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## 1. MANUFACTURER

TEP Ex d.o.o.  
Prilaz dr. Franje Tuđmana 6 HR-49210 ZABOK  
Tel: +385 49 222 900  
Web: [www.tepex.hr](http://www.tepex.hr)

## 2. GENERAL SAFETY INFORMATIONS



### 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 instruction.

### 3. PURPOSE

Explosion protected pendant light fitting type PLFS-N, is intended for general lighting in industrial areas with potentially explosive atmosphere Zones 1, 2, 21, 22 in accordance with EN 60079-10-1 and EN 60079-10-2.

### 4. PRODUCT COMPLIANCE

Design of lighting fitting is accordance with the standard EN 60598-1 and all related standards.

The product is in compliance with Regulations concerning equipment and protective systems for use in potentially explosive atmosphere.

The product complies with the ATEX Directive 2014/34/EU and standards:

- EN IEC 60079-0:2018,
- EN 60079-1:2014,
- EN IEC 60079-7:2015/A1:2018,
- 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, EN ISO 80079-34 and EN ISO 14001.

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 EMC Directive 2014/30/EU.

### 5. DEGREE OF PROTECTION AND DATA

Certificate:	FIDI 19 ATEX 0036
Category and explosion protection:	 0722  II 2G Ex db eb IIC T6-T3 Gb or II 2G Ex db IIC T6-T3 Gb II 2D Ex tb IIIC T85°C – T195°C Db
Ambient temperature:	-40°C ≤ T <sub>a</sub> ≤ +40°C / +50°C - PLFS-N/1/... .., PLFS-N/3/... .., PLFS-N/4/... .. -20°C ≤ T <sub>a</sub> ≤ +40°C / +50°C - PLFS-N/2/... ..
Mechanical protection:	IP66, category 1
Resistance to shock:	IK 08
Class of protection:	I (PE - protective earthing)
Rated voltage:	230 V / 50 Hz
Service voltage:	230 V (-10% / +6%) / 50 Hz
Rated power:	see selection table
Luminous flux	see selection table
Wiring:	Radox 155 ili Betatherm 155, IEC 60228:2005 class 5, 1,5mm <sup>2</sup>
Junction box:	Aluminium housing 120x120x80mm 2 x M25 endries – 1 x cable gland + 1 x plug
Poliamid cable gland and plug:	ATEX certificated cable gland ISO 25 II 2G/D Ex eb/tb IP66 in accordance EN 62444 ATEX certificated plug ISO 25 II 2G/D Ex eb/tb IP66 in accordance EN 62444
Connection terminals inside Ex e junction box:	L + N + PE ATEX certificated terminals II 2G Ex eb – CMC 1-2, 0,5- 4mm <sup>2</sup>
Adapter ADP 23/1:	ATEX certificated adapter, tip ADP 23/1, II 2G Ex db eb IIC Gb II 2D Ex tb IIIC Db, for diameter cable Ø <sub>v</sub> 7-15 mm Certificate: FIDI 19 ATEX 0014X It is possible through wiring with two adapters ADP 23/1
Connection terminals inside adapter ADP 23/1:	terminals for connection L + NE + PE; 2,5 mm <sup>2</sup> , solid, stranded
Brass cable gland:	ATEX certificated cable gland ISO 25 II 2G/D Ex db/tb IP66 in accordance EN 62444
Connection cable for direct entry via brass cable glands:	connection on tree-pole plug inside housing for connection L + N + PE; 2,5mm <sup>2</sup> solid, stranded
Tightening torque	screws of Ex eb terminal 1,2 Nm screws of Ex eb cover of junction box 0,8 Nm pressure nut of cable gland 2,5 Nm
Ballast:	- PLFS-N/.125 HME, PLFS-N/.110 HSE Plug in: 125W HM, 1,15A, 230V, 50Hz, ΔT=50K in accordance EN 60923, EN 61347-1, MTX 530-125 Ts Ord. No. – 9105, Elkosun d.o.o. - PLFS-N/.70 HIE,HSE, PLFS-N/.70 HSE/I: 70W HS, HI, 0,98A, 230V, 50Hz, ΔT=50K in accordance EN 61347-1, Ref. No.: 543741, Vossloh Schwabe GmbH

	<ul style="list-style-type: none"> <li>- PLFS-N//100 HIE,HSE: 100W HS, HI, 1,2A, 230V, 50Hz, ΔT=55K in accordance EN 61347-1, Ref. No.: 543739, Vossloh Schwabe, GmbH</li> <li>- PLFS-N//150 HIE,HSE: 150W HS, HI, 1.8A, 230V, 50Hz, ΔT=45K in accordance EN 61347-1, Ref. No.: 543740, Vossloh Schwabe GmbH</li> </ul>
Capacitor:	<ul style="list-style-type: none"> <li>- PLFS-N//70 HIE,HSE, PLFS-N//100 HIE, PLFS-N//110 HSE Plug in: MFR - 25, 12μF, 250V, 100°C, M8 Ø35x63mm, ITALFARAD S.p.A</li> <li>- PLFS-N//150 HIE,HSE: MFR - 25, 20μF, 250V, 100°C, M8 Ø40x63mm, ITALFARAD S.p.A</li> </ul>
Ignitor:	<ul style="list-style-type: none"> <li>- PLFS-N//70 HIE,HSE, PLFS-N//100 HIE,HSE, PLFS-N//150 HIE,HSE: Z 250 S, 220-240V, max. 3,5A, &lt;1,8W, &lt;20K, Red. No.: 140425, Vossloh Schwabe GmbH</li> </ul>
Lamp holder:	<ul style="list-style-type: none"> <li>- E27, 250V, 4A, in accordance EN 60238, Ref. No.: 102617, Vossloh Schwabe GmbH,</li> <li>- E40, 750V, 4A, in accordance EN 60238; Ref. No.: 532605, Vossloh Schwabe GmbH.</li> </ul>
Dimension:	<ul style="list-style-type: none"> <li>- PLFS-N/1/... .. - 276x290x435mm,</li> <li>- PLFS-N/2/... .. - 276x280x435mm,</li> <li>- PLFS-N/3/... .. - 276x270x435mm,</li> <li>- PLFS-N/4/... .. - 276x270x435mm.</li> </ul>
Mounting:	Pendant, on pipe, wall, ceiling mounting

**Threaded joint:**

- M195x 2 - 6H/6g, middle tolerance according to ISO 965-1, thread DIN 13 T.24, 9 full threads,
- M20 x 1,5 - 6H/6g, middle tolerance according to ISO 965-1, thread ISO 965-3, 10 hull threads ili
- 1/2" NPT according to ANSI/ASME B1.20.1, 8 full threads.

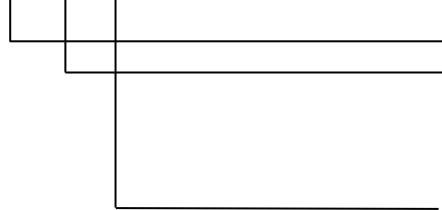
For type with mounting Ex db eb adapter (PLFS-N/2) there are specific conditions of use:

- the user shall provide additional clamping of the cable outside the cable glands because cable gland of multi-core busging with terminal compartment was tasted with lower tensile force according to A.3.1.1. of standard EN IEC 60079-0
- the product shall be installed in areas with a lower risk of impact because cable gland of multi-core busging with terminal compartment was tested with lower impact energy according to EN IEC 60079-0.

For the type of lamps PLFS-N/3/205 QT and PLFS-N/4/205 QT at the highest permissible ambient temperature Ta max = 40°C, cable suitable for a minium temperature of 90° shall be used and for the type of lamps PLFS-N/3//205 QT and PLFS-N/4/205 QT at a highest permissible ambient temperature Ta max = 50°C, cable suitable for a minimim temperature of 100°C shall be used.

## 6. TYPE

PLFS-N / . / ... ..



**basic type code**

**Type of entries:**

- 1 – indirect entry – type with Ex eb junction box,
- 2 – indirect entry – type with Ex db eb adapter ADP 23/1,
- 3 – direct entry – type with Ex db cable gland M20x1,5,
- 4 – direct entry – type with Ex db cable gland 1/2"

**Type of lamps:**

- **30 TC-SB** – 30W compact fluorescent lamp, E27
- **160 LME** – 160W mixed lamps, E27
- **150 QT** – 150W halogen lamp, E27
- **205 QT** - 205W halogen lamp, E27
- **70 HSE/I** – 70W high pressure sodium with integrated ignitor, E27
- **125 HME** – 125W high pressure sodium, E27
- **110 HSE Plug in** –110W Plug in compatible high pressure sodium, E27
- **70 HIE, HSE** – 70W metalhalide lamp and 70W high pressure sodium, E27
- **100 HIE** – 100W metalhalide lamp, E27
- **100 HIE, HSE** - 100W metalhalide lamp and 100W high pressure sodium, E40
- **150 HIE** - 150W metalhalide lamp, E27
- **150 HIE, HSE** - 150W metalhalide lamp and 150W high pressure sodium, E40

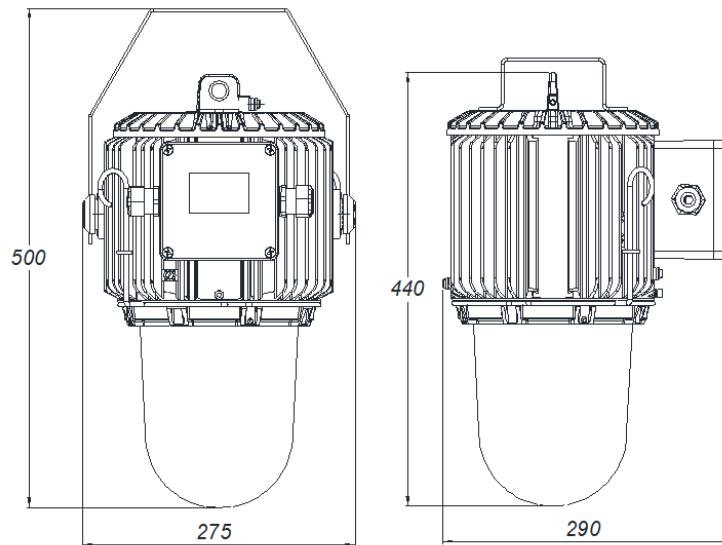
Type of reference sources:

Model code	Max. wattage and LBS (ZVEI) type of lamps	Lamp holder	Temp. class (gas)		T <sub>0</sub> MAX (dust)		OSRAM type	PHILIPS type
			T <sub>a</sub> =40°C	T <sub>a</sub> =50°C	T <sub>a</sub> =40°C	T <sub>a</sub> =50°C		
PLFS-N./30 TC-SB	30W TC-SB	E27	T6	-	85°C	-	Dint LL 30W 825 E27 / 2000lm	Master PL-Electronic 27W 827 / 1820lm
PLFS-N./160 LME	160W LME	E27	T5	T4	95°C	130°C	HWL 160W 225V E27 / 3100lm	ML 160W / 3200lm
PLFS-N./150 QT	150W QT	E27	T4	T4	130°C	130°C	Halolux Ceram ECO 150W 230V B15D / 2870lm	-
PLFS-N./205 QT	205W QT	E27	T3	-	195°C	-	Halolux Ceram ECO 205W 230V B15D / 4200lm	-
PLFS-N./70 HSE/I	70W HSE/I	E27	T5	T4	95°C	130°C	NAV-E 70W/I E27 / 5900lm	SON 70W 220 Internal Ignitor / 5600lm
PLFS-N./125 HME	125W HME	E27	T4	T4	130°C	130°C	HQL 125W E27 / 6300lm	HPL-N 125W/542 / 6200lm
PLFS-N./110 HSE Plug-in	110W HSE Plug-in	E27	T5	T4	95°C	130°C	NAV-E 110W E27 / 8000lm	SON H 110W / 9600lm
PLFS-N./70 HIE,HSE	70W HIE	E27	T5	T4	95°C	130°C	HQI-E/P 70W/WDL CL / 5890lm HQI-E/P 70W/NDL CL / 6175lm HQI-E/P 70W/WDL CO / 5600lm HQI-E/P 70W/NDL CO / 5900lm	Master CityWhite CDO-ET 70W 828 / 7230lm
	70W HSE						NAV-E 70W Super 6Y / 6300lm NAV-E 70W Super 4Y / 6300lm	Master SON Apia Plus Xtra 70W / 5900lm Master SON Pia Plus 70W / 5900lm
PLFS-N./100 HIE	100W HIE	E27	T5	T4	95°C	130°C	HQI-E/P 100W/WDL CL / 8075lm HQI-E/P 100W/NDL CL / 8360lm HQI-E/P 100W/WDL CO / 7700lm HQI-E/P 100W/NDL CO / 7950lm	-
PLFS-N./100 HIE,HSE	100W HIE	E40	T5	T4	95°C	130°C	-	Master CityWhite CDO-ET 100W 828 / 9400lm
	100W HSE						NAV-E 100W Super 6Y / 10400lm NAV-E 100W Super 4Y / 10400lm	Master SON Apia Plus Xtra 100W / 10700lm Master SON Pia Plus 100W / 10000lm
PLFS-N./150 HIE	150W HIE	E27	T4	-	130°C	-	HQI-E/P 150W/WDL CL / 12690lm HQI-E/P 150W/NDL CL / 12690lm HQI-E/P 150W/WDL CO / 12100lm HQI-E/P 150W/NDL CO / 12100lm	-
PLFS-N./150 HIE,HSE	150W HIE	E40	T4	-	130°C	-	-	Master CityWhite CDO-ET 150W 828 / 15100lm
	150W HSE						NAV-E 150W Super 6Y / 17000lm NAV-E 150W Super 4Y / 17000lm	Master SON Apia Plus Xtra 150W / 17500lm Master SON Pia Plus 150W / 16100lm

## 7. MOUNTING AND INSTALLATION

Assemblage and installation is done according to technical and certification data on warning labels on lamp, this user manual by manufacturer, national regulations and laws. Only with that, explosion-proof protection of pendant light fitting is ensured with EC-type certificate. Blockade switch is ensuring non-voltage state on E27 or E40 lampholder when the Ex db casing is opened. In that way is possible to replace the light source without switching off the electrical current. Before opening the Ex db casing by screwing the protective glass with glass holder, it is necessary to unblock it mechanically by twisting the blockade screw M5x12 on glass holder and turn glass holder with protective glass on the left. Connection cable is introduced in Ex eb casing trough M25x1,5 Ex eb cable gland. Ex eb glands and plugs are a part of the original product, and are secured by the manufacturer. Special attention must be dedicated to selection of inner gasket sealing ring of Ex eb gland according to diameter of connecting cable. Gland screw and gland body with threads must be tightened with torque regulated by manufacturer. The electric connection is performed by linking power supply cable on the Ex eb terminals into the Ex eb housing: L1, L2, L3, N and protective grounding on PE terminal. The conductor for equalization of potentials / outer grounding – connect to the outer connection terminal. The closing of the casing should be done by a reverse sequence of action. During installation one must also be careful that the maximum angle to hanging lighting fitting have to be 45° from vertical position.

## 8. DIMENSIONS



## 9. INSPECTION, MAINTENANCE, REPAIR AND OVERHAUL

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

- that the housing, all part of housing, replacement glass and gaskets without rupture and damage,
- that the housing completely closed with replacement glass compound and that mechanical blockage against self opening is done,
- that the cable gland, plug, adapter, pressure nut of cable gland, screws cover of junction box and connection terminal are fastened with nominal torque.


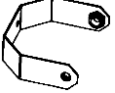

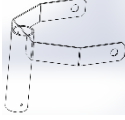
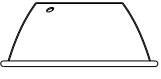
All the repairs are performed by the manufacturer or the manufacturer's authorized personal and the original parts must be provided according to the product documentation, all in accordance with EN 60079-19.

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.

## 10. SPARE PART

SKETCH	DESCRIPTION	CODE	SKETCH	DESCRIPTION	CODE
	Replacement glass PLFS-N	PLFS-N 10-110		II 2G Ex db eb II 2D Ex tb adapter ADP 23/1	ADP 23/1
	Gasket PLFS-N	PLFS-N 10-120		II 2G Ex eb II 2D Ex tb Cable gland	PLFS-N 20-160
	Ballast set PLFS-N	PLFS-N 10-130		II 2G Ex eb II 2D Ex tb plug	PLFS-N 20-170
	Lamp holder E27 Lamp holder E40	PLFS-N 10-140		II 2G Ex db II 2D Ex tb Cable gland	PLFS-N 20-180
	Plug and socket terminals	PLFS-N 10-160		II 2G Ex db II 2D Ex tb plug	PLFS-N 20-190

## 11. ACCESSORIES

SKETCH	DESCRIPTION	CODE	SKETCH	DESCRIPTION	CODE
	Wire guard PLFS-N	PLFS-N 20-110		Mounting bracket (ceiling and wall mounting) PLFS-N	PLFS-N 20-120
	External reflector – wide beam PLFS-N	PLFS-N 20-140		Fixing bracket for tube R 1 1/2" PLFS-N	PLFS-N 20-130
	External reflector – narrow beam PLFS-N	PLFS-N 20-150			

## 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.


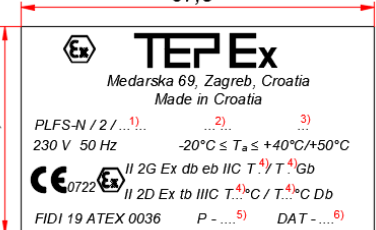

## 13. MANUFACTURER'S WARRANTY

The manufacturer provides a warranty on the product for a period of one year under the provisions of this user manual and the law on obligations. This statement has the force of Warranty sheet.

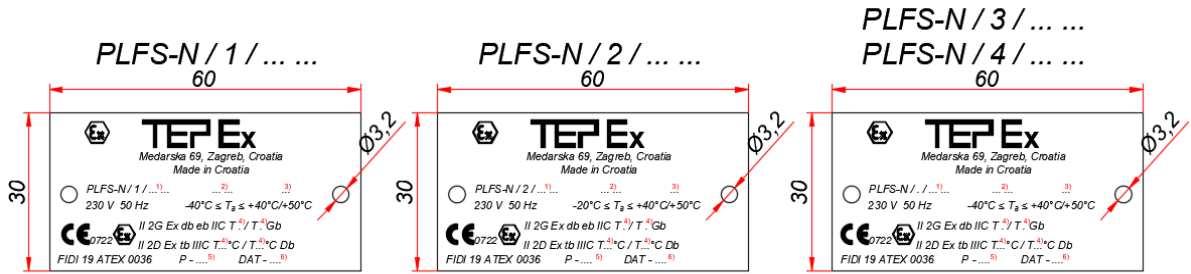
## 14. MARKING

Explosion-protected pendant lighting fitting , type PLFS-N is labeled with:

- external marking plate with technical data for type PLFS-N/1/... .. on cover of junction box, for type PLFS-N/2/... .., PLFS-N/3/... ..and PLFS-N/4/... .. on housing:

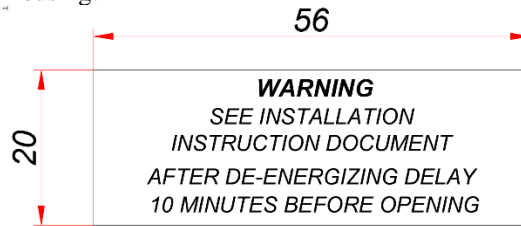
	PLFS-N / 1 / ... .. 67,5	PLFS-N / 2 / ... .. 67,5	PLFS-N / 3 / ... .. PLFS-N / 4 / ... .. 67,5
			

- inner marking plate with technical data on inner reflector:

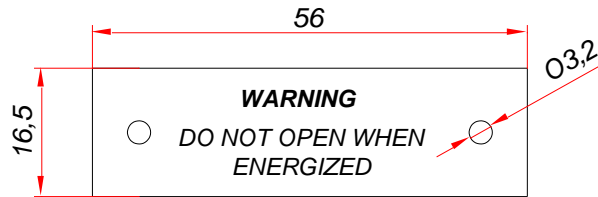


- 1) entered type of lamps
- 2) entered max wattage and LBS (ZVEI) type of lamp
- 3) entered type of lamp holder
- 4) entered temperature class and max. surface temperature
- 5) entered the number of individual tests
- 6) entered a date

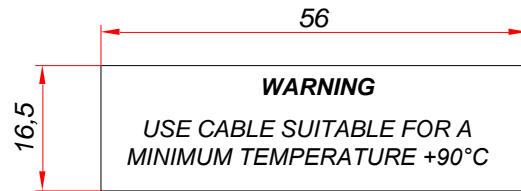
- external warning plate on housing:



- inner warning plate on inner reflector:



- external warning plate on housing for types PLFS-N/3/205 QT and PLFS-N/4/205 QT and temperature ambient  $T_a=40^\circ\text{C}$



- external warning plate on housing for types PLFS-N/3/205 QT and PLFS-N/4/205 QT and temperature ambient  $T_a=50^\circ\text{C}$

