

ZEMPER

THE EMERGENCY LIGHTING SPECIALIST

Lighting in ATEX Zones



ClassNK



SATURNO

Explosion Proof Fittings ATEX



ClassNK







WORLD STANDARDS



IECEx (International Scheme)

The IECEx scheme is an international certificate of conformance for products used in a hazardous area.

This scheme provides:

- A single certification of conformity for manufacturers to comply that includes:
 - Testing and assessment of products to a standard including a full test report.
 - Ongoing surveillance of manufacturers premises.
- A fast-track process for countries where regulations still require the issuing of national Ex certificates or approvals.



The French NF quality certification, awarded by the prestigious STB (scientific and technical centre for construction) and AFNOR (French certification body), certifies the quality and safety of the products in accordance with French and European legislation.

ClassNK

Class NK works to ensure maritime safety and protect the marine environment.

It provides classification and technical services to roughly 20% of the world's commercial fleet.



The ATEX European Directives 94/9/EC

ATEX requires employers to eliminate or control risks from dangerous substances and to classify areas where explosive atmospheres may occur into zones, as laid down in regulations. ATEX Directives are designed to protect employees, the public and the environment from accidents owing to explosive atmospheres and since July 1st 2006 all existing sites, as well as new sites, must be fully ATEX compliant.

The ATEX directive 2014/34/EU applies to end users. These directives compliment each other, but have different purposes. ATEX100A covers both electrical and non-electrical products intended for use in hazardous areas, including mechanical equipment.

Any product sold within the European Union designed for use in explosive atmospheres must be ATEX certified and bear the ATEX marking in conjunction with CE marking. The objective is to facilitate the movement of goods within the EU.



APPLICATION AREAS EQUIPMENT CATEGORIES EQUIPMENT PROTECTION LEVEL

The following chart shows the designated areas of use of equipment and components according to equipment group and equipment category/equipment protection level.

HAZARDOUS AREA

Conditions and subdivisions			Required marking on the usable equipment			
Flammable materials	Temporary behaviour of explosive atmosphere	Classification of hazardous areas	Equipment group as defined in directive 2014/34/EC	Equipment category as defined in directive 2014/34/EC	Equipment group as defined in IEC/EN 60079-0	Equipment protection level (EPL) as defined in IEC/EN 60079-0
Gases Vapours	Is present continuously or for long periods or frequently	Zone 0	II	1G	II	Ga
	Arises in normal operation occasionally	Zone 1	II	2G or 1G	II	Gb or Ga
	Is not likely to arise in normal operation, or if it does, will persist for a short time only	Zone 2	II	3G or 2G or 1G	II	Gc or Gb or Ga
Dusts	Is present in the form of a cloud continuously, or for long periods or frequently	Zone 20	II	1D	III	Da
	Occasionally develops into a cloud during normal operation	Zone 21	II	2D or 1D	III	Db or Da
	Is not likely to develop into a cloud during normal operation, or if it does, for a short time only	Zone 22	II	3D or 2D or 1D	III	Dc or Db or Da
Methane Carbon dust	Operation where there is a risk of explosion	-	II	M1	I	Ma
	Disconnection where there is a risk of explosion	-	I	M2 or M1	I	Mb or Ma



EMERGENCY FITTINGS GENERAL DATA

- Led driver with AutoTest function as per IEC32034
- High temperature NiCd cells
- 20 hours charging to obtain the nominal duration
- Electronic multi-level charge system
- Deep discharge protection
- Switch ON / OFF connection is available for maintained luminaires.
- Status indication bi-colour LED: Green Ok - Red: Fault

Testing

- Commissioning test is carried out automatically after permanent connection of the supply for 5 days.
- Functional test is carried out for 5 seconds on a weekly basis.
- Duration test is carried out yearly to check the capacity of the batteries



SATURNO EXPLOSION PROOF LED FEATURES

Approvals and Certifications

- Zone 1 / Zone 21
- Ex db IIC T6 Gb
- Ex tb IIIC T85°C Db
- IK protection degree IK07
Except: LSPC3045LX and LSPC3400LX = IK10
- IP66
- Class: I

Standards

Approved to:

- EN 60079-0: (General requirements)
- EN 60079-1: (Flameproof enclosure "d")
- EN 60079-31: (Enclosure "t")

EC Type examination: · Directive: 2014/34/EU

Certificated: · Notified Body: INERIS n°0080

Technical information

- Electronic driver: 220 - 240V 50/60 Hz
- Power factor: 0.95
- Set of LED modules with opal cover diffuser:
 - Color temperature 4000 °K - 6500 °K (under request)
 - CRI > 80.

Operation temperature:

Glass diffuser (E1, E2, E3):

- Lighting working temperature: -20 °C to +55 °C
- Emergency working temperature: 0 °C to +55 °C

Polycarbonate diffuser (E1, E2, E3):

- Lighting working temperature: -20 °C to +50 °C
- Emergency working temperature: 0 °C to +50 °C

Enclosure general data

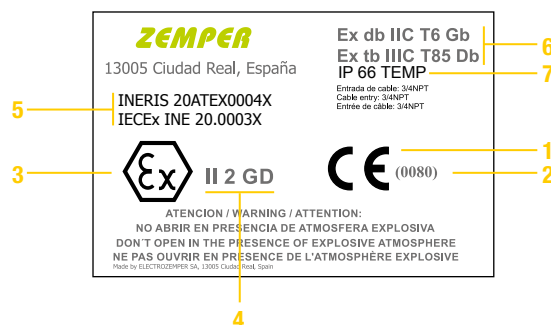
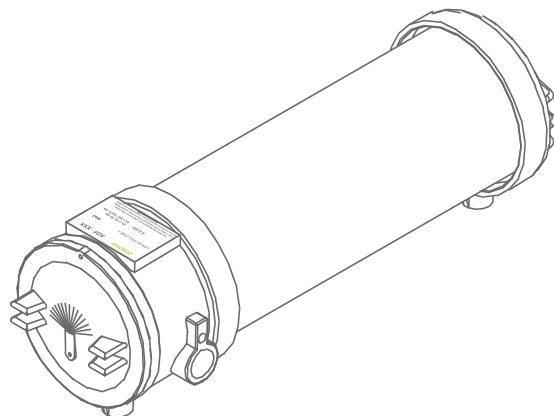
Tubular diffuser:

- Borosilicate glass, E1/E2/E3 (7mm thick)
- Polycarbonate, UV protected. 3mm thick.

Casting & connections:

- Aluminum injection.
- Yellow RAL-1003 / Ultramarine Blue RAL - 5002 polyurethane paint.
- Explosion proof O-ring.
- 2 entries 3/4" NPT for cable glands (not included)
- 1 plug supplied
- Electric connection through 5P+T 2.5 mm² terminal block.
- Suitable for installation on flammable surfaces.

MARKING EXAMPLE IN ACCORDANCE WITH DIRECTIVE 2014/34/EU, EN AND IEC STANDARDS (IEC/EN 60079-0 ET SEQ.)



INFORMATION SPECIFIC TO EXPLOSION PROTECTION (MARKING)

ATEX directive/EN standards

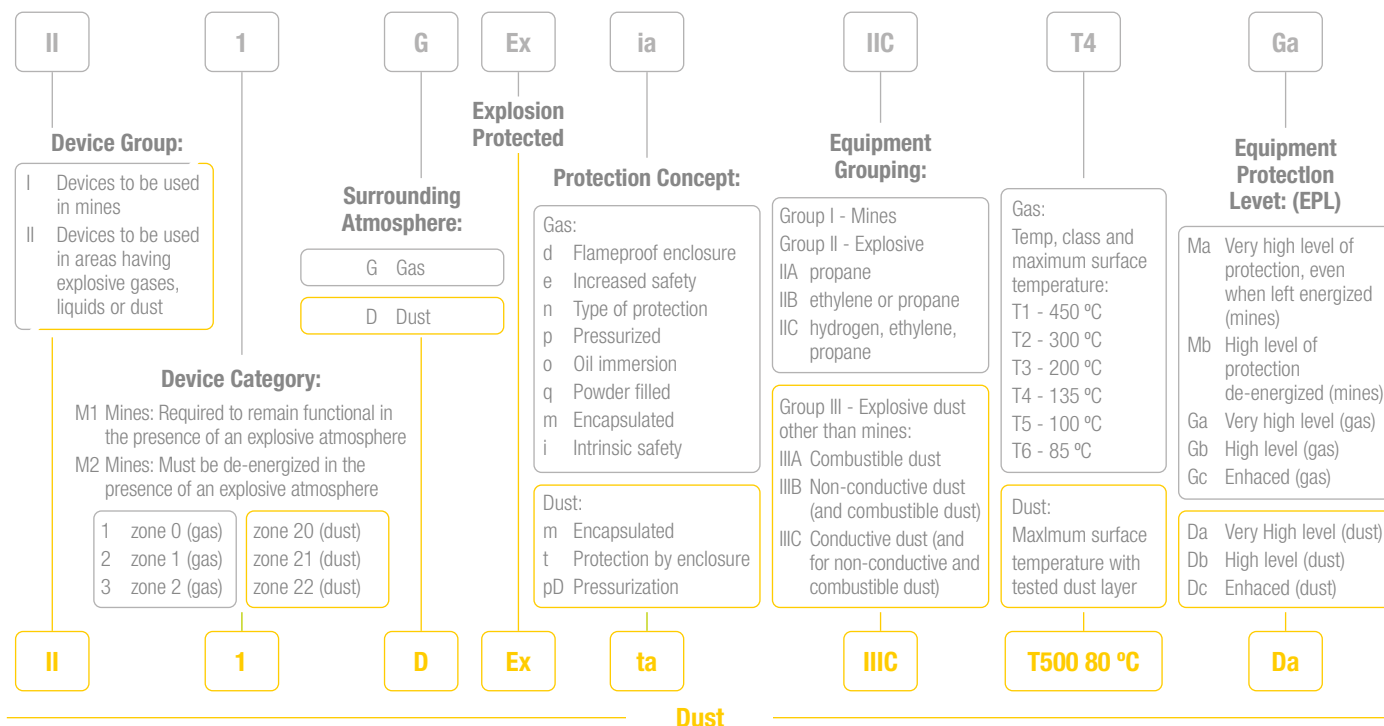
- 1 Conformity mark (CE)
- 2 Identification number of the notified body which -where required- certified the QA system or examined the products (Category 1 and 2)
- 3 Ex mark

- 4 Equipment group II - other areas (non-mining)
Equipment category 2 - gases/vapours G,
suitable for Zones 1 and 2 - dusts D,
suitable for Zones 21 and 22
- 5 EC-type examination certification
- 7 IP Protection degree
TEMP: Temperature Range

IEC standards

6 Certificate of Conformity

Gas
(HMT360)





SATURNO



Ex db IIC T6 Gb
Ex tb IIIC T85°C Db

IP66

IK07 - IK10

SPECIFICATION



Envelope: Aluminum injection



Diffuser: Borosilicate glass / Polycarbonate

IP

IP66

IK

IK07

Except: LSPC3045LX and LSPC3400LX = IK10

Lm

Lighting Luminous range: 1 250 lm - 11 000 lm
Emergency Luminous range: 45 lm - 800 lm



Duration: 1 - 3 h · Battery: Ni-Cd and LFP



Charging time: 24 h



Supply: 220 - 240V 50/60 Hz

LED

LED temperature: 4000 °K



Glass diffuser:

- Lighting working temperature: -20 °C to +55 °C
- Emergency working temperature: 0 °C to +55 °C

Polycarbonate diffuser:

- Lighting working temperature: -20 °C to +50 °C
- Emergency working temperature: 0 °C to +50 °C

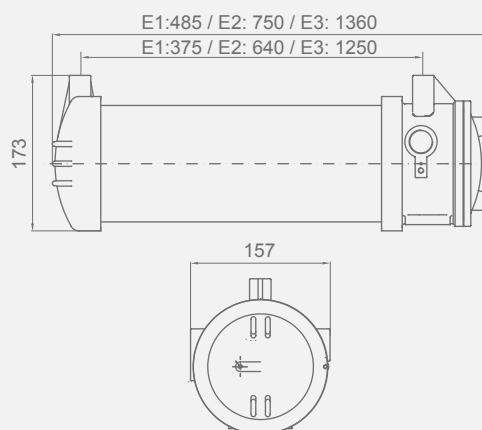


AutoTest



AutoTest & WSS Lithium

DIMENSIONS (mm)



STANDARDS COMPLIANCE

EN-60598-2-22
AutoTest: EN-62034
Dali: EN 62386

CASAMBI

CERTIFICATIONS



RANGE

LIGHTING

Dimensions	Polycarbonate Enclosure	Lighting	Glass Enclosure	Lighting	Communication
E1	LSIPC1100	1 250 lm	LSIVC1100	1 300 lm	
E1	LSIPC1200	2 150 lm	LSIVC1200	2 500 lm	
E2	LSIPC2200	2 500 lm	LSIVC2200	2 650 lm	
E2	LSIPC2200A	2 500 lm	LSIVC2200A	2 650 lm	DALI
E2	LSIPC2200AK	2 500 lm	LSIVC2200AK	2 650 lm	DALI CASAMBI
E2	LSIPC2400	4 750 lm	LSIVC2400	5 000 lm	
E3	LSIPC3400	4 750 lm	LSIVC3400	5 000 lm	
E3	LSIPC3400A	4 750 lm	LSIVC3400A	5 000 lm	DALI
E3	LSIPC3400AK	4 750 lm	LSIVC3400AK	5 000 lm	DALI CASAMBI
E3	LSIPC3110	11 000 lm	LSIVC3110	11 750 lm	
E3	LSIPC3110A	11 000 lm	LSIVC3110A	11 750 lm	DALI

EMERGENCY - Polycarbonate Enclosure

Dimensions	Type*	Enclosure	Emergency	Lighting	Battery	Duration	Communication
E1	NM	LSPC3045LX	45 lm		3.2V / 0.5Ah LFP	1h	
E1	NM	LSPC1400X	350 lm		3.6V / 1.6Ah Ni-Cd	1h	
E1	NM	LSPC3400LX	400 lm		3.2V / 1.8Ah LFP	1h	
E1	M/NM	LSPC1700XP	750 lm	2 100 lm	6V / 1.6Ah Ni-Cd	1h	
E2	NM	LSPC2700X	750 lm		6V / 1.6Ah Ni-Cd	1h	
E2	M/NM	LSPC2700XP	750 lm	4 750 lm	6V / 1.6Ah Ni-Cd	1h	
E2	M/NM	LSPC2700AP	750 lm	4 750 lm	6V / 1.6Ah Ni-Cd	1h	DALI
E3	M/NM	LSPC3700AP	750 lm	4 750 lm	6V / 1.6Ah Ni-Cd	1h	DALI
E3	M/NM	LSPC3700XP	750 lm	4 750 lm	6V / 1.6Ah Ni-Cd	1h	
E1	NM	LSPC1400X3	350 lm		3.6V / 4Ah Ni-Cd	3h	
E1	NM	LSPC1700X3	750 lm		6V / 4Ah Ni-Cd	3h	
E2	NM	LSPC2700X3	750 lm		6V / 4Ah Ni-Cd	3h	
E2	M/NM	LSPC2700XP3	750 lm	4 750 lm	6V / 4Ah Ni-Cd	3h	
E2	M/NM	LSPC2700AP3	750 lm	4 750 lm	6V / 4Ah Ni-Cd	3h	DALI
E3	M/NM	LSPC3700AP3	750 lm	4 750 lm	6V / 4Ah Ni-Cd	3h	DALI
E3	M/NM	LSPC3700XP3	750 lm	4 750 lm	6V / 4Ah Ni-Cd	3h	

EMERGENCY - Glass Enclosure

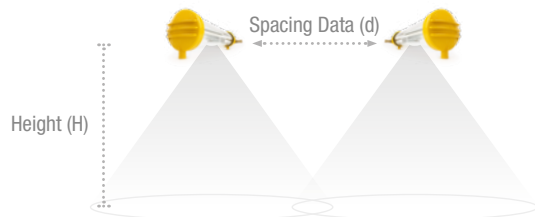
Dimensions	Type*	Enclosure	Emergency	Lighting	Battery	Duration	Communication
E1	NM	LSVC3045LX	45 lm		3.2V / 0.5Ah LFP	1h	
E1	NM	LSVC3400LX	400 lm		3.2V / 1.8Ah LFP	1h	
E1	NM	LSVC1400X	400 lm		3.6V / 1.6Ah Ni-Cd	1h	
E1	M/NM	LSVC1700XP	800 lm	2 500 lm	6V / 1.6Ah Ni-Cd	1h	
E2	NM	LSVC2700X	800 lm		6V / 1.6Ah Ni-Cd	1h	
E2	M/NM	LSVC2700XP	800 lm	5 000 lm	6V / 1.6Ah Ni-Cd	1h	
E2	M/NM	LSVC2700AP	800 lm	5 000 lm	6V / 1.6Ah Ni-Cd	1h	DALI
E3	M/NM	LSVC3700AP	800 lm	5 000 lm	6V / 1.6Ah Ni-Cd	1h	DALI
E3	M/NM	LSVC3700XP	800 lm	5 000 lm	6V / 1.6Ah Ni-Cd	1h	
E1	NM	LSVC1400X3	400 lm		3.6V / 4Ah Ni-Cd	3h	
E1	NM	LSVC1700X3	800 lm		6V / 4Ah Ni-Cd	3h	
E2	NM	LSVC2700X3	800 lm		6V / 4Ah Ni-Cd	3h	
E2	M/NM	LSVC2700XP3	800 lm	5 000 lm	6V / 4Ah Ni-Cd	3h	
E2	M/NM	LSVC2700AP3	800 lm	5 000 lm	6V / 4Ah Ni-Cd	3h	DALI
E3	M/NM	LSVC3700AP3	800 lm	5 000 lm	6V / 4Ah Ni-Cd	3h	DALI
E3	M/NM	LSVC3700XP3	800 lm	5 000 lm	6V / 4Ah Ni-Cd	3h	

*NM: Non Maintained. The luminaire operates from emergency supply only upon failure of the normal mains supply.

*M/NM: Maintained/Non Maintained. With a third terminal which allows to switch off/on the Maintained mode when connected to mains supply.

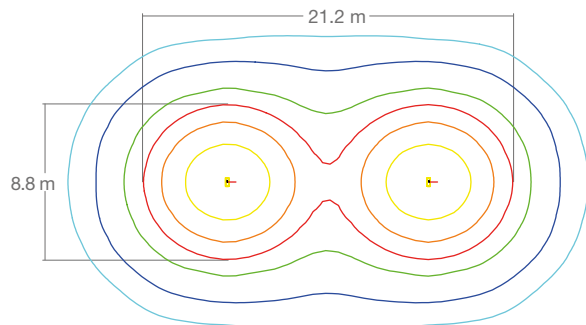
SPACING TABLE

Spacing table calculated with 1 lux minimum illuminance



ISOLUX CURVE

350 lm luminaire placed at 3 m height



Isoline — 0.1 lx — 0.2 lx — 0.5 lx — 1.0 lx — 2.0 lx — 5.0 lx

Polycarbonate Enclosure

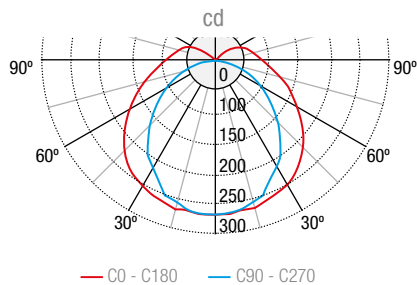
Height (H)	Spacing Data (d)
	350 lm
2.5 m	11.2 m
3 m	12.2 m
4 m	13.8 m
5 m	14.7 m
6 m	15.4 m

Glass Enclosure

Height (H)	Spacing Data (d)
	800 lm
6 m	19.9 m
8 m	21.7 m
10 m	22.5 m
12 m	22.6 m
14 m	21.8 m

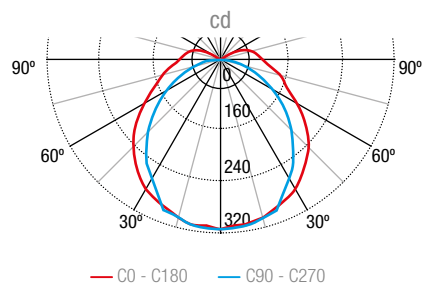
PHOTOMETRIC GUIDE

Polycarbonate Enclosure



— C0 - C180 — C90 - C270

Glass Enclosure



— C0 - C180 — C90 - C270

ACCESSORIES



CAM001
Ringbolt for
suspended mounting



BRD001
Flange for surface
ceiling mounting

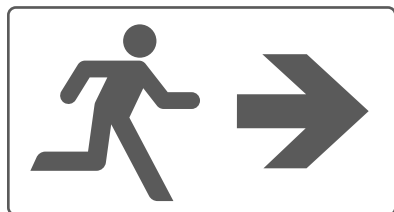


APS600
(On demand)



PSA001
Cable gland





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