TEPEx d.o.o.
10090 Zagreb, Medarska 69
tel. +385 49 222900, fax +385 49 426450
e-mail: tepex@tepex.hr
www.tepex.hr

USER MANUAL FOR EXPLOSION PROTECTED FLUORESCENT LIGHTING FITTING TYPE FLXE 118/..

Doc.No: TEPEx.RS.016 | Ver : 0 | Date: 31.08.2010.

PURPOSE

Explosion proof fluorescent lighting fitting type FLXE 118/.. with self-contained power supply is intended for use as emergency and common lighting in industry areas:
- in areas endangered by flammable and explosive mixtures of gases and air, fumes of flammable liquids and air, or various combinations between the two, in danger zones 1,2 in ordinance with standards IEC 60079-10/02,
- in areas endangered by explosive and flammable mixtures of dust and air in danger zones 21, 22 in ordinance with standards EN 50281-3/02.

MODEL CODE

FLXE 118/ . . .

base type description

description of the cable entry type:
- 0 - EEx d cable entry 3 x M20, ISO 965-1, ISO 965-3
- 1 - EEx d cable entry 3 x 3/4"NPT, ANSI/ASME B1.20.1
- 2 - EEx e indirect cable entry 1 x M25 (EEx de adapter)

emergency description (pictogram)

TYPE OF PROTECTION

The explosion-protection ensure "Flameproof enclosures" type of protection, utilizing "General requirements" according to EN 50018/00.+A1/02, EN 50014/97.+C1/98.+A1,A2/99. and the "Electrical apparatus protected by enclosures" type protection according to EN 50281-1-1/98.
Apparatus category: II 2GD
Marking of explosion-protection:
- EEx d IIC T6, T 80ºC, IP 66/IP 67 - type FLXE 118/. 0 and FLXE 118/. 1
- EEx de IIC T6, T 80ºC, IP 66 - type FLXE 118/. 2

Degree of protection (IP Code): IP 66 / IP 67 in accordance with EN 60529+A1
Enviroment temperature: $-20ºC \leq T_A \leq +40ºC$
Degree of protection (IK Code): IK 08 in accordance with EN 50102
Insulation class : I (protective earthing) in accordance with EN 61140
Electromagnetic compatibility: in accordance with the Directive 89/336 EEC, EN 55015, EN 61547

Tehnical data:

Rated voltage:	230 - 240 V / 50 - 60 Hz
Rated power:	21 W
Power grid current at 230V:	0,09 A
Power and light source:	18 W fluorescent compact tube TC-L, base 2G11, electronic ballast with integrated module for emergency lighting
Lumen output:	
- network grid power supply	750 lm (DULUX L 18W/840), R_a = 1B
- battery power supply	~ 500 lm
Rated autonomy:	3 hours
Lumen output at the end of rated autonomy:	$Ø_E/Ø_N$ = 75%
Luminaire efficienty:	~ 80 %
Voltage when passing from network grid on to battery power supply:	U < 178 V duration more than 0,5 seconds
Voltage when passing from battery power on to network grid supply:	U > 195 V (0,9 U_n) duration more than 1 second
Battery:	Ni-Cd 6V/4Ah, build in lamp, microprocesor controled charging, decharging and control of battery
Battery charging time:	24 hours (20 hours > 90% rated autonomy)
Enviroment temperature: (in all work conditions)	-15ºC to +40ºC
Cable entries:	-FLXE 118/. 0 - 3 x M20 in accordance with ISO 965-1, ISO 965-3, without EEx d cable glands and stopping plugs -FLXE 118/. 1 - 3 x 3/4"NPT in accordance with ANSI/ASME B1.20.1, without EEx d cable glands and stopping plugs -FLXE 118/. 2 - 3 x M20 in accordance with ISO 965-1, ISO 965-3, with one EEx de adapter for cable gland, $Ø_v$ 6-15 mm, and one EEx d stopping plug M20

Connection terminals:

FLXE 118/. 0 , FLXE 118/. 1:
- L1, L2, N, PE, S1,
2 x 4mm^2 max. / clamp - solid, stranded
passtrough wireing is possible,
- clamp for external earthing
2 x 6mm^2 max. - solid, stranded, tightening torque for screw clamp 2,2 Nm.
FLXE 118/. 2:
- clamps in EEx de adapter for connection L1, L2, N, PE, 2,5mm^2 max. / clamp - solid, stranded; tightening torque for clamp screw 1,2 Nm; EEx e cable gland M25 for cables $Ø_v$ 6-15 mm; tightening torque for gland screw 2,5 Nm,
- clamp for external earthing
2 x 6mm^2 max. - solid, stranded, tightening torque for screw clamp 2,2 Nm

Work mode:

Network grid power supply – common lighting – Network connection have to be performed according to scheme on electronic module - N, L1, L2, PE. Switch phase connection have to be performed through switch on L2 clamp. Phase connection for power supply of electronic module have to be performed through N, L1, PE clamps.

Battery supply – emergency lighting – three types of connection are possible:

a) maintained (permanent, Dauerschaltung)

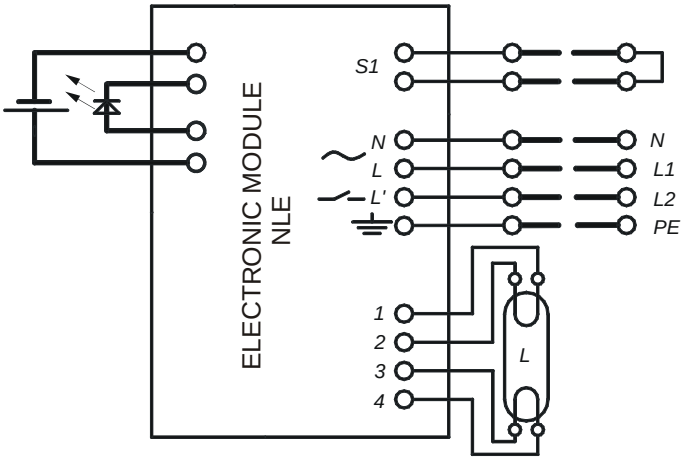
In case of network grid power supply failure, no matter of position of switch in L' circuit (network grid power supply is switched on or off), luminaire is working in emergency mode. Network connection have to be performed according to scheme - N, L1, L2, PE. Contacts S1 have to be connected with jumper bar on connection plug clamp in luminaire (performed by manufacturer).

b) permanent connection with possibility of disconnecting emergency lighting

Just like a) only that contacts S1 lead outside the lamp (remote switch). With switch is possible to turn on or off the emergency lighting if network grid power supply occur.

c) non maintained (non permanent, Bereitschaftschaltung)

Luminaire doesn't work on network grid power supply, only with battery supply in case of network grid power supply failure. Network connection have to be performed according to scheme - N, L1, PE – <u>do not</u> connect L2. Contacts S1 have to be connected with jumper bar on connection plug clamp in luminaire (performed by manufacturer).



<u>Selfcontrol of rightness emergency lighting</u>

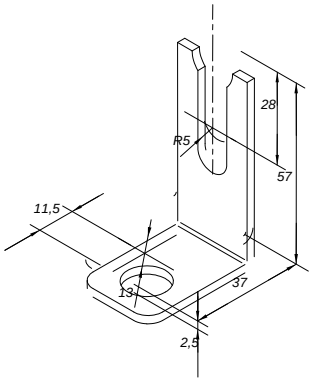
In time periods specified by manufacturer, when network grid power supply is present, electronic module automaticaly execute selfcontrol of rightness functionality of emergency lighting and battery capacity.

	Functionality test	Capacity test
Assumption for test	1 hour of continues network grid power supply	48 hours of continues network grid power supply
Continuance	1 minute	2 hours
Repetition period	7 days	364 days
Test signalization	LED-signal: test functionality / capacity	
Test object	functionality of light source (tube mulfunction) functionality of battery (battery mulfunction)	
Mulfunction signalization	LED-signal: tube mulfunction / battery mulfunction	
Procedure when the tube is defected	test is finished, it won't happen again	test is finished, will be repeated again when mulfunction is eliminated
Procedure when the battery is defected	test is finished, it won't happen again	

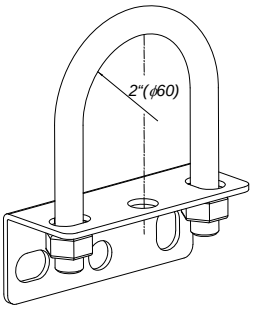
Tube mulfunction:
Mulfunction will be signalized with LED diode imediatly after occuring. Normaly function of tube is possible. Removing of mulfunction will cancel LED signal.
Battery mulfunction:
Mulfunction will be signalized with LED diode imediatly after occuring. Normaly function of battery is still possible in range of acceptable parameters. Successfully conduct capacity test will cancel mulfunction signal.
Returning of electronic module in initail condition – delivery condition:
Returning assume setting of test functionality calendar on beginning and canceling mulfunction signal. For that purpose voltage on phase connection clamps must be in interval less than 30 seconds cut off at least 3x with duration period of minimal 2 seconds. „RESET“ (returning on initail condition) will be cunduct for cca. 5 seconds. Next, like after first installing, electronic module automaticaly execute functionality and capacity test .
LED signalization:
Event information is given by LED signal coding. Presentation priority, by more simultaneously events, is given in table.

Priority	Way of working	Description	LED signal
01	network grid power supply	RESET	
02		battery mulfunction	
03		tube mulfunction	
04		functionality / capacity test	
05		permanent battery charging	

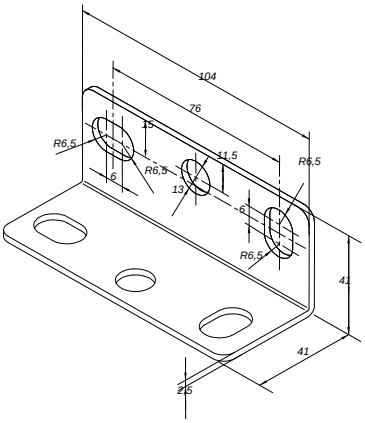
ASSEMBLAGE AND REPLACING THE LIGHT SOURCE
The opening of the enclosure is exclusively allowed in a non-voltage state while respecting the warnings on the label.
The non-voltage state should be secured by shutting the voltage off on the main switch. Before opening the casing by screwing the lid, it is necessary to unblock it mechanically by twisting the blockade screw M5x10 ISO 4027 on the lid. The electric connection is performed by linking power supply cable on the plug on terminals on the base plate: L-phase conductor, L' – switch phase conductor from adapter plug (depending of a luminaire type), N-neutral conductor, PE-protective grounding. The outer grounding, the equalization of potentials - connect the IP to the outer terminal.
EEx d glands and plugs are not a part of the original products FLXE 118/.0 and FLXE 118/.1, and are secured by the user. During installation, one must follow the instructions of the manufacturers of the glands and plugs. Type FLXE 118/.2 is equiped by manufacturer with one EEx de M25 adapter, type ADP 24, for indirect cable connecting and one EEx d M20 plug.
The luminaire is using standard compact fluorescent tube 18W for 2G11 lampholder – OSRAM DULUX L 18W, PHILIPS MASTER PL-L 18W.
After every opening of the lamp the screw joint should be protected by the “Baplex – INA d.d.” protective solution (manufacturer’s recommendation).
The closing of the casing should be done by a reverse sequence of action.
A standard assembly of the luminaire is done on a vertical suspension over the eye bolt with ø13 mm hole on a casing. With the proper equipment, assembly is possible on specific ways:



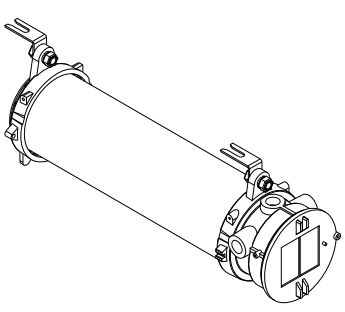
Assembly kit for quick fixing FLX

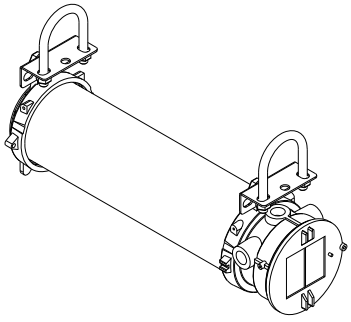


Assembly kit for fixing 2” on tube (Ø60) FLX



Assembly kit for ceiling mounting FLX





CONTROL, MAINTENANCE AND REPAIR

It is necessary to conduct review and maintenance on all parts on which the explosion proof protection depends in accordance to standards IEC 60079-17, general and individual demands of the manufacturer and the regulations of the user, and especially:

- that all enclosures, all parts of the casing, adapter casing, the protective glass and the gasket of the cover are completely without a crack or damage,
- that the enclosure is completely closed by its cover and that the mechanical blockage against selfopening is carry out,
- that the EEx d glands and the plugs, are installed by the instructions of the manufacturer and that they are tightened with torque regulated by manufacturer,
- that the gland gasket and EEx de adapter casing gasket are undamaged, and gland screw is tightened with torgue regulated by manufacturer.

Maintenance presume replacing: EEx de adapter, EEx de adapter gasket, EEx d plug gasket, cover gasket, base plate with components, and replacing fluorescent tube. All other interventions on luminaire have attribute of a repair. The repair of the lamp is done by the manufacturer or a person legally authorized by the manufacturer, with original parts from the products documentation, and in accordance to the IEC 60079-19 standards. If the repair is done by a third person, the manufacturer is free of all responsibility from the product, and the declaration of conformity which is given by the manufacturer becomes insignificant.

SPARE PARTS AND ACCESSORIES

Spare parts:

- Adapter ADP23 / ADP24, set
- Casing and pressure nut gasket of adapter ADP23 / ADP24
- EEx d plug M20, set
- EEx d M20 plug gasket
- Base plate FLXE with components
- Compact fluorescent tube TC-L 18W

Accessories:

- Protective grid FLX, set
- External reflector FLX, set
- Assembly kit for quick fixing FLX, set
- Assembly kit for fixing 2” on tube (ø60) FLX, set
- Assembly kit for ceiling mounting FLX, set

RESPONSIBILITY AND AUTHORIZATION

Responsibility and authorization are defined by the "Regulation on technical supervision over the electrical stations, installations and equipment intended for usage in potentially explosive atmospheres" . This Manual represents the most relevant information about the product. Adequate national laws and regulations supplement it. The person in charge is required to secure its employment in the industrial unit. Every improper usage, as well as every unofficial restructuring, repair or restoration of the product, release the manufacturer of all responsibilities.

STORAGE AND TRANSPORT

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

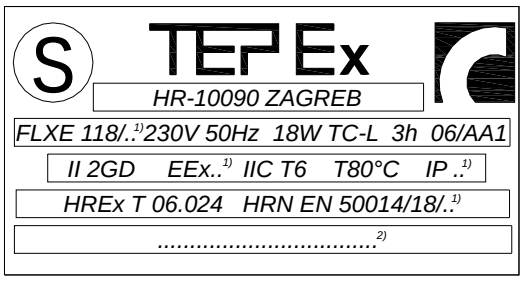
MARKING

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 AN EXPLOSIVE GAS AND DUST ATMOSPHERE IS PRESENT

labels containing technical and certification data on the cover of the lamp and on the base plate inside the lamp enclosure:



1) data according to model code

2) manufacturer data : - production number,
- number of a single examination,
- date,
- responsible person.