



Linear LED svjetiljka PSF 28 LED, PSF 52 LED, PSF 70 LED i linear LED sigurnosna svjetiljka PSF 28 LED/E, PSF 52 LED/E

Linear LED light fitting PSF 28 LED, PSF 52 LED, PSF 70 LED and linear LED emergency light fitting PSF 28 LED-E, PSF 52 LED-E



Upute za uporabu

User manual



UPOZORENJE!

Upute za uporabu sadrže osnovne informacije o proizvodu. Montaža, instaliranje, uporaba i održavanje trebaju biti izvedeni prema ovim Uputama kako bi bio osiguran siguran rad unutar nazivnih karakteristika. Ove Upute nadopunjuju nacionalni Pravilnici i norme. Odgovorna osoba korisnika je dužna osigurati njihovo provođenje. Neprovođenje može umanjiti protueksplozijsku zaštitu uređaja i dovesti u opasnost ljude, imovinu i okoliš. Svako neispravno i nedozvoljeno postupanje kao i nepoštivanje odredbi ovih Uputa isključuje svaku odgovornost proizvođača.

Prije ugradnje/puštanja u pogon:

- Pažljivo pročitati cijele Upute za uporabu,
- Izvršiti odgovarajuću obuku odgovornog osoblja,
- Provjeriti da je sadržaj ovih Uputa u potpunosti razumljiv odgovornim osobama,
- Uvjeriti se da su primijenjeni svi zahtjevi nacionalnih Pravilnika i posebne sigurnosne mjere ukoliko postoje.

U slučaju nejasnoća:

- Kontaktirati proizvođača.

Tijekom pogona:

- Osigurati da ove Upute za uporabu i druge radne upute korisnika budu vidljivo istaknute i dostupne odgovornom osoblju cijelo vrijeme,
- Provjeravati provođenje ovih Uputa i svih drugih sigurnosnih uputa korisnika.



WARNING!

The user manual contains basic information about the product. Mounting, installation, usage and maintenance should be carried out under this user manual to provide and ensure safe operation within the nominal characteristics. This user manual complement national Regulation and Standards. The responsible person shall ensure their implementation. Failure off implement this user manual can reduce explosion protection and endanger people, property and the environment. Any improper and illegal actions as well as non-compliance with the provisions of this user manual excludes all responsibility by manufacturer side.

Before installation/commissioning:

- Carefully read all instructions,
- Execute proper training of responsible personnel,
- Check that the contents of these instructions is fully understandable by the responsible personnel,
- Make sure that all the requirements and national Regulations as well as all special security measures are applied.

In lack of understanding:

- Contact the manufacturer.

During operation:

- Ensure that this user manual and other work instructions are available to the responsible staff at all times,
- Check the implementation of these instructions and all other safety user's instructions

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1. NAMJENA

Protueksplozijski zaštićena linear LED svjetiljka PSF 28 LED, PSF 52 LED, PSF 70 LED namijenjena je za opću rasvjetu, a protueksplozijski zaštićena linear LED sigurnosna svjetiljka PSF 28 LED/E, PSF 52 LED/E za opću rasvjetu i rasvjetu u slučaju opasnosti (sigurnosna i nadomjesna), u industrijskim prostorima na mjestima s potencijalno eksplozivnom atmosferom plinova, para i prašine u zonama opasnosti 1, 2, 21, 22 sukladno normama EN 60079-10-1 i EN 60079-10-2.

2. SUKLADNOST PROIZVODA

Proizvod je sukladan Pravilniku o opremi i zaštitnim sustavima namijenjenim za uporabu u potencijalno eksplozivnim atmosferama, NN br. 33/16.

Proizvod je sukladan normama:

- EN IEC 60079-0:2018,
- EN 60079-1:2014,
- EN IEC 60079-7:2015/A1:2018,
- EN 60079-18:2015/A1:2017,
- EN 60079-28:2015,
- EN 60079-31:2014.

Proizvod je razvijen, proizveden i ispitan prema postojećem stanju tehnike, sukladno normama EN ISO 9001:2015, EN ISO 80079-34:2011 i EN ISO 14001:2015.

Proizvod je sukladan ATEX Direktivi 2014/34/EU.



Proizvod je sukladan LVD Direktivi 2014/35/EU.

Proizvod je sukladan RoHS Direktivi 2011/65/EU.

Proizvod je sukladan EMC Direktivi 2014/30/EU.

3. STUPANJ ZAŠTITE I TEHNIČKI PODACI

Linear LED svjetiljka PSF 28 LED/1, PSF 28 LED/2, PSF 52 LED/1, PSF 52 LED/2, PSF 70 LED/1, PSF 70 LED/2

Certifikat:	FIDI 19 ATEX 0029
Oznaka:	
Oznaka kategorije i protueksplozijske zaštite uređaja:	 II 2G Ex db eb mb op is IIC T4 Gb II 2D Ex tb op is IIIA/IIIC T80°C Db
Temperatura okoline:	-30°C / -20°C ≤ T _a ≤ +40°C / +55°C
Mehanička zaštita:	IP 66 / IP 55 kategorija 1, sukladno EN 60529/A1/A2 za T _a ≥ -20°C / -30°C

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1. PURPOSE

Explosion proof linear LED light fitting type PSF 28 LED, PSF 52 LED, PSF 70 LED are intended for general lighting and explosion proof linear LED emergency light fitting type PSF 28 LED/E, PSF 52 LED/E are intended for general and emergency lighting in industrial areas with potentially explosive atmosphere in Zones 1, 2, 21, 22 according to EN 60079-10-1 and EN 60079-10-2.

2. PRODUCT COMPLIANCE

The product complies with the standards:

- EN IEC 60079-0:2018,
- EN 60079-1:2014,
- EN IEC 60079-7:2015/A1:2018,
- EN 60079-18:2015/A1:2017,
- EN 60079-28:2015,
- EN 60079-31:2014.

The product has been developed, manufactured and tested according to the existing state of technique accordance with the standards EN ISO 9001:2015, EN ISO 80079-34:2011 and EN ISO 14001:2015.

The product is in compliance with the ATEX Directive 2014/34/EU.



The product is in compliance with the LVD Directive 2014/35/EU.

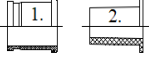

The product is in compliance with the RoHS Directive 2011/65/EU.

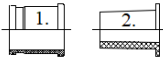

The product is in compliance with the EMC Directive 2014/30/EU.

3. DEGREE OF PROTECTION AND TECHNICAL DATA

Linear LED light fitting PSF 28 LED/1, PSF 28 LED/2, PSF 52 LED/1, PSF 52 LED/2, PSF 70 LED/1, PSF 70 LED/2



Certificate:	FIDI 19 ATEX 0029
Marking:	
Category and explosion protection:	 II 2G Ex db eb mb op is IIC T4 Gb II 2D Ex tb op is IIIA/IIIC T80°C Db
Ambient temperature:	-30°C / -20°C ≤ T _a ≤ +40°C / +55°C
Mechanical protection:	IP 66 / IP 55 category 1, accordance to EN 60529/A1/A2 za T _a ≥ -20°C / -30°C

Otpornost na udar:	IK 08											
Klasa zaštite:	I (PE - zaštitno uzemljenje)											
Nazivni napon U_n :	110-230 V AC, 50/60 Hz											
Nazivna snaga:	PSF 28 LED / 1 – $P_{in} = 28$ W, $P_{out} = 25$ W PSF 28 LED / 2 – $P_{in} = 37$ W, $P_{out} = 33$ W PSF 52 LED / 1 – $P_{in} = 52$ W, $P_{out} = 47$ W PSF 52 LED / 2 – $P_{in} = 70$ W, $P_{out} = 63,5$ W PSF 70 LED / 1 – $P_{in} = 70$ W, $P_{out} = 63,5$ W PSF 70 LED / 2 – $P_{in} = 90$ W, $P_{out} = 82$ W											
Nazivna struja LED modula:	PSF 28 LED / 1 – $I_n = 355$ mA PSF 28 LED / 2 – $I_n = 450$ mA PSF 52 LED / 1 – $I_n = 335$ mA PSF 52 LED / 2 – $I_n = 440$ mA PSF 70 LED / 1 – $I_n = 580$ mA PSF 70 LED / 2 – $I_n = 730$ mA											
Svjetlosni tok LED modula $T_a=20^\circ\text{C}$:	PSF 28 LED / 1 – 3791 lm PSF 28 LED / 2 – 5001 lm PSF 52 LED / 1 – 6789 lm PSF 52 LED / 2 – 9179 lm PSF 70 LED / 1 – 9179 lm PSF 70 LED / 2 – 11853 lm											
Svjetlosni tok svjetiljke $T_a=20^\circ\text{C}$:	PSF 28 LED / 1 – 3183 lm PSF 28 LED / 2 – 4201 lm PSF 52 LED / 1 – 5706 lm PSF 52 LED / 2 – 7710 lm PSF 70 LED / 1 – 7710 lm PSF 70 LED / 2 – 9031 lm											
Koeficijent izlaznog svjetlosnog toka svjetiljke:	0,84											
Efikasnost LED modula:	144 - 151 lm/W											
Efikasnost svjetiljke:	109 - 113 lm/W											
Nazivna životna dob L70B10C10:	$T_{a \max} - 35,000$ h $T_{a \max} - 10^\circ\text{C} - 60,000$ h $T_{a \max} - 20^\circ\text{C} - 70,000$ h											
Temperatura boje (CCT):	4000K (6500K na zahtjev)											
Stupanj reprodukcije boja (CRI):	80											
LED strip:	PSF 28 LED, PSF 52 LED: - LLE G4 24x560 mm 4000 lm 840 2T ADV5, Tridonic GmbH PSF 70 LED: - LLE 24x1400 mm 6000 lm 830 HV ADV6, Tridonic GmbH											
LED driver:	ELG-75-C700A – MeanWell ELG-75-C500A – MeanWell ELG-100-C700A – MeanWell											
Maksimalan broj svjetiljaka (kom.) po jednom automatskom instalacijskom prekidaču:	<p style="text-align: center;">Automatski instalacijski prekidač (PSF 28 LED, PSF 52 LED, PSF 70 LED)</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>1p B 10A</th> <th>1p C 10A</th> <th>1p B 16A</th> <th>1p C 16A</th> </tr> </thead> <tbody> <tr> <td>14</td> <td>18</td> <td>18</td> <td>23</td> </tr> </tbody> </table>				1p B 10A	1p C 10A	1p B 16A	1p C 16A	14	18	18	23
1p B 10A	1p C 10A	1p B 16A	1p C 16A									
14	18	18	23									
Kabelski uvodi:	<p>Dvije uvodnice Ex e M25x1,5 za kabel $\varnothing 7-15$ mm i dva Ex e čepa sukladno s EN 62444 - za grupu većega nazivnog promjera kabela potrebno je ukloniti unutarnji brtveni prsten</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">Koristiti brtveni prsten 1. i 2. za kabele vanjskog promjera $\varnothing 7-10$mm</div> </div> <div style="display: flex; align-items: center; margin-top: 10px;">  <div style="margin-left: 10px;">Koristiti brtveni prsten 1. za kabele vanjskog promjera $\varnothing 10-15$mm</div> </div>											
Prolazno ožičenje:	$5 \times 2,5 \text{ mm}^2, \leq 16$ A											
Centralna blokadna sklopka:	Centralna blokadna sklopka osigurava beznaponsko otvaranje. Kada je centralna blokadna sklopka u poziciji "OPEN" unutarnji elementi svjetiljke nalaze se u beznaponskom stanju (LED modul, LED EM driver, baterijski modul...). Blokadna sklopka uključuje svjetiljku											

Resistance to shock:	IK 08											
Class of protection:	I (PE - protective earthing)											
Rated voltage U_n :	110-230 V AC, 50/60 Hz											
Rated wattage:	PSF 28 LED / 1 – $P_{in} = 28$ W, $P_{out} = 25$ W PSF 28 LED / 2 – $P_{in} = 37$ W, $P_{out} = 33$ W PSF 52 LED / 1 – $P_{in} = 52$ W, $P_{out} = 47$ W PSF 52 LED / 2 – $P_{in} = 70$ W, $P_{out} = 63,5$ W PSF 70 LED / 1 – $P_{in} = 70$ W, $P_{out} = 63,5$ W PSF 70 LED / 2 – $P_{in} = 90$ W, $P_{out} = 82$ W											
Rated current LED module:	PSF 28 LED / 1 – $I_n = 355$ mA PSF 28 LED / 2 – $I_n = 450$ mA PSF 52 LED / 1 – $I_n = 335$ mA PSF 52 LED / 2 – $I_n = 440$ mA PSF 70 LED / 1 – $I_n = 580$ mA PSF 70 LED / 2 – $I_n = 730$ mA											
Luminous flux LED module $T_a=20^\circ\text{C}$:	PSF 28 LED / 1 – 3791 lm PSF 28 LED / 2 – 5001 lm PSF 52 LED / 1 – 6789 lm PSF 52 LED / 2 – 9179 lm PSF 70 LED / 1 – 9179 lm PSF 70 LED / 2 – 11853 lm											
Luminous flux light fitting $T_a=20^\circ\text{C}$:	PSF 28 LED / 1 – 3183 lm PSF 28 LED / 2 – 4201 lm PSF 52 LED / 1 – 5706 lm PSF 52 LED / 2 – 7710 lm PSF 70 LED / 1 – 7710 lm PSF 70 LED / 2 – 9031 lm											
Light output ratio of luminaire:	0,84											
LED modul efficiency:	144 - 151 lm/W											
System efficiency:	109 - 113 lm/W											
Estimated service life L70B10C10:	$T_{a \max} - 35,000$ h $T_{a \max} - 10^\circ\text{C} - 60,000$ h $T_{a \max} - 20^\circ\text{C} - 70,000$ h											
Corrected color temperature (CCT):	4000K (6500K on request)											
The color rendering index (CRI):	80											
LED strip:	PSF 28 LED, PSF 52 LED: - LLE G4 24x560 mm 4000 lm 840 2T ADV5, Tridonic GmbH PSF 70 LED: - LLE 24x1400 mm 6000 lm 830 HV ADV6, Tridonic GmbH											
LED driver:	ELG-75-C700A – MeanWell ELG-75-C500A – MeanWell ELG-100-C700A – MeanWell											
Maximum number of lamps (pieces) per one automatic circuit breaker:	<p style="text-align: center;">Automatic circuit breaker (PSF 28 LED, PSF 52 LED, PSF 70 LED)</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>1p B 10A</th> <th>1p C 10A</th> <th>1p B 16A</th> <th>1p C 16A</th> </tr> </thead> <tbody> <tr> <td>14</td> <td>18</td> <td>18</td> <td>23</td> </tr> </tbody> </table>				1p B 10A	1p C 10A	1p B 16A	1p C 16A	14	18	18	23
1p B 10A	1p C 10A	1p B 16A	1p C 16A									
14	18	18	23									
Cable entry:	<p>Two cable glands Ex e M25x1,5 for cable $\varnothing 7-15$ mm and two Ex e plugs in acc. with EN 62444 - for a group with a larger nominal cable diameter, it is necessary to remove the inner sealing ring</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;">Use sealing ring 1. and 2. for cable diameters $\varnothing 7-10$mm</div> </div> <div style="display: flex; align-items: center; margin-top: 10px;">  <div style="margin-left: 10px;">Use sealing ring 1. for cable diameters $\varnothing 10-15$mm</div> </div>											
Through wiring:	$5 \times 2,5 \text{ mm}^2, \leq 16$ A											
Central interlocking switch	Central interlocking switch provides a no-load condition. When the central interlocking switch is in position "OPEN" internal elements of the lamps are in no-load condition (LED module, LED EM driver, battery module). The											



	nakon zatvaranja pokrova i zakretanje blokadne sklopke u poziciju "CLOSE".
Kućište:	SMC, poliester ojačan staklenim vlaknima, boja RAL 7038
Pokrov:	PC, polikarbonat
Nazivni momenti pritezanja:	Pritisne matice uvodnice – 2,5 Nm Tijela uvodnice u kućište – 3,5 Nm Čepa u kućište – 4 Nm Vijka priključne stezaljke – 0,5 Nm
Duljina skidanja izolacije s priključnih vodiča:	9 mm
Osnovne mjere:	PSF 28 LED - 790 x 200 x 135 (DxŠxV) PSF 52 LED - 1370 x 200 x 135 (DxŠxV) PSF 70 LED - 1635 x 200 x 135 (DxŠxV)
Masa (neto):	PSF 28 LED – 8 kg PSF 52 LED – 11 kg PSF 70 LED – 12 kg

Linear LED sigurnosna svjetiljka PSF 28 LED/E, PSF 52 LED/E

Certifikat:	FIDI 19 ATEX 0029
Oznaka:	
Oznaka kategorije i protueksplozijske zaštite uređaja:	 II 2G Ex db eb mb op is IIC T4 Gb II 2D Ex tb op is IIIC T80°C Db
Temperatura okoline:	$-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$
Mehanička zaštita:	IP66
Otpornost na udar:	IK 08
Klasa zaštite:	I (PE - zaštitno uzemljenje)
Nazivni napon U_n :	230 V AC, 50 Hz
Nazivna snaga:	PSF 28 LED – E $P_{in} = 28\text{ W}$, $P_{out} = 25\text{ W}$ PSF 52 LED – E $P_{in} = 56\text{ W}$, $P_{out} = 50,5\text{ W}$
Nazivna struja LED modula:	350 mA
Svjetlosni tok LED modula $T_a=20^{\circ}\text{C}$	PSF 28 LED / E – 3791 lm mrežni rad – 1208 lm baterijski rad PSF 52 LED / E – 7272 lm mrežni rad – 1152 lm baterijski rad
Svjetlosni tok svjetiljke $T_a=20^{\circ}\text{C}$	PSF 28 LED / E – 3175 lm mrežni rad – 1016 lm baterijski rad PSF 52 LED / E – 6110 lm mrežni rad – 968 lm baterijski rad
Koeficijent izlaznog svjetlosnog toka svjetiljke:	0,84
Efikasnost LED modula:	144 - 151 lm/W
Efikasnost svjetiljke:	121 - 127 lm/W
Nazivna životna dob L70B10C10:	$T_a \leq 20^{\circ}\text{C}$ > 130 000 h $T_a \leq 30^{\circ}\text{C}$ > 100 000 h $T_a \leq 40^{\circ}\text{C}$ > 50 000 h
Temperatura boje (CCT):	4000K (6500K na zahtjev)
Stupanj reprodukcije boja (CRI):	80
LED strip:	LLE G4 24x560mm 4000 lm 840 2T ADV5, Tridonic GmbH
LED driver:	Luxtronic Emergency lighting unit, Hadler GmbH
Baterijski zaštitni modul BSM 01	Zaštita od druge greške
Baterija:	Ni-Mh Saft VHT D, 6 V, 6 Ah ugrađena u svjetiljku, mikroprocesorski upravljano punjenje, pražnjenje i nadzor baterije
Nazivna autonomija:	3 sata
Napon prelaska s mrežnog na baterijsko napajanje:	$U < 0,8 U_n$ u trajanju više od 0,5 s

	interlocking switches power on a flashlight after closing the cover and rotate the lock switch in position "CLOSE".
Housing:	SMC, polyester plastic reinforced with glass fiber, color RAL 7038
Diffuser:	PC, polycarbonate plastic
Tightening torque:	Pressure screw – 2,5 Nm Intermediate gland and plug – 3,5 Nm Plug in housing – 4 Nm Screw terminals – 0,5 Nm
Isolation stripping length of the wires:	9 mm
Dimension:	PSF 28 LED - 790 x 200 x 135 (LxWxH) PSF 52 LED - 1370 x 200 x 135 (LxWxH) PSF 70 LED - 1635 x 200 x 135 (LxWxH)
Net weight:	PSF 28 LED – 8 kg PSF 52 LED – 11 kg PSF 70 LED – 12 kg

Linear LED emergency light fitting PSF 28 LED/E, PSF 52 LED/E

Certificate:	FIDI 19 ATEX 0029
Marking:	
Category and explosion protection:	 II 2G Ex db eb mb op is IIC T4 Gb II 2D Ex tb op is IIIC T80°C Db
Ambient temperature:	$-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$
Mechanical protection:	IP66
Resistance to shock:	IK 08
Class of protection:	I (PE - protective earthing)
Rated voltage U_n :	230 V AC, 50 Hz
Rated wattage:	PSF 28 LED – E $P_{in} = 28\text{ W}$, $P_{out} = 25\text{ W}$ PSF 52 LED – E $P_{in} = 56\text{ W}$, $P_{out} = 50,5\text{ W}$
Rated current LED module:	350 mA
Luminous flux LED module $T_a=20^{\circ}\text{C}$	PSF 28 LED / E – 3791 lm main mode – 1208 lm emergency mode PSF 52 LED / E – 7272 lm main mode – 1152 lm emergency mode
Luminous flux light fitting $T_a=20^{\circ}\text{C}$	PSF 28 LED / E – 3175 lm main mode – 1016 lm emergency mode PSF 52 LED / E – 6110 lm main mode – 968 lm emergency mode
Light output ratio of luminaire:	0,84
LED modul efficiency:	144 - 151 lm/W
System efficiency:	121 - 127 lm/W
Estimated service life L70B10C10:	$T_a \leq 20^{\circ}\text{C}$ > 130 000h $T_a \leq 30^{\circ}\text{C}$ > 100 000h $T_a \leq 40^{\circ}\text{C}$ > 50 000h
Corrected color temperature (CCT):	4000K (6500K on request)
The color rendering indeks (CRI):	80
LED strip:	LLE G4 24x560 mm 4000 lm 840 2T ADV5, Tridonic GmbH
LED driver:	Luxtronic Emergency lighting unit, Hadler GmbH
Battery security module BSM 01	Protection from second faults
Battery:	Ni-Mh Saft VHT D, 6 V, 6 Ah built-in lighting, microprocessor controlled charging, discharging and battery monitoring
Rated autonomy:	3 hours
Charge-over battery operation:	$U < 0,8 U_n$ for more than 0,5 s

Napon prelaska s baterijskog na mrežno napajanje:	$U > 0,9 U_N$ u trajanju više od 1 s								
Režim punjenja:	Standardno punjenje: 400 mA Trickle charge: 170 mA Uvjet punjenja: $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$								
Režim pražnjenja:	Struja pražnjenja: 2 A pri naponu baterije 6 V Min. napon pražnjenja: 4,8 V Uvjet pražnjenja: $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$								
Maksimalan broj svjetiljaka (kom.) po jednom automatskom instalacijskom prekidaču:	Automatski instalacijski prekidač <table border="1"> <tr> <td>1 p B 10A</td> <td>1 p C 10A</td> <td>1 p B 16A</td> <td>1 p C 16A</td> </tr> <tr> <td>14</td> <td>18</td> <td>18</td> <td>23</td> </tr> </table>	1 p B 10A	1 p C 10A	1 p B 16A	1 p C 16A	14	18	18	23
1 p B 10A	1 p C 10A	1 p B 16A	1 p C 16A						
14	18	18	23						
Kabelski uvodi:	Dvije uvodnice Ex e M25x1,5 za kabel $\varnothing 7-15$ mm i dva Ex e čepa sukladno sa EN 62444								
Prolazno ožičenje:	$5 \times 2,5 \text{ mm}^2, \leq 16 \text{ A}$								
Centralna blokadna sklopka:	Centralna blokadna sklopka osigurava beznaponsko otvaranje. Kada je centralna blokadna sklopka u poziciji "OPEN" unutarnji elementi svjetiljke nalaze se u beznaponskom stanju (LED modul, LED EM driver, baterijski modul...). Blokadna sklopka uključuje svjetiljku nakon zatvaranja pokrova i zakretanje blokadne sklopke u poziciju "CLOSE".								
Kućiče:	SMC, poliestar ojačan staklenim vlaknima, boja RAL 7038								
Pokrov:	PC, polikarbonat								
Nazivni momenti pritezanja:	Pritisne matice uvodnice – 2,5 Nm Tijela uvodnice u kućiče – 3,5 Nm Čepa u kućiče – 4 Nm Vijka priključne stezaljke – 0,5 Nm								
Duljina skidanja izolacije s priključnih vodiča:	9 mm								
Osnovne mjere:	PSF 28 LED / E - 790 x 200 x 135 (DxŠxV) PSF 52 LED / E - 1370 x 200 x 135 (DxŠxV)								
Masa (neto):	PSF 28 LED / E – 9 kg PSF 52 LED / E – 12,5 kg								

Svjetiljka se isporučuje s max. napunjenim baterijama. Moguće je prilikom dužeg skladištenja (više od 6 mj. te je svjetiljka zatvorena bez priključka na napon) da LED indikator ne proradi odmah. Nakon toga je potrebno regenerirati baterije (puniti baterije oko 2 sata) i tada će LED indikator proraditi.

4. TIP

Charge-over mains supply operation:	$U > 0,9 U_N$ for more than 1 s								
Charge mode:	Standard charge: 400 mA Trickle charge: 170 mA Condition charge: $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$								
Discharge mode:	Discharge current: 2 A at battery voltage 6 V Min. charge voltage: 4,8 V Condition charge: $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$								
Maximum number of lamps (pieces) per one automatic circuit breaker:	Automatic circuit breaker <table border="1"> <tr> <td>1 p B 10A</td> <td>1 p C 10A</td> <td>1 p B 16A</td> <td>1 p C 16A</td> </tr> <tr> <td>14</td> <td>18</td> <td>18</td> <td>23</td> </tr> </table>	1 p B 10A	1 p C 10A	1 p B 16A	1 p C 16A	14	18	18	23
1 p B 10A	1 p C 10A	1 p B 16A	1 p C 16A						
14	18	18	23						
Cable entry:	Two cable glands Ex e M25x1,5 for cable diameter $\varnothing 7-15$ mm and two Ex e plugs in accordance with EN 62444								
Through wiring:	$5 \times 2,5 \text{ mm}^2, \leq 16 \text{ A}$								
Central interlocking switch	Central interlocking switch provides a no-load condition. When the central interlocking switch is in position "OPEN" internal elements of the lamps are in no-load condition (LED module, LED EM driver, battery module). The interlocking switches power on a flashlight after closing the cover and rotate the lock switch in position "CLOSE".								
Housing:	SMC, polyester plastic reinforced with glass fibers, color RAL 7038								
Diffuser:	PC, polycarbonate plastic								
Tightening torque:	Pressure screw – 2,5 Nm Intermediate gland and plug – 3,5 Nm Plug in housing – 4 Nm Screw terminals – 0,5 Nm								
Isolation stripping length of the wires:	9 mm								
Dimension:	PSF 28 LED / E - 790 x 200 x 135 (LxWxH) PSF 52 LED / E - 1370 x 200 x 135 (LxWxH)								
Net weight:	PSF 28 LED / E – 9 kg PSF 52 LED / E – 12,5 kg								

The light fitting is supplied with max. charged batteries. It's possible during prolonged storage (lamp is closed more than six months without connection to the voltage) that the LED indicator doesn't work immediately. At that moment it's necessary to regenerate the batteries (recharge the batteries for approx. 2 hours) and then the LED indicator will start to work properly.

4. TYPE

TIP / TYPE	P [W] (consumption)	U_n [V]	\varnothing [lm] Light fitting	MASA (NETO) / WEIGHT (NET)
PSF 28 LED/1	28	230	3183	8 kg
PSF 28 LED/2	37		4201	
PSF 52 LED/1	52		5706	11 kg
PSF 52 LED/2	70		7710	
PSF 70 LED/1	70		7710	
PSF 70 LED/2	90		9031	12 kg

TIP / TYPE	P [W] MAIN	P [W] EM	U_n [V]	\varnothing [lm] light fitting		MASA / WEIGHT
				MAIN	EM. 3h	
PSF 28 LED/E	28	8	230	3175	1016	9 kg
PSF 52 LED/E	56	8		6110	968	12,5 kg

5. MONTAŽA

Svjetiljka se standardno isporučuje s dvije Ex e uvodnice M25 (za kabel 7-15 mm), tri Ex e čepa M25 te priborom za ovjesnu montažu (PSF 30-150).

Svjetiljka je namijenjena za vanjsku i unutarnju primjenu.

5. MOUNTING

Lighting fitting comes standard with two Ex-e cable glands M25 (for cable 7-15 mm), three Ex-e plug M25 and accessories for suspension assembly (PSF 30-150).

The lamp is designed for indoor and outdoor use.

Napomene za sigurnu instalaciju i montažu:

- Provjera temperature okoline
- Mogućnost instalacije u zonama opasnosti 1, 2, 21, 22
- Provjera mjesta ulaza kabela u svjetiljku (narušena mehanička zaštita, IP broj)
- **Oštećenje svjetiljke narušava protueksplozijsku zaštitu prostora u koji je instalirana!**

Otvaranje i zatvaranje svjetiljke:

Skinuti gumenu zaštitu s centralne blokadne sklopke. Okrenuti centralnu osovinu 180° ulijevo (natpisna pločica - OPEN), s nasadnim ključem. Klizači oslobađaju transparentni pokrov i svjetiljka se otvara. Prilikom zatvaranja slijediti obrnuti redoslijed radnji.

Prilikom zatvaranja svjetiljke, obratiti pažnju na pozicioniranje brtve (utor u pokrovu) u odnosu na kućište.

- **Zakretanjem centralne blokadne sklopke, svjetiljka je u beznaponskom stanju**
 - **Glavne priključne stezaljke: L, N**
 - **U otvorenom položaju, mehanička blokada onemogućava pristup blokadnoj sklopki**
- PRILIKOM OTVARANJA KORISTITI UMJERENU SILU!**

LED modul LEDEx 03 je pomoću nosača odsijača i panta odsijača pričvršćen na temeljnu ploču na 4 različita mjesta (2 na svakoj strani (PSF 70 LED na 6 mjesta)).

Pristup stezaljkama obavlja se pomoću odvijača na način da je potrebno odvojiti pante odsijača od nosača odsijača na istoj strani laganim pritiskom odvijača prema dolje.

Rotiranjem LED modula dobiva se pristup stezaljkama i ostalim ugradbenim komponentama pričvršćenih na temeljnu ploču.

Napomena: moguće je odvojiti pante odsijača od nosača odsijača i na drugoj strani i dobiti pristup stezaljkama rotiranjem LED modula u drugu stranu.

Zatvaranje se obavlja suprotnim redoslijedom radnji na način da se pant odsijača vraća u nosač odsijača samo laganim pritiskom ruke.

Kod puštanja u pogon kontrolna izolacijska mjerenja treba vršiti s ispitnim naponom max. 500 V DC i to između:

- neutralnog vodiča i zemlje
- faznog vodiča L1 i zemlje
- faznog vodiča Lsw i zemlje

Notes for safe installation and assembly:

- Check the ambient temperature
- Possibility of installation in hazardous areas 1, 2, 21, 22
- Checking of cable entry into the fluorescent lighting fitting (compromised mechanical protection, IP number)
- **Damage lamps does not ensures explosion protection of the area in which lamp is installed!**

Opening and closing of the fluorescent light fitting:

Remove the rubber protection on the central interlocking switch. Turn the central axis 180° to the left (marking - OPEN) with a socket wrench. Sliders release transparent cover and the lamp opens. When closing follow the orders of operations in reverse.

When closing, pay special attention to the positioning of the seal (slot in the cover) relative to the housing.

- **By turning the central lock switch, the fluorescent light fitting is in no-load state**
 - **The main connections terminals: L, N**
 - **In the open position, the mechanical lock prevents access to the interlocking switches**
- USE MODERATE FORCE WHEN OPENING!**

LED module LEDEx 03 is with reflector hinges and reflector lens carriers attached to the base plate at four or six different sites (two or three on each side (PSF 70 LED at 6 different sites)).

Access to terminals is done with a screwdriver in a manner that is necessary to separate the hinges bracket of the reflector lens on the same side by applying a moderate force with a screwdriver toward the downward direction

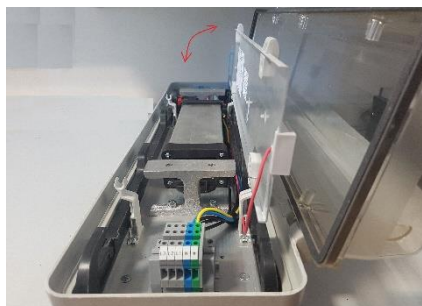
Gaining access to the terminals is achieved by rotating assembly LED module.

Note: it is possible to separate the hinges reflector lens from the bracket and gain access to the other side of the terminals by rotating assembly of the LED module to the other side.

Closing is done in reverse order of actions by bringing hinge reflector lens back to mount of the reflector lens only by light hand pressure.

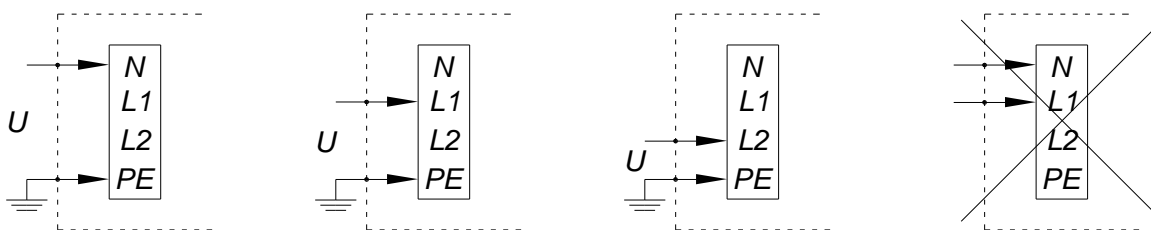
With the commissioning the control measurements of the isolation should be performed with the test voltage max. 500 V DC between:

- Neutral and earth conductor
- Phase L1 and earth conductor
- Phase Lsw and earth conductor



Ispitivanje između faznog i neutralnog vodiča nije dopušteno i može voditi uništenju proizvoda.

Testing between the phase and neutral conductor is not allowed and will get the wrong value and can lead to destruction of the product.

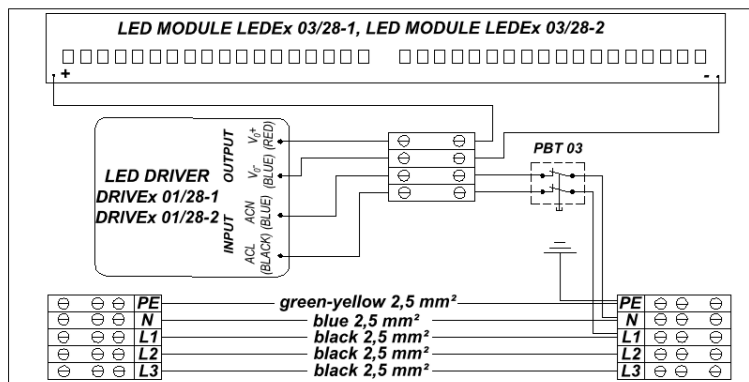
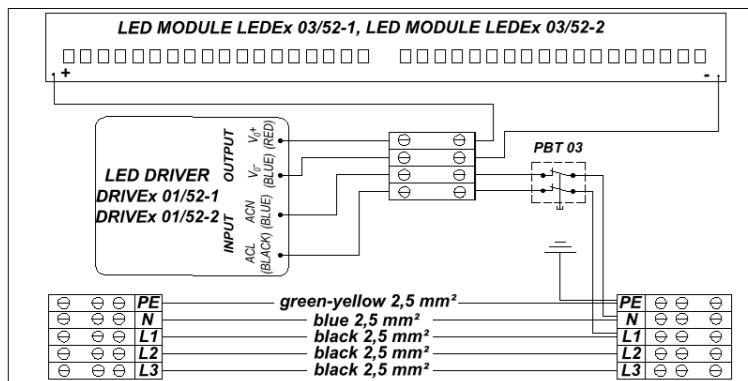
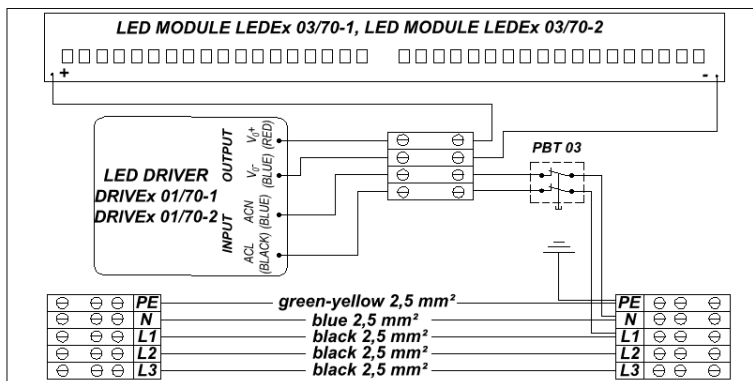


Električna shema spajanja

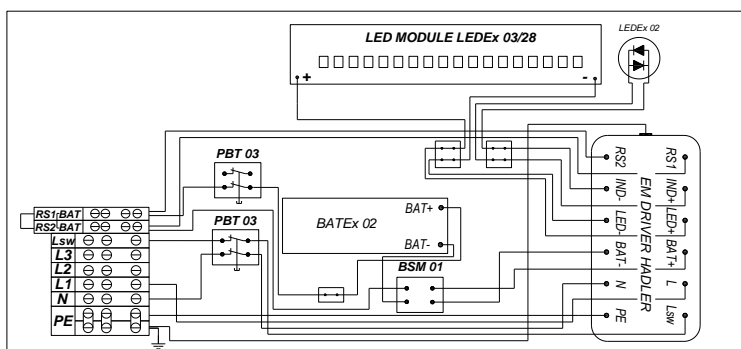
Wiring diagram

- PSF 28 LED, PSF 52 LED, PSF 70 LED:

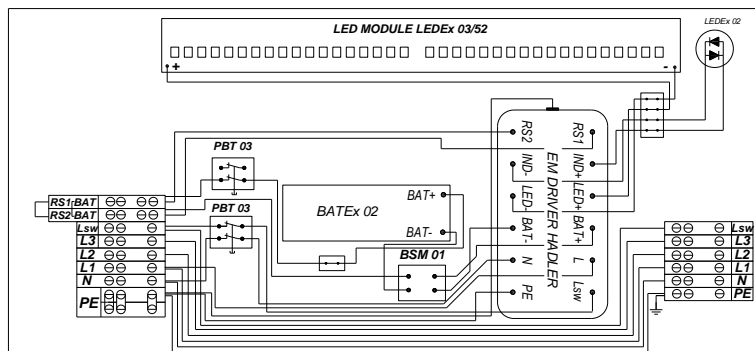
- PSF 28 LED, PSF 52 LED, PSF 70 LED:



PSF 28 LED-E:



PSF 52 LED-E:



Moguć je rad u dvije vrste spoja:

a) Trajan spoj (Dauerschaltung, maintained)

Svjetiljka se može koristiti za opću i orijentacijsku rasvjetu s mrežnim napajanjem Lsw preko instalacijske sklopke korisnika. U slučaju pada napona ili ispada trajne faze L1, bez obzira na stanje sklopke u krugu mrežnog napajanja Lsw (uključeno ili isključeno mrežno napajanje), svjetiljka svijetli u režimu baterijskog napajanja.

Pripravan spoj (Bereitschaftschaltung, non maintained)

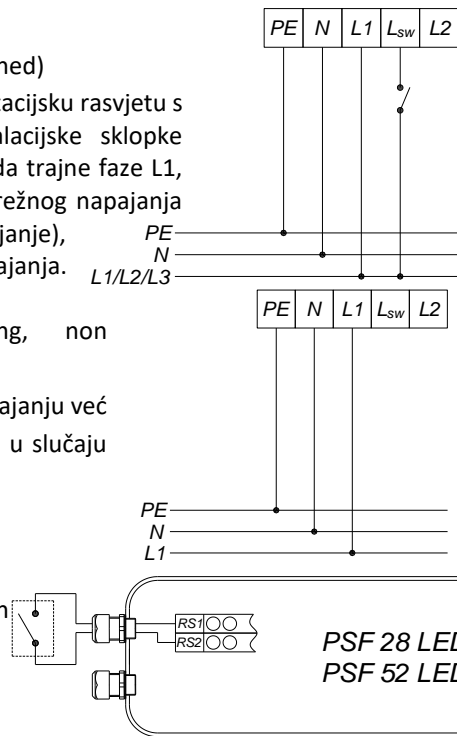
Svjetiljka ne može raditi na mrežnom napajanju već isključivo u režimu baterijskog napajanja u slučaju pada napona ili ispada trajne faze L1.

Svjetiljka ima funkciju *Remote switch*.

Korisnik sam upravlja tom funkcijom.

Remote switch ON: baterijski rad aktiviran

Remote switch OFF: baterijski rad deaktiviran



The lamp can operate with two types of connection:

a) Maintained (Dauerschaltung)

The light fitting can be used for general and orientation lighting with main power supply via Lsw (installation switch). In case of voltage drop or an interruption in the mains power supply L1, the light fitting will continue to operate in battery-powered mode, regardless of the status of installation switch Lsw.

b) Non maintained (Bereitschaftschaltung)

In case of voltage drop or an interruption in the mains power supply L1, the light fitting will operate only in battery-powered mode.

The light fitting has *Remote switch* function.

The user manages this function himself.

Remote switch ON: emergency mode activated

Remote switch OFF: emergency mode deactivated.

U slučaju dužega prekida napajanja, remonta pogona, servisa potrebno je isključiti *Remote switch funkciju* te prekinuti baterijski mod rada.

Svjetiljka ima dvije funkcije:

- test funkcionalnosti: provjerava ispravnost sigurnosne rasvjete
 - prvi test pokreće se 1h nakon priključenja na napon
 - ako je test prošao uspješno, svaki sljedeći pokreće se za 7 dana
- test kapaciteta baterija: provjerava trajanje autonomije
 - prvi test pokreće se 7 dana nakon priključenja na napon
 - ako je test prošao uspješno, svaki sljedeći pokreće se za 365 dana

Svjetiljka je izvedena s elektroničkim sklopom sa samonadzorom funkcionalnosti nužne rasvjete i signalizacijom stanja. Samonadzor je trajan. Signalizacija stanja vrši se crvenom i zelenom signalnom LED-om.



In the event of a longer power supply interruption, overhaul or service it is necessary to turn off the *Remote switch function* and interrupt the battery mode.

The light fitting has two functions:

- Function test: verifies the functionality of emergency lighting
 - first test is started 1h after power supply
 - if the test has passed successfully, each next runs in 7 days
- Capacity test: verifies the emergency time
 - first test is started 7 days after power supply
 - if the test has passed successfully, each next runs in 365 days

The light fitting is equipped with an electronic set for emergency lighting self-monitoring function and status signaling function. Self-monitoring is permanent. Status signalization is indicated with red and green indicator LED.

OPIS	Status LED indicator	DESCRIPTION
Test funkcionalnosti ili test kapaciteta baterija je u tijeku	● ○ ● ○ ● ○ ● ○	Function or Capacity test ongoing
Greška LED izvora (kratki spoj, prazni hod...)	● ● ● ● ● ● ● ●	Lamp failure (short circuit, open loop)
Greška baterije (napon, kapacitet)	● ● ● ● ● ○ ○ ○ ○ ○	Battery failure (Voltage, Capacity)
Baterijski rad je deaktiviran	● ● ● ● ● ● ● ●	Emergency Mode deactivated (Inhibit Mode)
Mrežni rad, punjenje	● ● ● ● ● ● ● ●	Normal Mode, Charging
Svaka točkica označava vrijeme od 256ms / Every dot correspond to 256 ms of time		

Razlozi nefunkcionalnosti mogu biti sljedeći (po vjerojatnosti događanja):

- baterije su prazne. Treba ostaviti svjetiljku na mrežnom napajanju. Nakon nekog vremena signalizacija će sama preći u zeleno LED treptće svjetlo i nužna rasvjeta će postati funkcionalna,
- centralna blokadna sklopka nije adekvatno zategnuta – svjetiljka je u beznaponskom stanju. Treba adekvatno zategnuti centralnu blokadnu sklopku i signalizacija će sama preći u zeleno LED treptće svjetlo i nužna rasvjeta će postati funkcionalna,

Reasons for this may include some of the following (the probability of events):

- batteries are empty. The lamp should be left on the power supply. After a while the signalization will by itself transfer into green LED, blinking lights and emergency lighting will become functional,
- central interlocking switch is not adequately tightened – light fitting is in non load condition. It should adequately tightened central interlocking switch and blinking lights and emergency lighting becomes functional,

- električki priključak je izveden pogrešno. Priključak treba izvršiti prema shemi spajanja,
 - baterije su stare, trajno se pune nazivnom strujom punjena i pregrijavaju se. Potrebno je zamijeniti baterijski modul BATEX 02,
 - baterije su stare i ne mogu dosegnuti potreban napon punjenja i kapacitet. Potrebno je zamijeniti baterijski modul BATEX 02,
 - temperatura okoline je izvan danih granica.
- Samonadzor ne uključuje kontrolu ispravnosti LED indikatora.

Opis oznake na svjetiljci

X	1	ABCD	180
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,
sukladno EN 60598-2-22:

- X - sigurnosna svjetiljka s baterijama ugrađenim u svjetiljku,
- 1 - sigurnosna svjetiljka u trajnom spoju,
- A - sigurnosna svjetiljka sa samonadzorom i signalizacijom stanja,
- B - sigurnosna svjetiljka s mogućnosti rada na mreži i automatskog uključjenja nakon povrata napajanja,
- C - sigurnosna svjetiljka s Remote switch funkcijom,
- D - sigurnosna svjetiljka za prostore s posebnim opasnostima,
- 180 - sigurnosna svjetiljka s autonomijom max. 3h.

Sigurnosna svjetiljka se isporučuje s odspojenim baterijama. Nakon priključenja na mrežni napon te neposredno prije puštanja u pogon, potrebno je izvaditi kratkospojnik (slika 1.), ukloniti zaštitu (slika 2., slika 3.) te kratkospojiti stezaljke baterije (BAT-BAT.)



Slika 1.
Picture 1.



Slika 2.
Picture 2.



Slika 3.
Picture 3.



Slika 4.
Picture 4.

- connection is made incorrectly. Connection should be made according to the connection scheme
 - batteries are old, permanently charged with rated current and are overheating. It is necessary to replace the battery module BATEX 02
 - batteries are old and can't reach the required charging voltage and capacity. It is necessary to replace the battery module BATEX 02,
 - ambient temperature is outside specification limits.
- Self-monitoring does not include a control of the LED indicator.

Description of tag on the light fitting

X	1	ABCD	180
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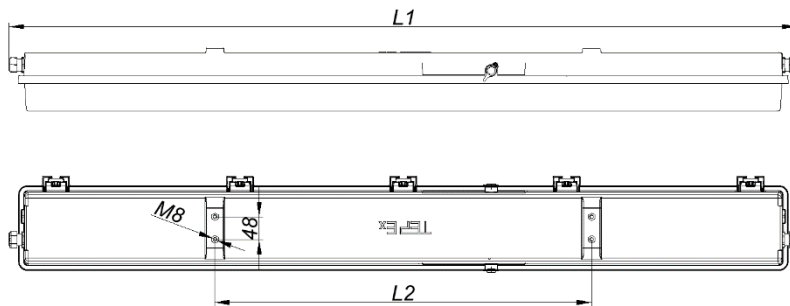
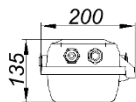
, according to EN 60598-2-22:

- X - emergency light fitting with built-in batteries
- 1 - emergency light fitting in a permanent connection
- A - emergency light fitting with self-monitoring and status signaling function
- B - Emergency light fitting with main power supply option and automatically turn ON after power return option
- C - emergency light fitting with Remote switch function
- D - emergency light fitting for use in areas with special hazards
- 180 - emergency light fitting with autonomy of max. 3h.

Emergency light fitting is delivered with the batteries disconnected. After connecting to the mains voltage and immediately before putting it into operation, it is necessary to remove the jumper (picture 1), remove the protection (picture 2, picture 3) and short-circuit the battery terminals (BAT-BAT.)

7. DIMENZIJE

7. DIMENSIONS



	L1 [mm]	L2 [mm]
PSF 28 LED	750	400
PSF 52 LED	1370	800
PSF 70 LED	1675	800



8. REZERVNI DIJELOVI

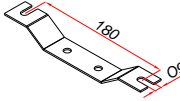


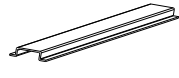
8. SPARE PARTS

SKICA (SKETCH)	OPIS (DESCRIPTION)	OZNAKA ZA NARUDŽBU (MODEL CODE)	SKICA (SKETCH)	OPIS (DESCRIPTION)	OZNAKA ZA NARUDŽBU (MODEL CODE)
	Pokrov PSF (Diffuser PSF)	PSF 218 10-110 PSF 236 20-110 PSF 258 30-110		Baterijski zaštitni modul (Battery security module)	BSM 01
	Brtva PSF (Gasket PSF)	PSF 218 10-120 PSF 236 20-120 PSF 258 30-120		Signalni LED indikator (Signal LED indicator)	LEDEx 02
	LED modul (LED module)	LEDEx 03/28-1 LEDEx 03/28-2 LEDEx 03/52-1 LEDEx 03/52-2 LEDEx 03/70-1 LEDEx 03/70-2		Redne stezaljke 5 x 0,5-4 mm ² , set Terminal 8 x 0,5-4 mm ²	PSF 218 10-130
	LED driver	DRIVEx 01/28-1 DRIVEx 01/28-2 DRIVEx 01/52-1 DRIVEx 01/52-2 DRIVEx 01/70-1 DRIVEx 01/70-2 DRIVEX 02		Ex eb kabelska uvodnica SPU 25 (Ex eb cable gland)	SPU 25
	Baterijski modul (Battery module)	BATEx 02		Ex eb čep M25 (Ex eb plug)	SPC 25

9. PRIBOR

9. ACCESORIES

SKICA (SKETCH)	OPIS (DESCRIPTION)	OZNAKA ZA NARUDŽBU (MODEL CODE)	SKICA (SKETCH)	OPIS (DESCRIPTION)	OZNAKA ZA NARUDŽBU (MODEL CODE)
	PSF Ovjerna montaža, set Pendant mounting set	PSF 30-150		PSF Zidna montaža pod kutom, set Wall mounting set	PSF 30-130
	Nasadni ključ SW 8 Socket key SW 8	PSF 20-160		Okasti vijak M8 Ring bolt M8	PSF 30-140

	PSF Zidna montaža set	PSF 30-110		Metalne uvodnice za armirane kabele M25 Metal cable glands for reinforced cable M25 (cable Ø13-21 mm)	PSF 30-160
	PSF Montaža na cijev, set Ceiling mounting set	PSF 30-120		LED difuzni pokrov (LED diffuser)	PSF LED 30-180

10. ODRŽAVANJE, POPRAVAK, OBNAVLJANJE I PREGRADNJA

Potrebno je obavljati preglede i održavanje svih dijelova o kojima ovisi protueksplozijska zaštita sukladno normi EN 60079-17, općim i posebnim uvjetima proizvođača i Pravilnicima korisnika, a naročito:

- da su kućište, svi dijelovi kućišta, pokrov i brtva kompletni bez puknuća i oštećenja,
- da su vijci prihvatnih stezaljki pritegnuti nazivnim momentima,
- da su uvodnice i čepovi instalirani prema uputama proizvođača i da su brtve uvodnica neoštećene, a pritisne matice pritegnute nazivnim momentom.

U opseg održavanja ulazi i zamjena dijelova koje proizvođač osigurava i navodi u popisu rezervnih dijelova.

Svi drugi zahvati imaju karakter popravka. Popravak obavlja proizvođač ili od proizvođača ovlaštena pravna osoba, originalnim dijelovima prema proizvodnoj dokumentaciji, a sve sukladno normi EN 60079-19.

Pregradnja i obnavljanje nisu dozvoljeni.

Ukoliko popravak ili bilo koji drugi zahvat na proizvodu obavlja neovlaštena osoba, prestaje svaka odgovornost proizvođača za proizvod, a jamstvo i deklaracija sukladnosti proizvođača postaju nevažeći.

11. ODGOVORNOSTI I OVLAŠTENJA

Ova Uputa predstavlja najvažniju informaciju o proizvodu. Nadopunjuju ju odgovarajući nacionalni zakoni i propisi. Proizvodnja, uporaba, certifikacija i nadzor određene su na nacionalnoj razini:

- Pravilnikom o opremi i zaštitnim sustavima namijenjenim za uporabu u prostorima ugroženim eksplozivnom atmosferom (NN br. 33/16, odnosno EU Direktiva ATEX 2014/34/EU) i
- Pravilnikom o najmanjim zahtjevima sigurnosti i zaštite zdravlja radnika te tehničkom nadgledanju postrojenja, opreme, instalacija i uređaja u prostorima ugroženim eksplozivnom atmosferom (NN br. 39/06, 106/07.), odnosno EU Direktivi 1999/92/EC (ATEX 137).

Odgovorna osoba dužna je osigurati njihovo provođenje u pogonu.

12. SKLADIŠTENJE I TRANSPORT

Transport i skladištenje treba vršiti samo u originalnoj ambalaži, na način istaknut na kartonskoj kutiji.

13. JAMSTVO PROIZVOĐAČA

Proizvođač daje jamstvo na svjetiljku u trajanju od pet godina, te jamstvo na baterije u trajanju od šest mjeseci od trenutka preuzimanja proizvoda prema odredbama Zakona o obveznim odnosima. Ova izjava ima snagu Jamstvenog lista.

10. INSPECTION, MAINTENANCE, REPAIR AND OVERHAUL

Inspections are carried out in accordance with EN 60079-17, general and special conditions of manufacturer and users Regulations and includes supervision of parts on which the explosion protection depends, especially:

- the housing, all part of housing, diffuser and seal are without rupture and damage,
- the screws of connecting terminals are tightening with nominal torque,
- the glands, plugs, terminals, pressure screw, intermediate gland, screw of the glass cover are without rupture and damage and tightening with nominal torque

All the repairs are performed by the manufacturer or the manufacturer's authorized personal and the original parts must be provided according to the product documentation, all in accordance with EN 60079-19.

Overhaul and modifications are not allowed.

If repair or any other procedure are performed on the product by unauthorized person, all producer responsibility for the product and the warranty and the manufacturer's declaration of conformity becomes invalid.

11. RESPONSIBILITY AND AUTHORIZATION

This instruction is the basic information about the product. It is completed by the corresponding national laws and regulations.

Production, use, certification and supervision are determined at the national level:

- Regulations concerning equipment and protective systems intended for use in potentially explosive atmospheres EU directive 2014/34/EU and
- Regulations on minimum requirements for safety and health protection of workers and technical inspection of facilities, equipment, installations and equipment in hazardous areas EU directive 1999/92/EC (ATEX 137).

The responsible person shall ensure their implementation at the working facility.

12. STORAGE AND TRANSPORT

Transportation and warehousing of the lamps is only allowed in the original packaging, as outlined in a cardboard box.

13. MANUFACTURER'S WARRANTY

The manufacturer provides a warranty on the light fitting for a period of five years and a warranty on batteries for a period of six months starting from the moment of taking over the product under the provisions of this user manual and the law on obligations. This statement has the force of Warranty sheet.

14. OZNAČAVANJE

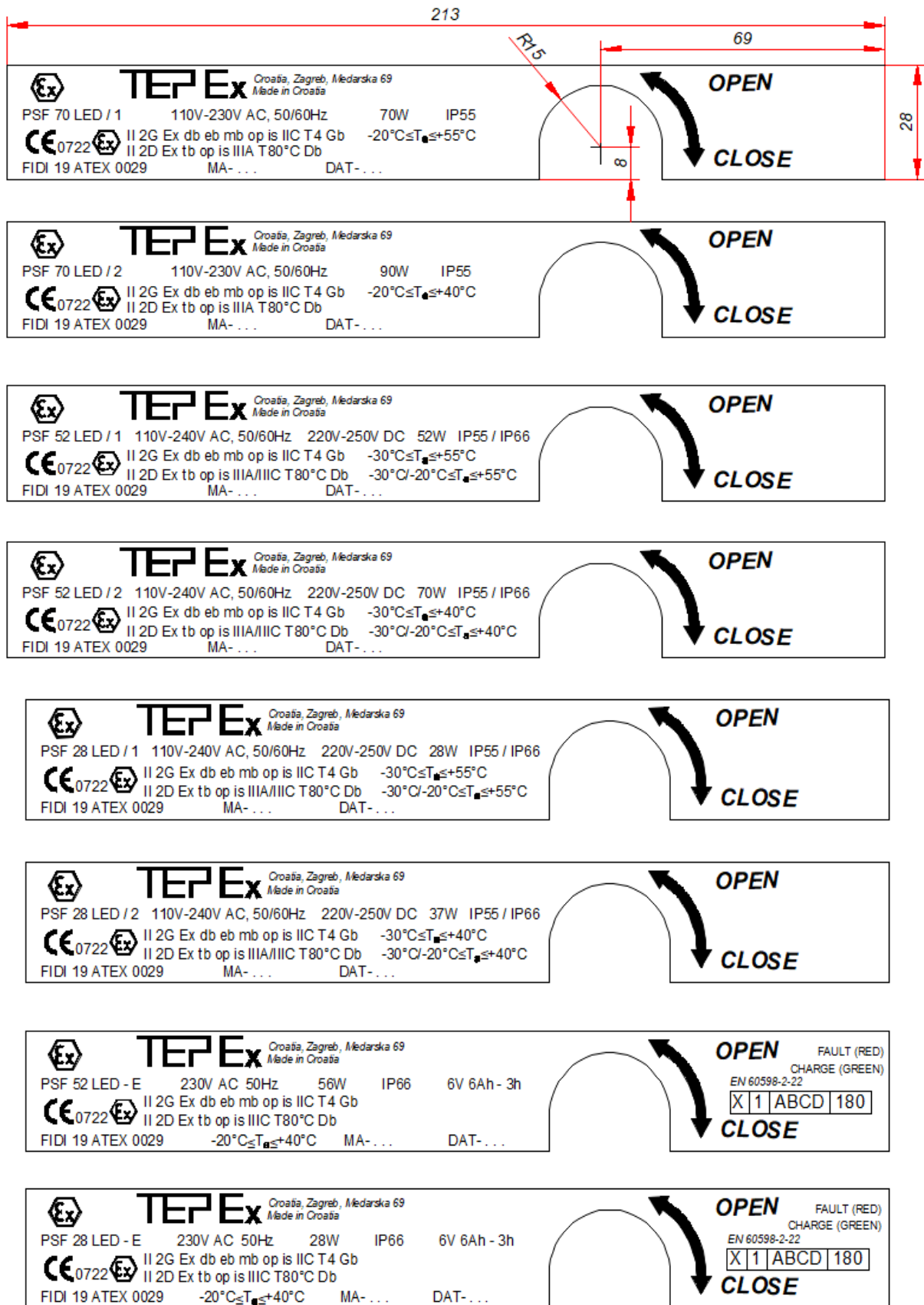
14. MARKING

Protueksplozijski zaštićene LED svjetiljke PSF 28 LED, PSF 52 LED, PSF 70 LED i LED sigurnosne svjetiljke PSF 28 LED/E i PSF 52 LED/E označene su:

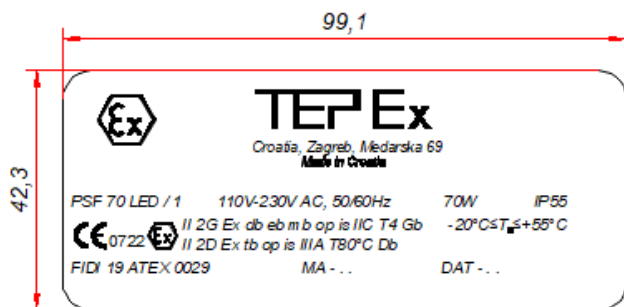
- natpisnom pločicom s tehničkim podacima na kućištu:

Explosion proof LED light fittings PSF 28 LED, PSF 52 LED, PSF 70 LED and LED emergency light fitting type PSF 28 LED/E and PSF 52 LED/E are marked with:

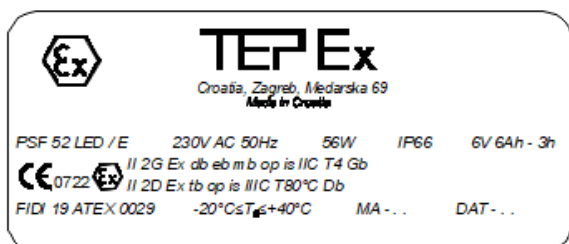
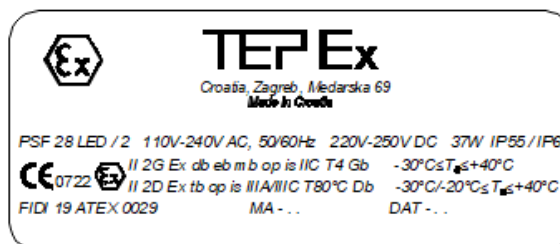
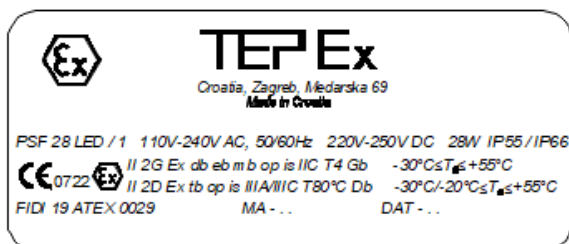
- external marking plate with technical data on housing:



- natpisnom naljepnicom s tehničkim podacima na LED modulu unutar kućišta:



- marking label with technical data on LED module inside housing



- tekstem na pokrovu:

- text on diffuser:

WARNING
POTENTIAL ELECTROSTATIC CHARGING HAZARD
CLEAN ONLY WITH A DAMP CLOTH