

INSTALLATION AND MAINTENANCE MANUAL FOR
EXPLOSIONPROOF LIGHT FITTING

EXL400LED



Carefully read the instructions before
mounting the light fitting.

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1. GENERAL INFORMATION

EXL400LED 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. EXL400LED light fittings are also suitable to light areas in zone 22 of explosion hazard of dust and flammable fibers mixed with air.

E	X	L	4	0	0	L	E	D	-	-	-	-	-	20	-	A	L	U	-	-	-	-	-	-	-	-	-	-	-	-
group																														
explosionproof light fittings																														
type																														
type-400																														
source of light																														
LED modules																														
approximate length																														
~ 300mm, 600mm, 1200mm, 1500mm																														
LED module type																														
LED modules quantity																														
driving current																														
power supply																														
11E - 24VDC																														
34E - 230V, 05+60Hz																														
35E - 230V, 0/50+60Hz																														
wiring																														
30 - single 3-pole terminal → <input type="text" value="3"/>																														
33 - double 3-pole terminal → <input type="text" value="3"/> <input type="text" value="3"/>																														
40 - single 4-pole terminal → <input type="text" value="4"/>																														
44 - double 4-pole terminal → <input type="text" value="4"/> <input type="text" value="4"/>																														
50 - single 5-pole terminal → <input type="text" value="5"/>																														
55 - double 5-pole terminal → <input type="text" value="5"/> <input type="text" value="5"/>																														
60 - single 6-pole terminal → <input type="text" value="6"/>																														
66 - double 6-pole terminal → <input type="text" value="6"/> <input type="text" value="6"/>																														
70 - single 7-pole terminal → <input type="text" value="7"/>																														
77 - double 7-pole terminal → <input type="text" value="7"/> <input type="text" value="7"/>																														
80 - single 8-pole terminal → <input type="text" value="8"/>																														
88 - double 8-pole terminal → <input type="text" value="8"/> <input type="text" value="8"/>																														
cable inlets - quantity																														
10 - 1 cable inlet by the side of the housing → <input type="text" value="1"/> <input type="text" value="0"/>																														
11 - 1 cable inlet at each side of the housing → <input type="text" value="1"/> <input type="text" value="1"/>																														
20 - 2 cable inlets at the one side of the housing → <input type="text" value="2"/> <input type="text" value="0"/>																														
21 - 2 cable inlets at the one side of the housing and 1 at the another → <input type="text" value="2"/> <input type="text" value="1"/>																														
22 - 2 cable inlets at each side of the housing → <input type="text" value="2"/> <input type="text" value="2"/>																														
cable inlets - material																														
M - metal																														
P - plastic																														
cable inlets - size																														
20 - Ø20																														
25 - Ø25																														
housing material																														
ALU - anodised aluminum																														
diffuser material																														
GL - tempered glass																														
PC - polycarbonate																														
PM - PMMA																														
optics																														
NB - narrow beam																														
WB - wide beam																														
emergency versions																														
A3 - version with 3h emergency module available only with 34E power supply (230V/ 50+60Hz).																														
<i>The fixture can work in emergency mode in the temp. range from -20°C up to +45°C. Charging the battery can be processed in the temp. range from 0°C up to +45°C.</i>																														
ZB - version with driver for central battery.																														
DA - version equipped with integrated power supply unit.																														
mounting																														
check: mountings																														

LED module risk group RG=1

TECHNICAL INFORMATION

Ex marking:

- For version EXL400LED - **** - ** - *** - ** - ***** - ALU - ** - ** - ****



II 3G Ex ec IIC T6/T5 Gc
II 2D Ex tb IIIC T75°C/ T100°C Db

or




II 3G Ex ec IIC T6/T5 Gc
II 3D Ex tc IIIC T75°C/ T100°C Dc

- Marking in relation to ambient temperature:

Ambient temperature	Type and level of protection	Temperature class / max. surface temperature
$-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +45^{\circ}\text{C}$	„ec” ; „tb”	T6 ; T75°C
$-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +55^{\circ}\text{C}$		T5 ; T100°C
$-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$	„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
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

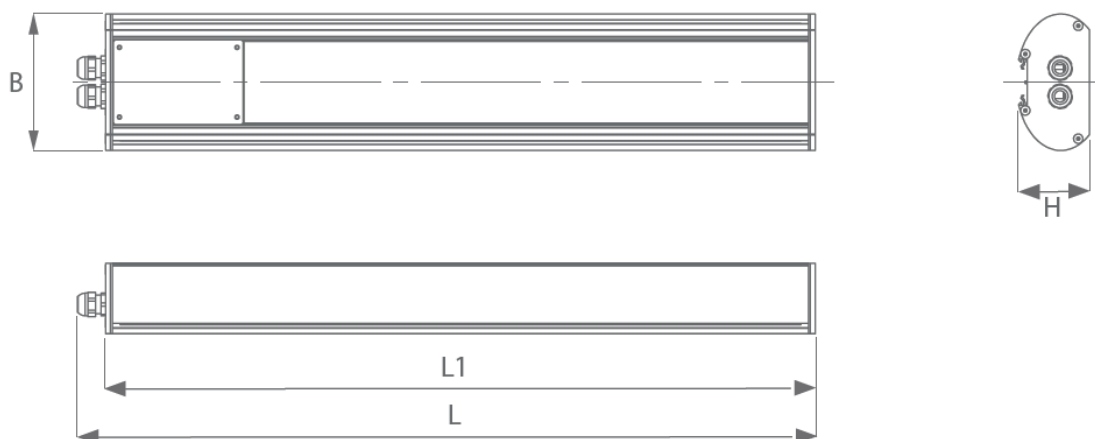
Voltage: 230V, 0/50-60Hz

Protection class: I

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

2. TECHNICAL INFORMATION

Type	Power	Electrical unit	IP	Protection class	Power factor	Ambient temp.
EXL400LED-0300-E1-2-...	11,0 W	230V 0/50-60Hz	66/67	I	≥0,97	Depending on variant According to the table "Marking in relation to ambient temperature"
EXL400LED-0300-E2-1-...	16,9 W					
EXL400LED-0600-E2-2-...	22,1 W					
EXL400LED-0600-E2-3-...	25,3 W					
EXL400LED-0600-E4-1-...	32,0 W					
EXL400LED-0600-E4-2-...	40,9 W					
EXL400LED-1200-E4-2-...	40,9 W					
EXL400LED-1200-E4-3-...	47,3 W					
EXL400LED-1200-E8-1-...	62,4 W					
EXL400LED-1200-E8-2-...	79,7 W					
EXL400LED-1200-E8-3-...	91,3W					
EXL400LED-1500-E5-2-...	50,7 W					
EXL400LED-1500-E5-3-...	59,0 W					
EXL400LED-1500-E10-1-...	78,6 W					



WERSJE KOŃCOWE

TYP TYPE	L	L1	H	B
EXL400LED-0300	504	475	75	145
EXL400LED-0600	784	755	75	145
EXL400LED-1200	1344	1315	75	145
EXL400LED-1500	1624	1595	75	145

WERSJE PRZELOTOWE

TYP TYPE	L	L1	H	B
EXL400LED-0300	674	615	75	145
EXL400LED-0600	964	895	75	145
EXL400LED-1200	1514	1455	75	145
EXL400LED-1500	1794	1735	75	145

3. PHOTOMETRICAL DATA

Type	Luminous flux - NB	Efficiency - NB	Luminous flux - WB	Efficiency - WB	Colour temperature	CRI	Lifetime
EXL400LED-0300-E1-2-...	1462 lm	133 lm/W	1413 lm	128 lm/W	4000K 5000K 6500K	>80	>70000 h
EXL400LED-0300-E2-1-...	2500 lm	148 lm/W	2416 lm	143 lm/W			
EXL400LED-0600-E2-2-...	2942 lm	133 lm/W	2844 lm	129 lm/W			
EXL400LED-0600-E2-3-...	3379 lm	134 lm/W	3266 lm	129 lm/W			
EXL400LED-0600-E4-1-...	5055 lm	158 lm/W	4973 lm	155 lm/W			
EXL400LED-0600-E4-2-...	5904 lm	144 lm/W	5808 lm	142 lm/W			
EXL400LED-1200-E4-2-...	5609 lm	137 lm/W	5518 lm	135 lm/W			
EXL400LED-1200-E4-3-...	6803 lm	144 lm/W	6692 lm	141 lm/W			
EXL400LED-1200-E8-1-...	10034 lm	161 lm/W	9872 lm	158 lm/W			
EXL400LED-1200-E8-2-...	11732 lm	147 lm/W	11542 lm	145 lm/W			
EXL400LED-1200-E8-3-...	13487 lm	148 lm/W	13269 lm	145 lm/W			
EXL400LED-1500-E5-2-...	7592 lm	150 lm/W	7352 lm	145 lm/W			
EXL400LED-1500-E5-3-...	8695 lm	147 lm/W	8420 lm	143 lm/W			
EXL400LED-1500-E10-1-...	11601 lm	148 lm/W	11234 lm	143 lm/W			

Lifetime of a LED modules: L₈₀B₁₀

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

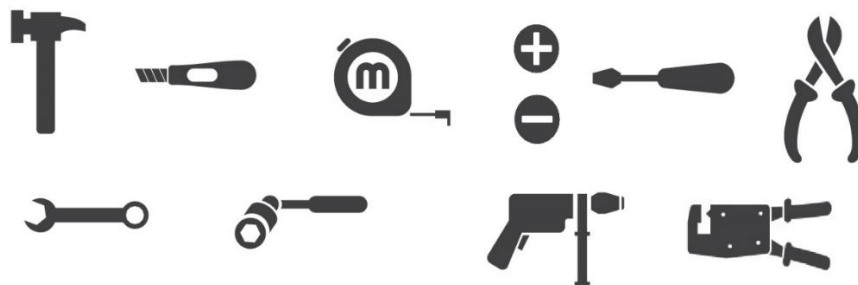
SAFETY RULES

- Carefully read all the information included in the manual before mounting the light fitting.
- General safety rules must be followed.
- Failure to comply with rules of the installation and use can lead to personal injury or property losses. 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.



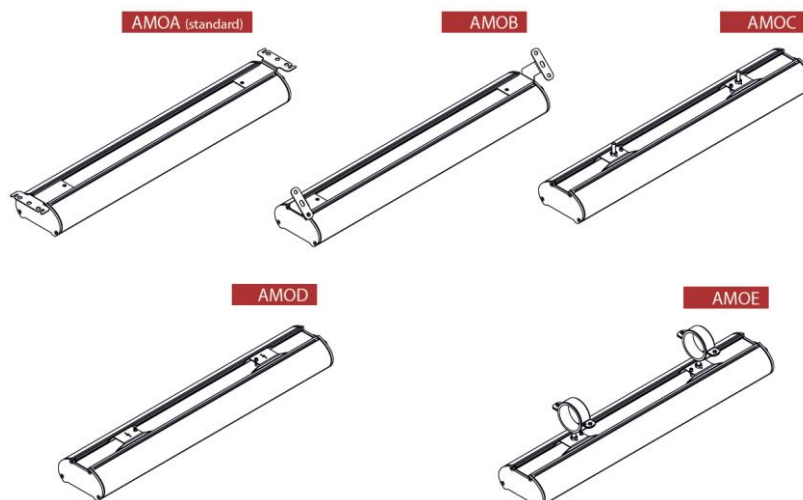
Before performing any installation work, including opening the enclosure, be absolutely sure to disconnect the unit from the power source

NECESSARY TOOLS



6. LIGHT FITTING MOUNTING

The EXL400LED luminaire should be fixed directly to the ceiling with screws. The size of the mounting holes is $\varnothing 6\text{mm}$. The spacing is adjustable by positioning the brackets.



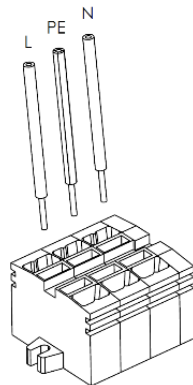


Installation and electrical connection should be in accordance with the requirements of PN-EN 60079-14.

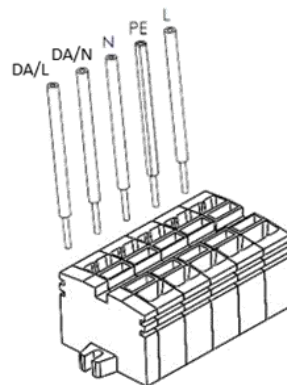
To connect power supply:

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

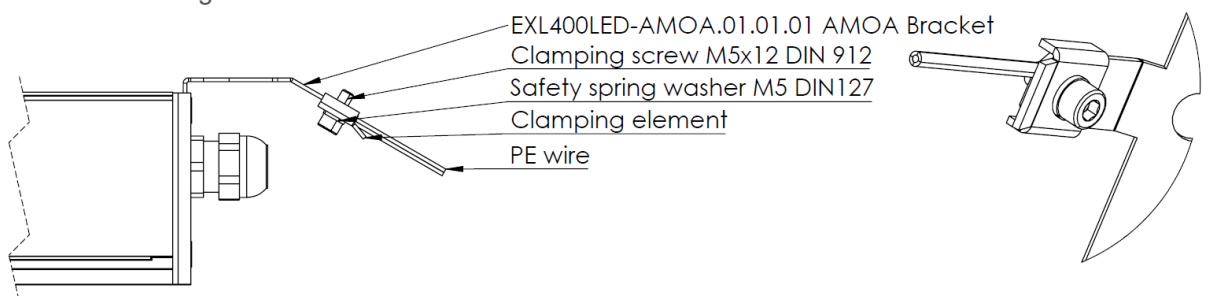
Standard and ZB versions power connection scheme:



DALI version power connection scheme:



- EXL400LED luminaire is equipped with an external terminal for equalizing connections. Use a wire with a minimum cross-section of 4mm² for equalization connections. Please refer to the overview drawing below:



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.

7. 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.
- Admission cables:
 - a. Standard and ZB versions – 3-wires (with PE wire) and diameter 7-13mm,
 - b. DALI version – 5-wires (with PE wire) and diameter 7-13mm,
- Use power wires with cross section 1-2,5mm².
- 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).



- Do not stare into working light source.



- Risk of electrical shock.

8. 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.

Besides all the examination during 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.

9. 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.

10. 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.

11. 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.

12. TRANSPORT AND CONDITIONS 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°C to +35°C temperature range, and relative humidity lower than 75%. No corrosion causing vapors or gases should be present

13. DISPOSAL OF WASTE EQUIPMENT



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

14. 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 relieves 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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