PHILIPS

Outdoor SPD

Surge 10kV Protector
Class-I serial

Datasheet

Protect your outdoor luminaires against damaging spikes and transients

Outdoor SPD - Surge Protector Class-I

These products to be used in conjunction with LED drivers will help protect your Outdoor luminaires against destructive spikes and transients, including high voltage and high current surges caused by indirect lightning strikes.

Benefits

- Maximize the lifetime of outdoor lighting applications
- Lower maintenance costs
- Compact size and push-in connectors for easy luminaire integration (new or existing)
- Supporting all common power grid varieties

Features

- Suitable for insulation Class I luminaires only
- Load disconnection when SPD reaches end of life (serial type)
- Long lifetime, robust protection against vibration and temperature
- Provides high surge protection of up to 10 kV / 10 kA for all lighting technologies
- LED failure indicator

Applications

- Highways
- Rural roads
- Industrial zones
- Open space parking areas

Insulation Class	Supported grids			
	TN	TNC	TNS	TNCS
Class I	✓	✓	✓	✓

Logistical data

Specification item	Value
Product name	Surge 10kV Protector Class-I serial
European order code	872016938703400
Logistic code 12NC	9290 038 82006
EAN1 (GTIN)	8720169387034
EAN3 (box)	8720169387041
Pieces per box	100

Electrical specifications

Specifications	Parameter	Value	Unit	Condition
Certifications		CE, CQC, UKCA, TÜV Rheinland		
Designation		Type 3		Acc. EN61643-11
Classification		Class III		Acc. IEC61643-11
Protection mode		Diff. mode & Comm. mode		
Rated input voltage	U_n (L-N)	230	VAC	50 ... 60 Hz, max. +10%
Max. continuous operating voltage	U_c (L-N)	305	VAC	50 ... 60 Hz
Max. continuous operating voltage	U_c (L-GND)	305	VAC	50 ... 60 Hz
Max. continuous operating voltage	U_c (N-GND)	305	VAC	50 ... 60 Hz
Temporary overvoltage TOV	U_T	336.6	V	LV system fault: 255 V x 1.32 at tt =5S, TN
Temporary overvoltage TOV	U_T	441.6	V	LV system fault: 255 V x √3 at tt = 120m, TN
Supported power grids		TN		Incl. all TN varieties TN-C, TN-C-S, TN-S. TT, IT grid not supported
Rated discharge current	I_n (L-N)	5	kA	8/20 µs
Rated discharge current	I_n (L-GND)	5	kA	8/20 µs
Rated discharge current	I_n (N-GND)	5	kA	8/20 µs
Max. voltage protection level at I_n	U_p (L-N)	1.5	kV	See separate protection level table for other I_n values
Max. voltage protection level at I_n	U_p (L-GND)	2	kV	See separate protection level table for other I_n values
Max. voltage protection level at I_n	U_p (N-GND)	2	kV	See separate protection level table for other I_n values
Open-circuit voltage	U_{oc}	10	kV	
Backup fuse		16	A	max., gG fuse
End of life indication		yes		Optical, light ON: SPD is functional. Light OFF: SPD has reached end-of-life
Servicability		n/a		No user servicable parts inside
Max. earth leakage current at Uc		50	µA	

Other specifications

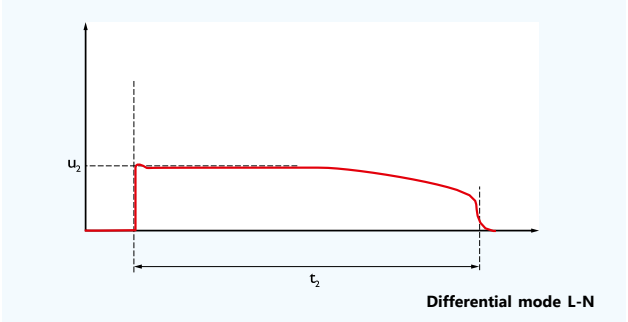
Specifications	Parameter	Value	Unit	Condition
Surge withstand capability		1	strike	Max. 10 kA, 8/20µs
		20	strikes	Max. 5 kA, 8/20µs
		50	strikes	Max. 3 kA, 8/20µs
Rated load current (max)		5	A	Rated load current at 50 ... 60 Hz
Power consumption (max)		1	W	max. at Uc = 305VAC ; Load current=5A
Suitable for luminaires		Insulation Class I only		Insulation Class acc. IEC60598

Protection levels U_p

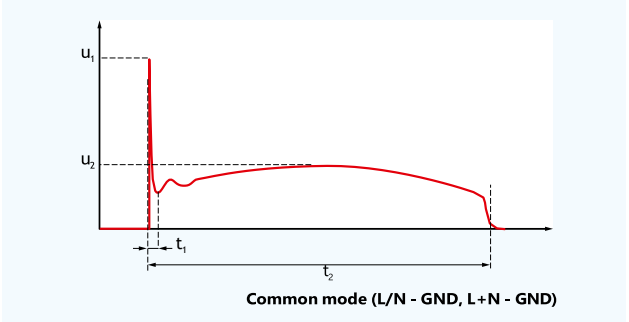
Surge Protector Class-I

I_c 8/20 µs	Differential mode U_2	Common mode U_1/U_2
1 kA	≤1000 V	≤1200 V / 700 V
3 kA	≤1200 V	≤1500 V / 800 V

I_c 8/20 µs	Differential mode U_2	Common mode U_1/U_2
5 kA	≤1500 V	≤2000 V / 1000 V
10 kA	≤2000 V	≤2400 V / 1500 V



Differential mode L-N



Common mode (L/N - GND, L+N - GND)

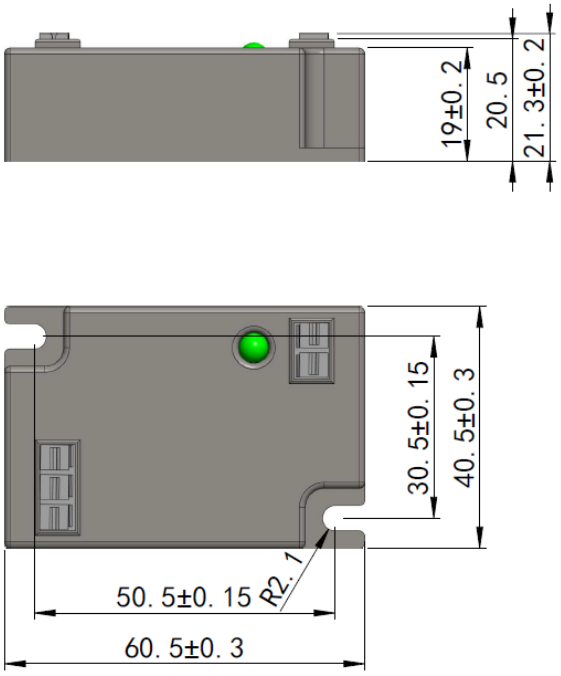
Environmental conditions

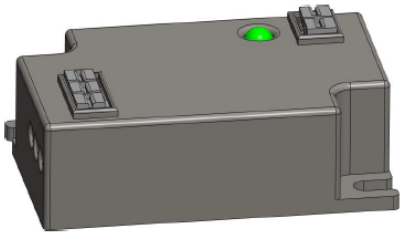
Specification item	Value	Unit	Condition
Ambient temperature	-40...70	°C	
Max. allowable surface temperature	85	°C	
Storage temperature	-40...85	°C	
Relative humidity	5...95	%	Non-condensing
Suitable for outdoor luminaires	Yes		Built-in only

Lifetime

Specification item	Value	Unit	Condition
Lifetime	100,000	hours	Measured @ Tcase-max with min 90% survival

Product dimensions



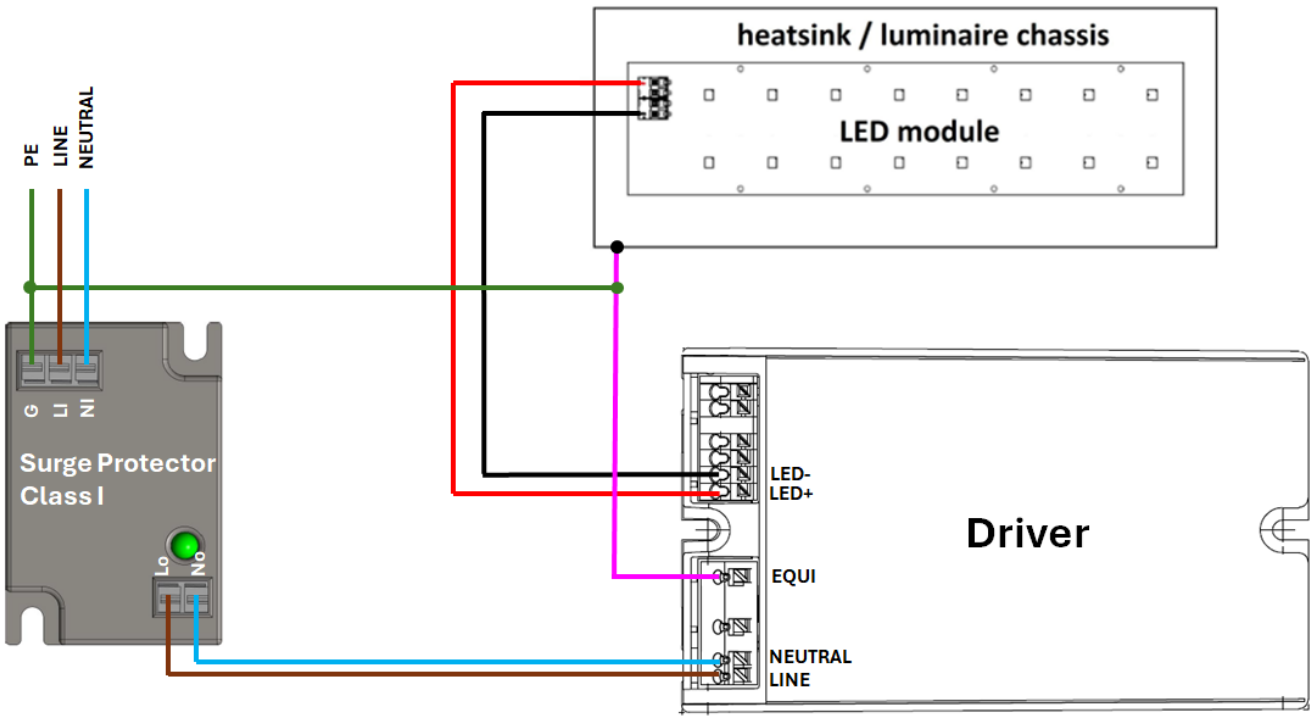


Specification item	Value	Unit
Mounting length	50.5	mm
Overall length	60.5	mm
Case Width	40.5	mm
Case Height	21.3	mm
Mounting screw	M4	
Mounting torque M4 screw	0.45	Nm
Weight	46	gr

Wiring

Specification item	Value	Unit	Condition
Connector type	Push-in, Spring Type Terminal		Single wire only
Wire diameter	0.75…1.5	mm^2	Stranded
	0.75…1.5	mm^2	Solid
Wire strip length	9…11	mm	

Connection diagram and recommended wiring layout



Electrical connections

Signal	Description	Color
LI	Line connection	Grey
NI	Neutral connection	Grey
G	Ground connection	Grey
Lo	Line connection	Grey
No	Neutral connection	Grey

Warning:
Connect the Surge Protector GND connector to Protective Earth only. Do **not** connect the Surge Protector GND connector to ungrounded accessible (luminaire) parts.

System Disposal

We recommend that the Surge Protector is disposed of in an appropriate way at the end of its (economic) lifetime. The Surge Protector is in effect a normal piece of electronic equipment containing components that are currently not considered to be harmful to the environment. We therefore recommend that this part is disposed of as normal electronic waste, in accordance with local regulations.

Date of release: July 26, 2024

www.philips.com/oem