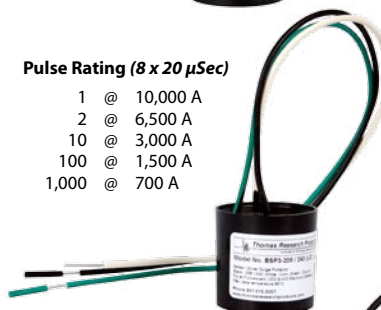


BSP3 (LC)

Model	Clamping Voltage	Surge Rating (2mS)	UL1449 Recognized
BSP3-120 (LC)	395	120 Joules	
BSP3-208/240 (LC)	710	190 Joules	
BSP3-277 (LC)	840	270 Joules	
BSP3-347 (LC)	1120	320 Joules	✓
BSP3-480 (LC)	1500	360 Joules	✓

Pulse Rating (8 x 20 µSec)

1 @	10,000 A
2 @	6,500 A
10 @	3,000 A
100 @	1,500 A
1,000 @	700 A



BSP3-20K

Model	Clamping Voltage	Surge Rating (2mS)	UL1449 Recognized
BSP3-277-20K	825	540 Joules	✓
BSP3-480-20K	1475	765 Joules	✓

Pulse Rating (8 x 20 µSec)

1 @	22,000 A
2 @	15,000 A
10 @	6,500 A
120 @	3,000 A
1,000 @	2,000 A



"TN" option adds threaded nipple



APPLICATION GUIDE

There are two main sources of transient over-voltages in powerlines:

- Electrostatic discharge events, induced by nearby lightning strikes
- System switching

Surges are not direct lightning strikes. A direct hit by lightning is effectively not survivable. But nearby lightning strikes can induce sudden powerline voltage disturbances. Powerline transients can also be caused by municipal or utility switching.

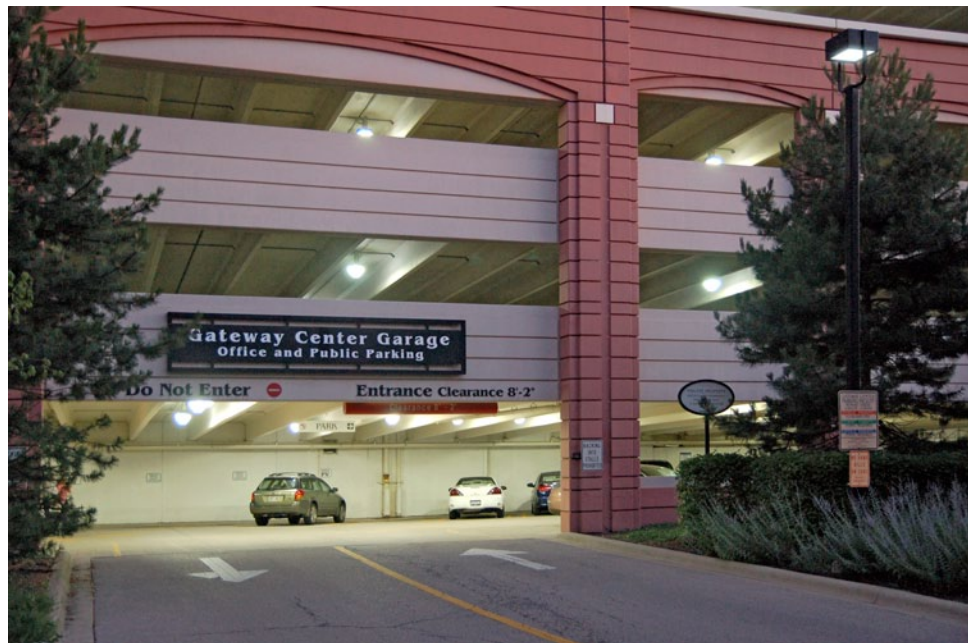
Magnetic ballasts in older HID technology offered inherent ability to absorb transients within the ballast. However, electronic power supplies such as LED Drivers are relatively more fragile, and need robust protection. LEDs themselves are also fragile, making for a natural weak point in the system, and power surges are a common cause of LED Driver failure.

Powerline disturbances are easy to circumvent with BSP3 series surge protectors, which divert transient currents to Ground.

Major Applications:

- Streetlights
- All Outdoor Lighting Applications
- Indoor Industrial Applications, such as heavy industry manufacturing
- Any Luminaires in Critical 24/7 Applications

Pole-mounted outdoor lights are particularly vulnerable to surges. However, any luminaire in outdoor applications should be considered vulnerable: including parking garages, big-box retail, warehouses, transportation and government facilities.



Strike Number:

An important factor, that many do not readily understand, is that Surge Protectors do not work indefinitely. Their life is shortened with every strike. So the strike number (or Pulse Rating) for the device is important.

BSP3 Surge Protectors utilize MOVs (metal oxide varistors) to handle large surges. These are clamping devices that short the transient to Ground, and recover automatically after the surge. However, MOVs age slightly with each surge they handle, reducing effectiveness over time.

So the strike number becomes an important indicator of product capability and life. BSP3 series devices are highly-capable, yet inexpensive.

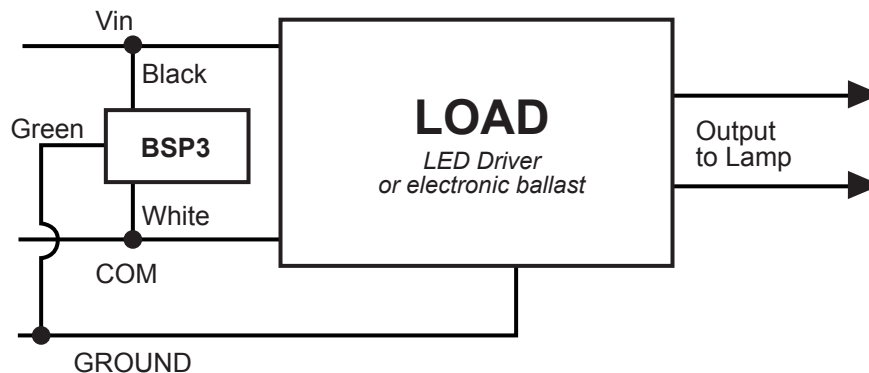


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SURGE PROTECTOR WIRING

BSP3 Series Surge Protectors for Luminaires are easy-to-wire devices. They can be mounted inside the luminaire, or inside the base of the pole.



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11548 SMITH DR.
HUNTLEY, IL 60142

T 847-515-3057

F 847-515-3047

WWW.TRPSSL.COM

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