INSTALLATION AND MAINTENANCE MANUAL FOR EXPLOSIONPROOF LIGHT FITTING

EXF400LED

Carefully read the instructions before mounting the light fitting.

Manual No.: **I.EXF400LED.01**
Release date: 17.10.2023
Edition: 1.1

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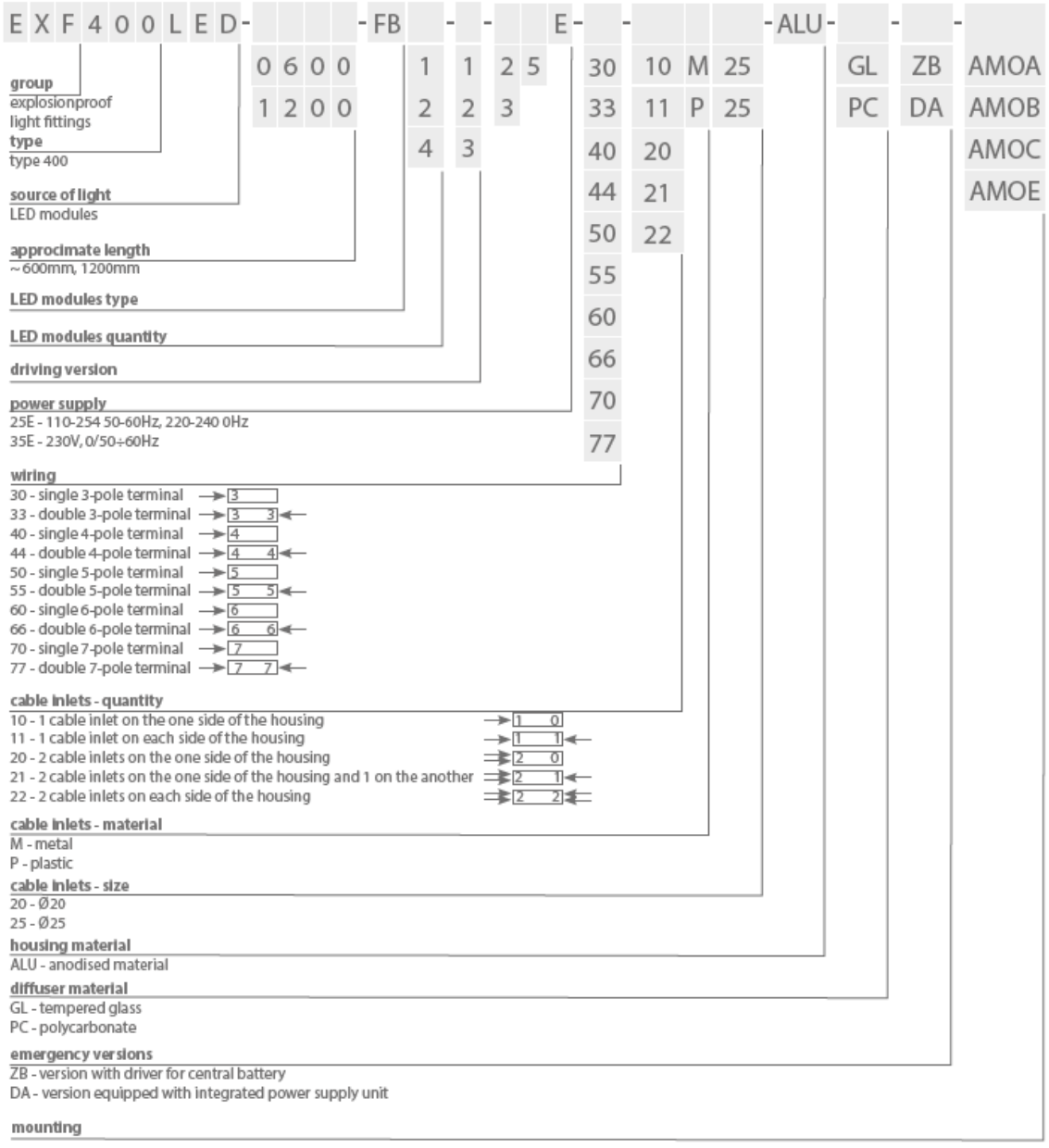
1. GENERAL INFORMATION

EXF400LED light fittings are designed to light indoor and outdoor areas in zone 2 of explosion hazard of gas, vapors, or clouds of flammable liquids mixed with air which belongs to IIA, IIB or IIC explosion group, T1-T6 temperature class. EXF400LED light fittings are also suitable to light areas in zone 22 of explosion hazard of dust and flammable fibers mixed with air.



TECHNICAL INFORMATION

Ex marking:

- Dla wersji EXF400LED - **** - FB* - * - *** - ***** - ALU - ** - ** - ****

II 2G Ex eb mb op is IIC T5 Gb
II 2D Ex tb op is IIIC T85°C Db

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Marking in relation to ambient temperature:

Ambient temperature	Type and level of protection	Temperature class / max. surface temperature
-25°C ≤ T_{amb} ≤ +45°C	„ec” ; „tb”	T6 ; T75°C
-25°C ≤ T_{amb} ≤ +55°C		T5 ; T100°C
-25°C ≤ T_{amb} ≤ +60°C	„ec” ; „tc”	T5 ; T100°C

Interpretation of the use restrictions of the device by means of the symbols in the above marking and on the label of the device:

Name	Symbol	Description
Special explosionproof protection marking		Symbol of device intended for use in potentially explosive atmospheres.
Device group	II	Device intended for use in explosive atmospheres other than underground mine.
Device category	3G	Device can safely operate in zone 2 of the explosion hazard of gases, vapors and mists of flammable liquids with air.
	2D	Device can safely operate in zone 21 or 22 dust explosion hazard.
	3D	Device can safely operate in zone 22 dust explosion hazard.
Type of execution	Ex ec	Device secured with increased safety construction type "e”.
	Ex tb	Device secured from dust ignition with the housing type „t” in zones 21 or 22.
	Ex tc	Device secured from dust ignition with the housing type „t” in zone 22.
Group	IIC	Device can be used in the presence of explosion hazard gases, vapors and mists of flammable liquids with air classified as explosive groups IIA, IIB, IIC.
	IIIC	Device can be used in the presence of explosion hazard of combustible dusts and filaments belonging to explosion groups IIIA, IIIB, IIIC (all types of dusts).
Temperature class	T5	Device intended for use in potentially explosive atmospheres of gases with self-ignition temperature > 100°C
	T6	Device intended for use in potentially explosive atmospheres of gases with self-ignition temperature > 85°C
Temperature	T75°C T100°C	Maximum surface temperature

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Explosion protection level	Gc	Device intended for installation in zone 2 of gas explosion hazard, providing a „normal safety” and which will not become a source of ignition under normal conditions of use and during expected damage.
	Db	Device intended for installation in zones 21, 22 dust explosion hazard, providing a „high level of safety” and which will not become a source of ignition under normal conditions of use and during expected damage.
	Dc	Device intended for installation in zones 22 dust explosion hazard, providing a „normal level of safety” and which will not become a source of ignition under normal conditions of use and during expected damage.

Protection degree: IP66/IP67

Admission wires diameter: 1-2.5mm2

Admission cable diameter: Ø 7-13mm

Voltage: 230V, 0/50-60Hz

Protection class: I

Ambient temperature Ta: According to the table "Marking in relation to ambient temperature”

LED module risk group RG=1

2. TECHNICAL INFORMATION

220-240V, 0/50-60Hz Supply (35E)

Type	Power	Electrical unit	IP	Protection class	Power factor
EXF400LED-0600-FB1-1	15,7 W	220-240V, 0/50-60Hz	66/67	I	≥0,95
EXF400LED-0600-FB1-2	18,5 W				
EXF400LED-1200-FB1-3	21,3 W				
EXF400LED-0600-FB2-1	29,5 W				
EXF400LED-0600-FB2-2	34,9 W				
EXF400LED-0600-FB2-3	40,5 W				
EXF400LED-1200-FB2-1	29,7 W				
EXF400LED-1200-FB2-2	35,1 W				
EXF400LED-1200-FB2-3	40,7 W				
EXF400LED-1200-FB4-1	57,5 W				
EXF400LED-1200-FB4-2	68,0 W				
EXF400LED-1200-FB4-3	79,7 W				

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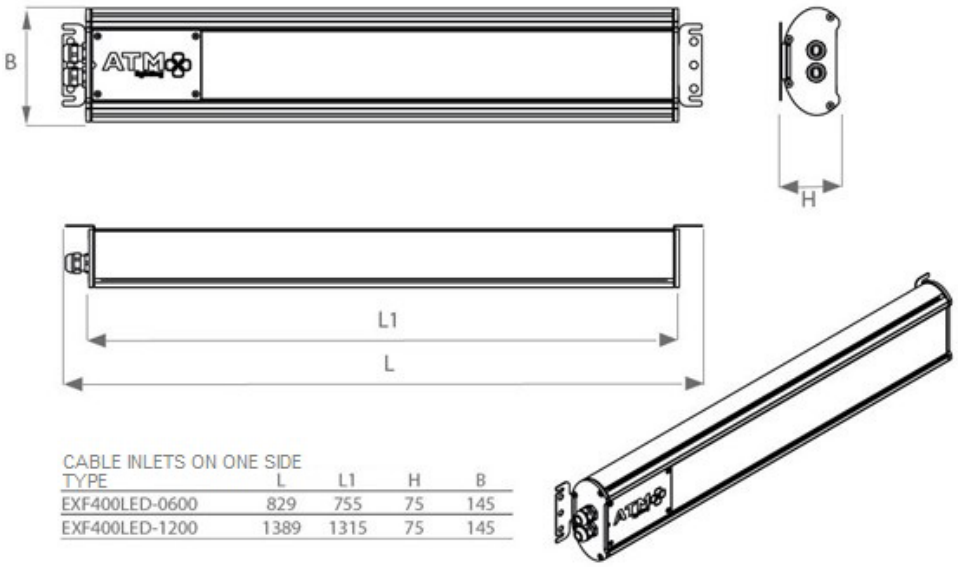
110-254V, 50-60Hz; 220-250V, 0Hz Supply (25E)

Type	Power	Electrical unit	IP	Protection class	Power factor
EXF400LED-0600-FB1	25,0 W	110-254VAC, 50-60Hz; 220-250VAC 0Hz	66/67	I	≥0,95
EXF400LED-0600-FB2	45,0 W				
EXF400LED-1200-FB2	45,0 W				
EXF400LED-1200-FB4	89,9 W				



3. PHOTOMETRICAL DATA

220-240V, 0/50-60Hz Supply (35E)

Type	Luminous flux - NB	Efficiency - NB	Colour temperature	CRI	Lifetime
EXF400LED-0600-FB1-1	2022 lm	129 lm/W	4000k	>80	>70000H
EXF400LED-0600-FB1-2	2427 lm	131 lm/W			
EXF400LED-1200-FB1-3	2831 lm	133 lm/W			
EXF400LED-0600-FB2-1	3827 lm	130 lm/W			
EXF400LED-0600-FB2-2	4593 lm	132 lm/W			
EXF400LED-0600-FB2-3	5358 lm	132 lm/W			
EXF400LED-1200-FB2-1	4036 lm	136 lm/W			
EXF400LED-1200-FB2-2	4844 lm	138 lm/W			
EXF400LED-1200-FB2-3	5651 lm	139 lm/W			
EXF400LED-1200-FB4-1	7625 lm	133 lm/W			
EXF400LED-1200-FB4-2	9150 lm	135 lm/W			
EXF400LED-1200-FB4-3	10675 lm	134 lm/W			

LED modules lifetime: $L_{70}B_{10}$

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110-254V, 50-60Hz; 220-250V, 0Hz Supply (25E)

Type	Luminous flux - NB	Efficiency - NB	Colour temperature	CRI	Lifetime
EXF400LED-0600-FB1	2993 lm	120 lm/W	4000k	>80	>70000H
EXF400LED-0600-FB2	5664 lm	126 lm/W			
EXF400LED-1200-FB2	5974 lm	133 lm/W			
EXF400LED-1200-FB4	11285 lm	126 lm/W			

LED modules lifetime: $L_{70}B_{10}$

WERSJA Z PIKTOGRAMEM

Selection of a pictogram according to the individual needs.

The pictogram luminance is at least 200cd/m^2.

4. CONSTRUCTION DESCRIPTION

Light fittings are built according to common electrical engineering rules. The product meets the essential requirements of the Directives and the harmonized standards listed in the EU Declaration of Conformity. Used solutions and materials, electrical equipment and proper insulating spaces makes that during normal exploitation there is no possibility any sparks, electrostatic charge, dangerous heating or light fitting destruction caused by environment factors occurrence.

Light fittings are built as a one chamber equipment. Housing, endcaps and mounting tray are made of aluminum. Sealing is made of silicone.

Used terminals ensures safe and non-sparking connection of inner wires and admission cables. The diffuser is made of UV resistant polycarbonate (PC), PMMA or tempered glass.

5. PRELIMINAIRES

SAFETY RULES

- Carefully read all the information included in the manual before mounting the light fitting.
- General safety rules must be followed.

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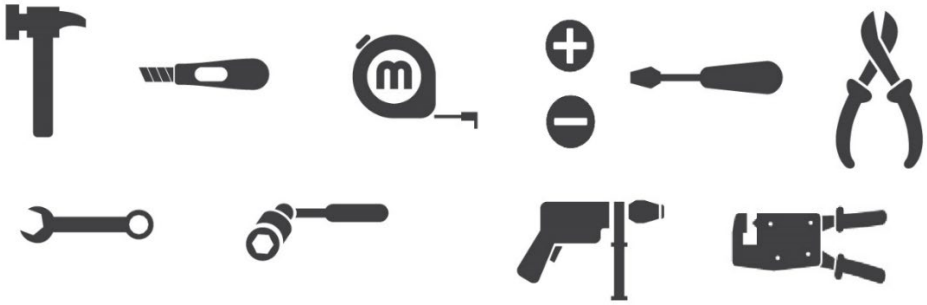
- Failure to comply with rules of the installation and use can lead to personal injury or property loses. ATM Lighting sp. z o.o. company takes no responsibility in such cases.
- Failure to comply with rules included in manual results with void of the manufacturer warranty.
- Manufacturer takes no responsibility for any damages resulting from improper installation, maintenance or improper use.
- It is the responsibility of the user to perform the installation in accordance with this manual and the safety regulations and standards applicable to the type of installation
- In case of malfunction, the device must be turned off and returned for repair to the manufacturer or his authorized entity.

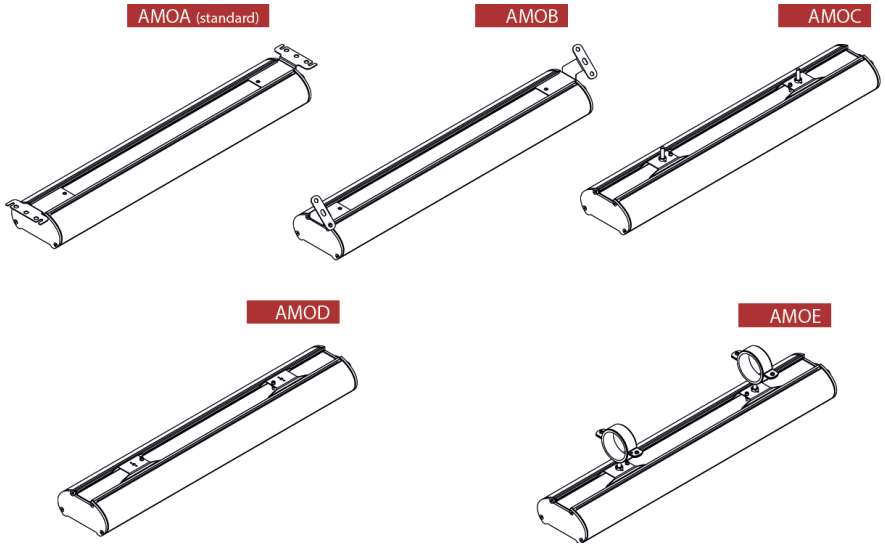
Before performing any installation work, including opening the enclosure, be absolutely sure to disconnect the unit from the power source

NECESSARY TOOLS



6. LIGHT FITTING MOUNTING

The EXF400LED luminaire should be fixed directly to the ceiling with screws. The size of the mounting holes is Ø6mm. The spacing is adjustable by positioning the brackets.



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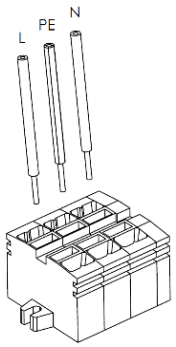
7. ELECTRICAL CONNECTION

Installation and electrical connection should be in accordance with the requirements of PN-EN 60079-14.

To connect power supply:

- enter the power cable to the housing through the cable entry (gland),
- carefully unisolate the wires (8-10mm), and put it into the connector according to a label inside the light fitting (L1, N, PE),
- precisely tighten power cable in the gland with two wrench,
- check the effectiveness of grounding.

Power connection:



Remark:

- Use one wrench to tighten the sealing nut, while using the second wrench to block gland body against rotation, otherwise damage of the sealing can be caused and therefore sealing level will be decreased.

8. CONDITIONS OF SAFETY USE

- Every light fitting must have label with rating data on it. Each light fitting is equipped with this „Installation and maintenance manual", which must be kept by user until the end of exploitation.
- Light fittings are designed for fixed installations only.
- Using light fitting outside the designated operating temperature range is unacceptable and will decrease a lifetime of light fitting and/or damage it. It will also cause a loss of warranty.

Remark: Using light fitting beyond the designated operating temperature range may result in the loss of explosion protection measures, such as exceed temperature class and explosion.

- Each light fitting must have a warning sign: „DO NOT OPEN UNDER VOLTAGE" on it.
- Use power wires with cross section 1-2,5mm^2.
- Maximum cross current I=16A.
- Depending on the version, the diffuser is made of tempered glass, PMMA or PC. Versions with PC or PMMA diffusers should not be exposed to chemicals that can damage them, in particular: oil, acetone, chlorine, ethyl, ether, solvents. If there is uncertainty about the substances present in the luminaire's work area that could lead to damage to any of the components, then determination measures should be taken. Luminaires fitted with a PC or PMMA diffuser shall carry the warning label "Caution! Risk of electrostatic charge" (see point 11).

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- Do not stare into working light source.

- Risk of electrical shock.

9. LIGHT FITTING MAINTENANCE AND SERVICING

REMARK: during the servicing and maintenance touching the LED are prohibited, because it will decrease the lifetime of light fitting and cause the loss of manufacturer's warranty.

It is recommended to carry out inspections of electrical equipment in accordance with the requirements of PN-EN 60079-17.

INSPECTION: at least once a month. Inspection is made without opening the light fitting. User must check admission cables condition (insulation damage, cracks, burns etc.). Cables must not have any acute bends. Outside parts of the light fitting must be checked. No cracks or corrosion signs may occur. Bolts used to mount light fitting should be properly tightened, washers mustn't be cracked. Cleanliness of outer surfaces and light fittings surroundings must be checked. Light fittings may not be soiled by paint or grease. Do not allow for dust (dirt) deposition on the light fitting. The readability of rating and warning plates must be checked. Abnormalities found must be fixed.

SERVICE AND MAINTENANCE: at least once a year. Service and maintenance must be made with power supply turned off. User must make inspection steps first. After opening: metal parts painting, condition of inner wiring and its mounting, insulating materials, cable glands gaskets, terminals. Abnormalities found must be fixed. Rating and warning plates must be cleaned. Surfaces of insulating materials and covers must be clean.

VERIFICATION OF TECHNICAL CONDITION: at least once for 2 years. Power supply must be switched off. Verification of technical condition must be proceeded outside of Ex zone. Light fitting must be uninstalled. Besides all the examination from inspection, service and maintenance paragraphs electrical examination from the inspection, service and maintenance paragraphs electrical examination must be also made: light fitting current consumption, insulation examination, protective earthing condition. Special attention must be paid to insulating parts condition. No crack or burns may occur.

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10. CLEANING

Do not allow dust to accumulate on the light fitting. Cleaning have to be carried out using vacuum cleaners or a soft cloth with antistatic agent suitable to working conditions. Do not use chemicals that can damage any part of the light fitting.

11. REPAIRING AND EXCHANGE PARTS

All parts considered as a spare parts must be ordered at manufacturer of light fitting. Additionally, the replacement of the light source may be performed by ATM Lighting Sp. z o.o and specially trained personnel, using original components supplied by ATM Lighting Sp. z o.o.

All repairs may be made only by manufacturer or authorized repair workshops according to PN-EN 60079-19.

12. LIGHT SOURCE EXCHANGE

The light source used in this luminaire should be replaced only by the manufacturer or its service representative, or a similarly qualified person, using original components supplied by ATM Lighting sp.z o.o.

13. TRANSPORT AND CONDITIOINS OF STORAGE

During transport light fittings shouldn't be exposed to precipitation or mechanical shock.

Light fittings may be storage only in sheltered warehouses, within $+5^0$C to $+35^0$C temperature range, and relative humidity lower than 75%. No corrosion causing vapors or gases should be present

14. DISPOSAL OF WASTE EQUIPMENT

User must obey relevant rules and regulations about disposal of wasted equipment valid in their country.

15. WARRANTY

- It is forbidden to use a damaged or malfunctioning luminaire. Installation checks must be carried out to detect any anomalies.
- It is required to disconnect power supply from the light fitting before any maintenance work.
- It is forbidden to make any changes to the light fitting construction. Any unauthorized interference may result in reduced functionality or damage to the device and may in some cases endanger life or health. At the same time it relives the manufacturer of all warranty liability.
- All specific information can be found in document „General terms and conditions warranty ATM Lighting sp. z o.o." available at the website www.atmlighting.pl/en/

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