

## 1. GENERAL SAFETY INSTRUCTIONS



### WARNING

The user manual contain basic safety instructions to be observed during installation, operation and maintenance of device, and for properly and safety run of the device according to its performance data. Any damage may render explosion protection null and void. This manual represents the most relevant information about the product. Adequate national laws and regulations supplement it. Non-observance will endanger persons, plant and the environment. The person in charge is required to secure its employment in the industrial unit. Every improper or unofficial usage, as well as non-compliance with the rules of this manual, release the manufacturer of all responsibilities.

#### **Before assembly/commissioning**

- Read through the operating instructions,
- Give adequate training to the assembly and operating personnel,
- Ensure that the contents of the operating instructions are fully understood by the personnel in charge,
- The national installation and assembly regulations (e.g. IEC/EN 60079-14) apply.

#### **If you have questions:**

- Contact the manufacturer

#### **When operating the device:**

- Ensure the operating instructions are made available the personnel in charge on location at all times,
- Observe these instructions, other working instructions and national safety regulations,
- Verify the implementation of safety instructions.

## 2. PURPOSE

Explosion proof emergency light fitting type FLXE 118 LED is designed to illuminate areas endangered by flammable and explosive mixtures of gases and air, as well by presence of combustible dust, fibres or flyings, in zones 1, 2, 21, 22, in accordance with standards IEC 60079-10.

The product is suitable for design of emergency-projects according to luminous and electrical requirements of standards EN 1838:1999 and EN 50172:2004 as well as VDE 0108-100:2010.

## 3. CONFORMITY WITH STANDARDS

The product meets all requirements of EN 60598-1:2008/A11:2009, EN 60598-2-22:1998, EN 62034:2012, EN 62031:2008 and EN 62471:2008 and all related standards. The product is developed, manufactured and tested in accordance with EN ISO 9001:2008 and EN 80079-34:2011.

The regulations and standards it complies with include:

- Directive 94/9 EC - ATEX
  - EN 60079-0:2009
  - EN 60079-1:2007
  - EN 60079:31:2009
- Directive 2004/108 EC - Elektromagnetic compatibility
  - EN 55015:2006/A1:2007/A2:2009
  - EN 61547:2009
  - EN 61000-3-2:2006/A1:2009/A2:2009
- Directive 2002/95 EC - RoHS

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EXPLOSION PROOF EMERGENCY LIGHT  
FITTING type FLXE 118 LED**

No: TEPEX.RS.016

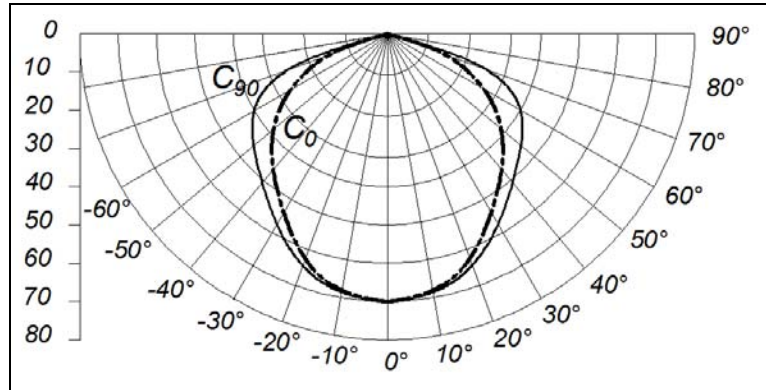
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**4. DEGREE OF PROTECTION AND TECHNICAL DATA**

Certificate	Ex-Agency Croatia CESI
Device protection and explosion protection:	II 2G Ex d IIC T6 Gb II 2D Ex tb IIIC T80°C Db
Operating temperature range:	-20oC : +50oC
Degree of protection:	IP66 / IP67, EN 60529:1991/A1:2000
Impact resistance:	IK 08 , EN 62262:2002
Class of protection:	I (protective earthing)
Rated operational voltage:	24 - 240 V AC/DC $\pm$ 10 % (see table of version)
Rated current:	10 VA
Power factor:	cos $\phi$ > 0,95
Rated autonomy:	3 hours
Rated power and type of luminaire:	LED 2 x 1,2 W chip-on-board tehnology
Measuring luminous flux(power and battery operation):	200 lm
Temperatura boje svjetlosti:	6500 K
Color rendering index (CRI):	>70
Average rated life of LED:	$\geq$ 50 000 hours
Visibility (EN 1838)	22 m
Operation efficiency:	$\sim$ 80 %
Change-over Battery operation: Mains supply operation:	U < 0,8 Un for more than 0,5 seconds U > 0,9 Un for more than 1 second
Battery:	Ni-Mh Saft VHT 3,6 V/2 Ah, IEC 61951-2:2011, built-in lighting, microprocessor controlled charging, discharging and battery monitoring
Battery life:	min. 2000 charging cycles or min. 4 years in nominal operating conditions
Charging time:	15 hours (12 hours > 90% nominal autonomy), continous battery recharge
Connection terminals:	FLXE 118 LED/. 0, FLXE 118 LED/. 1 - snap-in terminals for mains supply L, L', N, PE, TEST, RESET, 2,5 mm <sup>2</sup> max. per terminal, solid, stranded, flexible - sol(r), s(r), f
	FLXE 118 LED/. 2, FLXE 118 LED/. 3 - screw terminals, of Ex de Adapter ADP, for mains supply L, L', N, PE as well as TEST and RESET conectors; - 2,5mm <sup>2</sup> max. per terminal, solid, stranded, flexible - sol(r), s(r), f; nominal fastening torque 1,2Nm; - Ex e cable gland ISO 25 on Adapter ADP for cable $\varnothing$ 6-15mm; nominal fastening torque 2,5 Nm
	- earthing terminal (external) (equipotential), 2 x 6mm <sup>2</sup> max. per terminal, solid, stranded, flexible - sol(r), s(r), f; nominal fastening torque 2,2 Nm
Storage:	- max. 4 months on temperature +5oC : +25oC and humidity 65 $\pm$ 5%, - max. 1 month on temperature -20oC : +5oC or +25oC : +70oC and humidity 65 $\pm$ 5 %

**5. ISOCANDELA DIAGRAM [I/cd]**



**6. MODEL CODE**

**FLXE 118 LED**

**Emergency description (pictogram)**  
*in accordance with DIN 4844*

0	With red tape	5	
1		6	
2		7	
3		8	
4			

**Rated voltage:**

- 0 ... 24 V AC/DC
- 1 ... 60 V AC/DC
- 3 ... 110 - 127 V AC/DC
- 4 ... 220 - 240 V AC/DC

**Cable entry:**

- 0 ... Ex d cable entry 2 x M20x1,5, ISO 965-1, ISO 965-3
- 1 ... Ex d cable entry 2 x 3/4"NPT, ANSI/ASME B1.20.1
- 2 ... Ex de adaptera ADP 24 (for cable 6-15mm)
- 3 ... 2x Ex de adaptera ADP 24 (for cable 6-15mm) through wiring

## 7. OPERATING MODES

The lamp can operate with two types of connection:

**a) Maintained** (Dauerschaltung)

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

**b) Non maintained** (Bereitschaftschaltung)

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

In both types of the connection in the presence of continuous phase L, it is possible to verify the correctness of the emergency system by turning on the switch in the TEST circuit.

In both types of the connection in the presence or interruption of continuous phase L, regardless of the status of the power supply L', it is possible to turn OFF the emergency lighting, by turning ON the switch in the RESET circuit.

In case of an interruption in the mains power supply and then recovery of continuous phase L (L'), if the installation switch is turned ON, the light fitting will work in operating mode powered by the mains power supply.

**Max. 20 light fitting in line wiring can be connected per external switch. For larger numbers of line wiring of TEST/RESET circuits and longer cable lengths, please consult the manufacturer.**

The light fitting is equipped with an electronic set for emergency lighting self-monitoring function and status signaling function. Self-monitoring is permanent. status signalisation is indicated with red and green indicator LED when the light fitting does not work.

**Constant green LED**, indicates the optimal functionality of the emergency system and the nominal autonomy, with batteries rated capacity within the rated ambient temperature. Batteries are permanently charged in "trickle charge" mode.

**Blinking green LED**, indicates the functionality of the emergency system in non-nominal autonomy. Autonomy is between 1 and 3 hours. Batteries are under charging phase with rated current.

**Constant Red LED**, indicates the dysfunction of the emergency system. Reasons for this may include some of the following:

- batteries are empty. The lamp should be left on the main power supply. After a while the signalisation will by itself transferr into green LED, blinking lights and emergency lighting will become functional
- Ex d cover isn't screwed completely. Screw until green LED appears, blinking lights and emergency lighting becomes functional,
- 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 LED module, type FLXE 10-130,
- batteries are old and can't reach the required charging voltage and capacity. It is necessary to replace the LED module, type FLXE 10-130,
- the fuse in the battery circuit Ø 5 x 20 mm 1.25 AT is faulty. Should be replaced.  
Faulty fuse indicates the defective batteries. You will probably need to replace the LED module, type FLXE 10-130,
- ambient temperature is outside specification limits.

**Self-monitoring does not include a control of the LEDs validity.**

Description of tag on the light fitting **X 1 ABCD 180** , according to EN 60598-2-22:

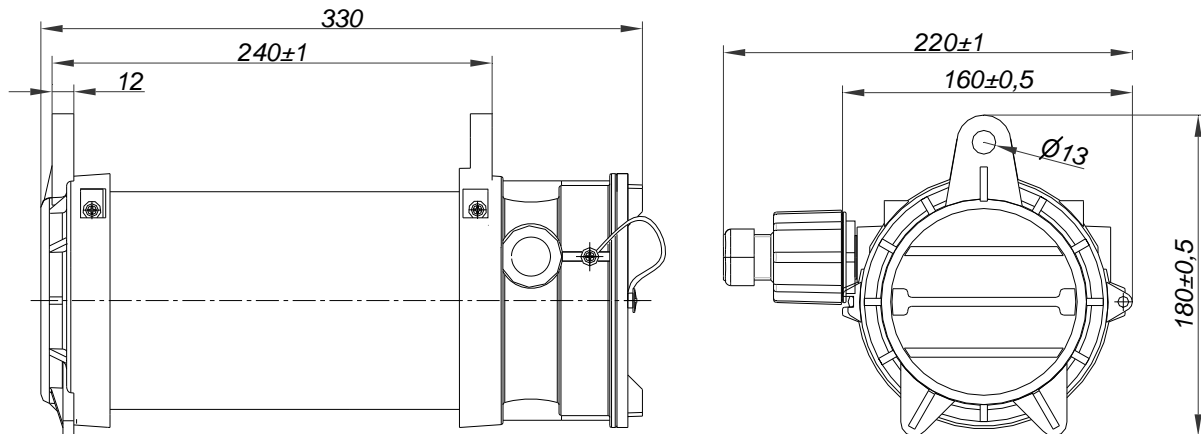
X - emergency light fitting with built-in batteries

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 automaticall turn ON after power return option  
C - emergency light fitting with RESET function  
D - emergency light fitting for use in areas with special hazards  
180 - emergency light fitting with autonomy of 3 hours

## 8. DIMENSION



## 9. MOUNTING

Fixing dimensions are shown in article 8. Light fitting is suitable for ceiling, wall or pole mounting, the accessories are not included, see table in article 12. for the correct selection of the mounting accessories and article 6. for self-adhesive pictograms.

Ex d cable glands and plugs are not an part of the delivery for the types FLXE LED 118/0. and FLXE LED 118/1.

Light fitting with TEST and RESET function must be equipped with two Ex d cable glands or two Ex de adapter type ADP 24.

Light fitting type FLXE 118 LED/2. and FLXE 118 LED/3. is provided with one or two Ex de adapter.

**Warning: Over tightening might damage the light fitting.**

**In case of use in an extremely aggressive atmosphere, please consult to the manufacturer.**

**The laight fitting is for functional reasons supplied with partially screwed cover. After mounting and before putting the light fitting into operation, the cover must be fully screwed with the enclosure and mechanically blocked with screw M5x10 (ISO 4027).**

**After opening the laight fitting, threded surfaca on cover and enclosure should be protected by protective means for threads.**

## 10. INSTALLING AND PUTTING INTO OPERATION

Network connection have to be performed through screwless terminals located on the LED module FLXE 10-130 according to wiring diagram and technical data:

### Maintained:

Permanent line has to be connected to the L(1) terminal. Phase conductor for power supply has to be connected through installation switch to the L'(4) terminal. One should be careful that phase L and L' are the same phase. Neutral conductor has to be connected to the N(3) terminal and protective earth conductor to the PE(2) terminal.

### Non maintained:

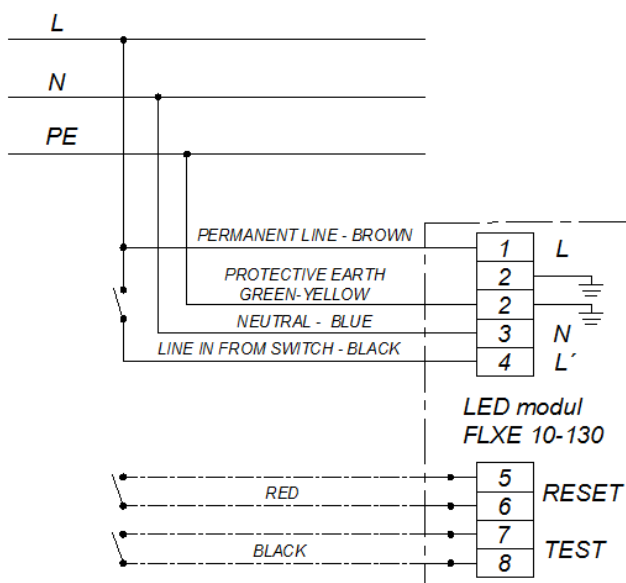
Permanent line has to be connected to the L(1) terminal. Neutral conductor has to be connected to the N(3) terminal and protective earth conductor to the PE(2) terminal. L'(4) terminal is not connected.

External grounding, equipotential - IP is connected to an external terminal provided with a grounding conductor 6 mm<sup>2</sup> solid (r), s (r), f.

**Label with a wiring diagram is on the LED module FLXE 10-130.**

If the electrical connection is performed through Ex de adapter, internal wiring is done by the manufacturer. The electrical connection to the terminals of adapter have to be performed according to wiring diagram below.

"RESET" circuit is connected to the (5) and (6) terminals and "TEST" circuit to the (7) and (8) terminals. In the case of parallel connection more than one RESET or TEST circuit one should be careful that the terminals of the same polarity are always short-circuited.



Before putting into operation it's necessary to check accuracy of installation and functionality of the lamp according to this manual and other applicable regulations. Insulation resistance test should be performed between the phase conductor L and protective earth conductor PE and between the neutral conductor N and protective earth conductor PE. Test voltage is max. 1kV AC and test current is max. 10 mA.

**Warning !**

**Do not carry out any testing between the phase conductor L and neutral conductor N. Otherwise, the LED module in the lamp will be destroyed.**

**11. INSTALLING, CONTROL, MAINTENANCE AND REPAIR**

Before each opening of the housing must be respected the warnings on the label:

**Do not open when energized**

**After de-energizing delay ten minutes before opening**

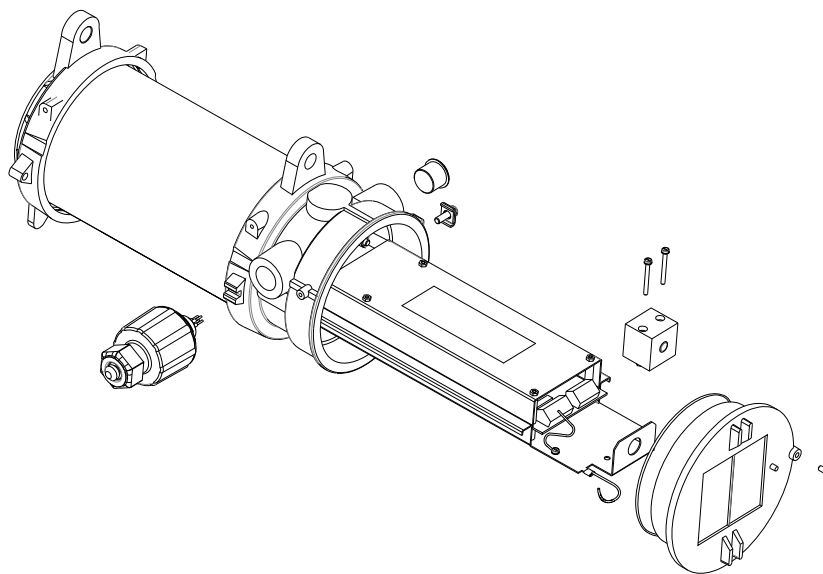
It is necessary to carry out inspections and maintenance of all components on which the explosion protection depends in accordance to standards HRN EN 60079-17:2007 (EN 60079-17:2007/C1:2008), general and special conditions of manufacturer and users regulations, in particular:









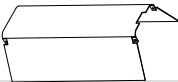



- the housing, all parts of housing, housing of adapter, the protective glass and the cover gasket are completely without a rupture or damage,
- the housing is completely closed by its cover and that the mechanical blockage against selfopening is carried out,
- the Ex d cable glands and plugs are installed by the instructions of the manufacturer and they are tightened with torque regulated by manufacturer,
- the gland gasket and Ex de adapter housing gasket are undamaged, and lock nuts are tightened with torque regulated by manufacturer.

Maintenance includes replacing of Ex d plugs and cable glands, Ex de adapter, housing cover, cover gasket and LED module. All other interventions on lamp have attribute of a repair. The repair of the lamp is carried out by the manufacturer or a person legally authorized by the manufacturer, with original parts from the products documentation in accordance to the standards HRN EN 60079-19:2007.

If the repair is carried out by a third person, the manufacturer is free of all responsibility for the product, and the declaration of conformity which is given by the manufacturer becomes insignificant.

## 12. SPARE PARTS AND ACCESSORIES



SKICA	DESCRIPTION	CODE	SKETCH	DESCRIPTION	CODE
	Housing cover set	FLXE 10-110		Ex d cable gland ISO 20	SPUD 20
	Cover gasket FLXE	FLXE 10-120		Ex d cable gland 3/4"NPT	SPUD 3/4"NPT
	Base plate FLXE	FLXE 10-130		Ex d plug ISO 20	SPCD 20
	Protective grid FLXE set	FLXE 20-140		Ex d plug 3/4"NPT	SPCD 3/4"NPT
	External reflector FLXE	FLXE 20-150		FLXE wall/ceiling mounting set	FLXE 20-170
	Junction box ADP 23	ADP 10-160		FLXE pipe mounting set	FLXE 20-180

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 EXPLOSION PROOF EMERGENCY LIGHT  
 FITTING type FLXE 118 LED**

No: TEPEX.RS.016

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**13. RESPONSIBILITY AND AUTHORIZATION**

This Manual represents the most relevant information about the product. Adequate national laws and regulations supplement it. Production, usage, certification and supervision are determined at the national level with:

- a) Regulations of Equipment and protective systems intended for use in potentially explosive atmospheres (Official Gazette no. 34/10.)
- b) Regulations of minimum requirements for safety and health protection of workers and technical Inspection of facilities, equipment, installations and devices in potentially explosive atmospheres (Official Gazette no. 39/06, 106/07.)

The responsible person shall ensure their implementation at the facility.

**14. STORAGE AND TRANSPORT**

Transport and storage is only allowed in the original packaging, on the way pointed out on the carton box.

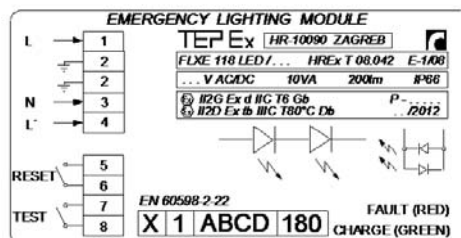
**15. MARKING**

Explosion protected fluorescent lighting fitting, type FLXE 118/. . is labeled with:

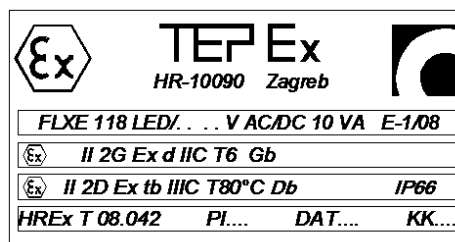
- a warning label on the cover of the lamp:

**WARNING**  
 DO NOT OPEN WHEN ENERGIZED  
 AFTER DE-ENERGIZING DELAY TEN MINUTES BEFORE OPENING

- a label with a wiring diagram on the LED module FLXE 10-130:



- a label with technical data on the cover of the lamp:



- 1) data according to model code
- 2) manufacturer data : - production number,  
 - number of a single examination,  
 - date,  
 - responsible person