

INSTALLATION AND MAINTENANCE MANUAL FOR  
EXPLOSIONPROOF LIGHT FITTING

# EXL450LED



Carefully read the instructions before  
mounting the light fitting.

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## 1. GENERAL INFORMATION

EXL450LED flood lights 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. EXL450LED light fittings are also suitable to light areas in zones 21 and 22 of explosion hazard of dust and flammable fibers mixed with air with combustion temperature higher than 105°C - 180°C.

EXL450LED-EX	-	-	E	-	-	ALU	-	-	-	-		
group explosionproof light fittings	2	1	24	30	10	M	20	GL	NB	AMO90	DA	PRG
type type 450	3	2	35	50	20	P	25	PC	MB	AMO180	3F	VENT
light source LED modules	4			70					WB	AMO360	ZB	
LED module type									OB			
LED module quantity									ASY			
driving current												
power supply 24E - 100-277V, 50-60Hz 35E - 230-305V, 50-60Hz lub 230-431V, 0Hz												
wiring 30 - single 3-pole terminal → <input type="text" value="3"/> 50 - single 5-pole terminal → <input type="text" value="5"/> 70 - single 7-pole terminal → <input type="text" value="7"/>												
cable inlets - quantity 10 - one cable inlet on the side of the housing → <input type="text" value="1"/> <input type="text" value="0"/> 20 - two cable inlets on the side of the housing → <input type="text" value="2"/> <input type="text" value="0"/>												
cable inlets - material M - metal P - plastic												
cable inlets - size 20 - Ø20 25 - Ø25												
housing material ALU - anodized aluminum												
diffuser material GL - tempered glass PC - UV stabilised polycarbonate												
optics NB - narrow beam MB - medium beam WB - wide beam OB - oval beam ASY - asimetric beam												
mountings check: <i>mountings</i>												
additional options DA - version equipped with integrated power supply unit with DALI interface. Available only with 35E power supply version 3F - version adapted to work in a three-phase network, equipped with connectors 5x2,5mm <sup>2</sup> (L1, L2, L3, PE, N) ZB - version designed to work with a central battery. Available only with 35E power supply version												
additional accessories PGR - version equipped with protection grid on the diffuser VENT - version equipped with explosionproof ventilated plugs (recommended in external use of the fitting)												

## TECHNICAL INFORMATION

### Ex marking:

- For version EXL450LED - EX\* - \* - \*\*E - \*\* - \*\*\*\*\* - ALU - \*\* - \*\* - \*\*\*\* - \*\* - \* - \*\*\*




II 3G Ex ec IIC T6...T4 Gc  
II 2D Ex tb IIIC T80°C...T105°C Db

- EX markings for various versions of floodlights.

Type	Temperature class/Max Surface temperature
EX2-1	T6/T80 °C
EX2-2	T5/T80 °C
EX3-1	T5/T80 °C
EX3-2	T4/T105 °C
EX4-1	T5/T80 °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 zones 21 or 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”.
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	T4	Device intended for use in potentially explosive atmospheres of gases with self-ignition temperature > 135 °C
	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 > 185 °C
Temperature	T80°C	The glowing temperature of a given layer of dust or the self-ignition temperature of a dust cloud - with appropriate safety margins - must be higher than the maximum permissible temperature on the surface of the device, which in this case is 80°C.

	T105°C	The glowing temperature of a given layer of dust or the self-ignition temperature of a dust cloud - with appropriate safety margins - must be higher than the maximum permissible temperature on the surface of the device, which in this case is 105°C.
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.

**Protection degree:** IP66/IP67

**Admission wires diameter:** 1-2,5mm<sup>2</sup> (option: 6mm<sup>2</sup>)

**Admission cable diameter:** Ø 8-13mm (M/P20) / Ø 9-17mm (M/P25)

**Voltage:** **24E:** 100V-277V, 50-60Hz;  
**35E:** 230V-305V, 50-60Hz + 230-431V, 0Hz

**Protection class:** I

**Ambient temperature Ta:**

Version	Working temperature (24E)	Working temperature (35E)	Working temperature (PC diffuser)
EX2-1	-40°C ... +65°C	-40°C ... +60°C	-40°C ... +50°C
EX2-2	-40°C ... +60°C	-40°C ... +55°C	-40°C ... +45°C
EX3-1	-40°C ... +65°C	-40°C ... +60°C	-40°C ... +50°C
EX3-2	-40°C ... +50°C	-40°C ... +45°C	-40°C ... +45°C
EX4-1	-40°C ... +55°C	-40°C ... +50°C	-40°C ... +50°C

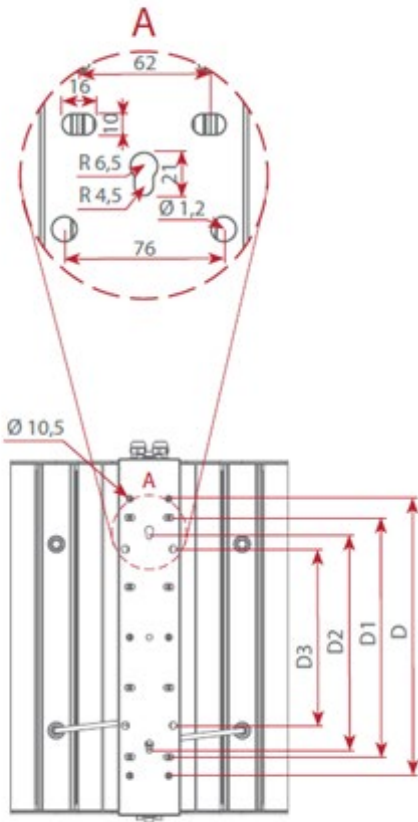
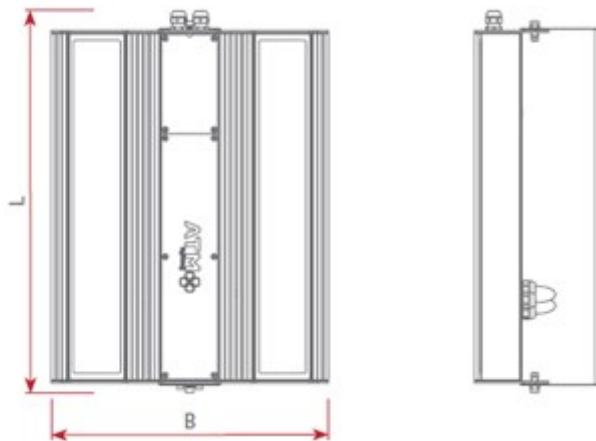
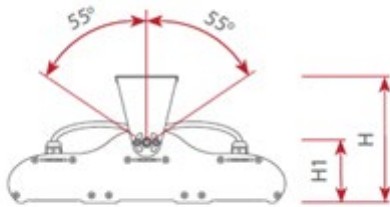
**LED module risk group RG=1**

## 2. TECHNICAL INFORMATION

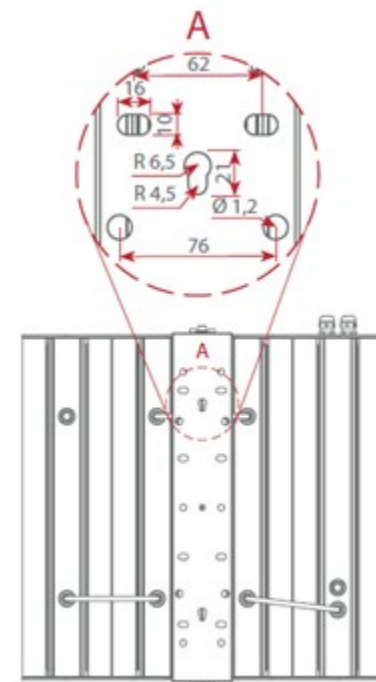
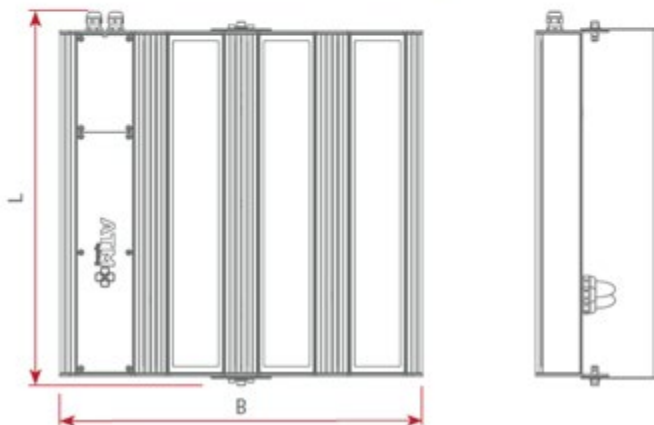
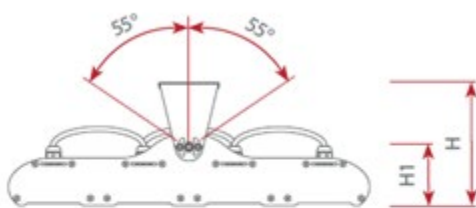
Type	Power	Voltage		IP	Protection class	Power coefficient	Ambient temperature
EXL450LED-EX2-1	103W	100V-277V, 50-60Hz;	230V-305V, 50-60Hz + 230-431V, 0Hz	66/67	I	≥0,98	Depends on version and module type
EXL450LED-EX2-2	153W						
EXL450LED-EX3-1	155W						
EXL450LED-EX3-2	238W						
EXL450LED-EX4-1	207W						

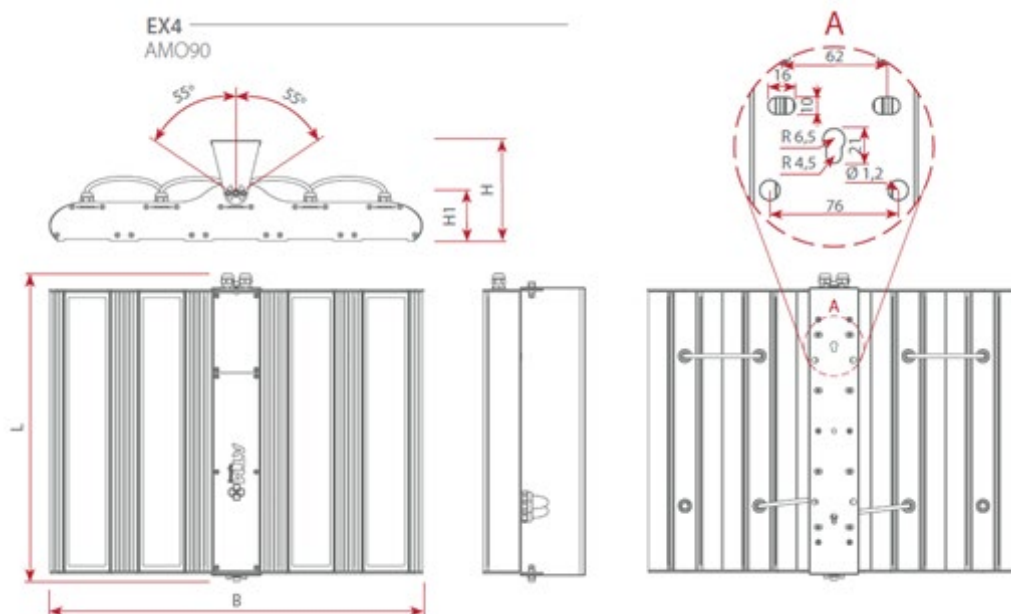
**VERSIONS**

EX2 \_\_\_\_\_  
AMO90



EX3 \_\_\_\_\_  
AMO90





Type	L	B	H	H1	D	D1	D2	D3
EXL450LED-EX2	606	435	202	97	440	380	340	280
EXL450LED- EX3		585						
EXL450LED- EX4		735						

### 3. PHOTOMETRICAL DATA

Type	Luminous Flux	Efficiency	Colour Temperature	CRI	Modules Lifetime
EXL450LED-EX2-1	16000 lm	155 lm/W	4000K (Option: 6500K)	>70 (Option: >80)	>70000 h – „L70B10” >50000 h – „L80B10”
EXL450LED-EX2-2	22000 lm	144 lm/W			
EXL450LED-EX3-1	24000 lm	155 lm/W			
EXL450LED-EX3-2	34000 lm	143 lm/W			
EXL450LED-EX4-1	31500 lm	152 lm/W			

### 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) or tempered glass.

Floodlights bodies should be equipped attested cable glands and plugs compliant with EX “e” or EX “d” certificate. Cable glands and plugs should provide protection class of IP66 or IP67 depending on floodlights version, in compliance with EN 60079-14 norm.

## 5. PRELIMINAIRES

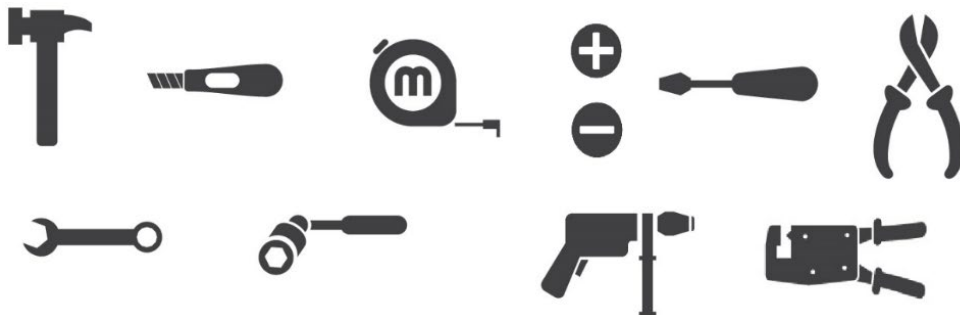
### SAFETY RULES

- 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 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 EXL450LED is shipped with mounting brackets designed to be mounted to the ceiling wall or pipe.



## VERSIONS OF MOUNTING

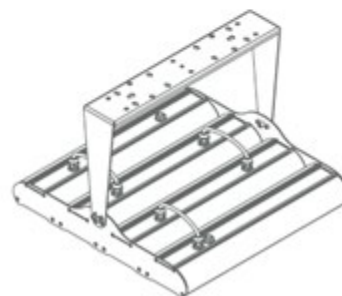
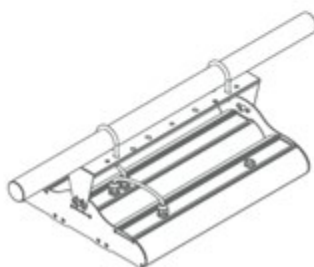
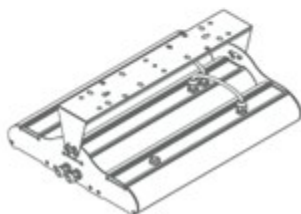
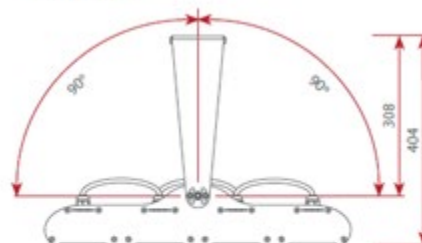
AMO90  
standard



AMO360  
optional

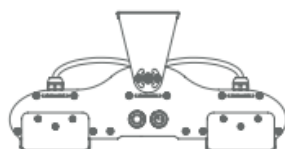
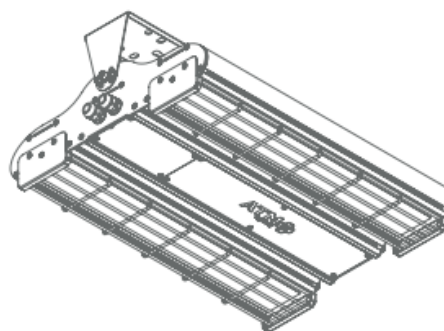
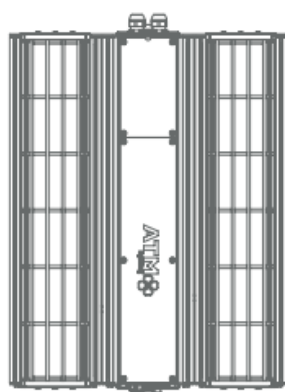


AMO180  
optional



## OPTIONAL EQUIPMENT

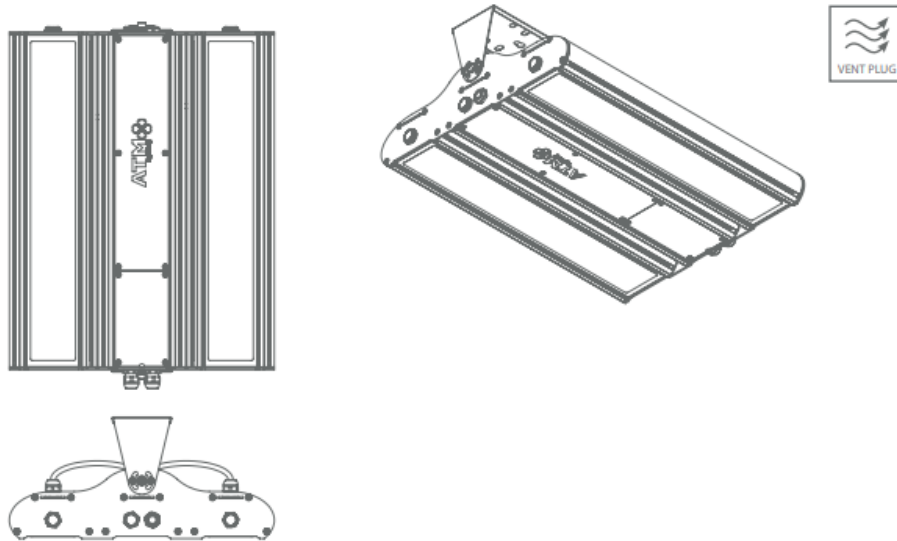
- Version equipped with protection net (PRG)



### ADDITIONAL INFORMATION:

Light fitting equipped with additional grid which protects from the accidental damages.

- Version equipped with EX breathable caps (VENT)



**ADDITIONAL INFORMATION:**  
The light fitting is equipped with ventilated plugs (one for each chamber). The ventilated plug prevents from the condensation of water vapor inside the fitting. This version is recommended for external use of the fitting.

## 7. ELECTRICAL CONNECTION

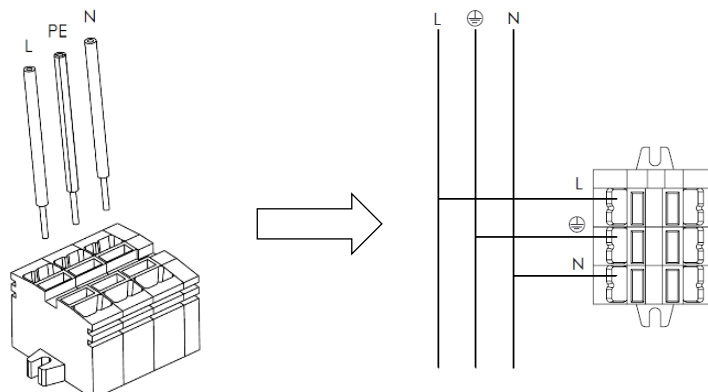


Installation and electrical connection should be in accordance with the requirements of PN-EN 60079-14.

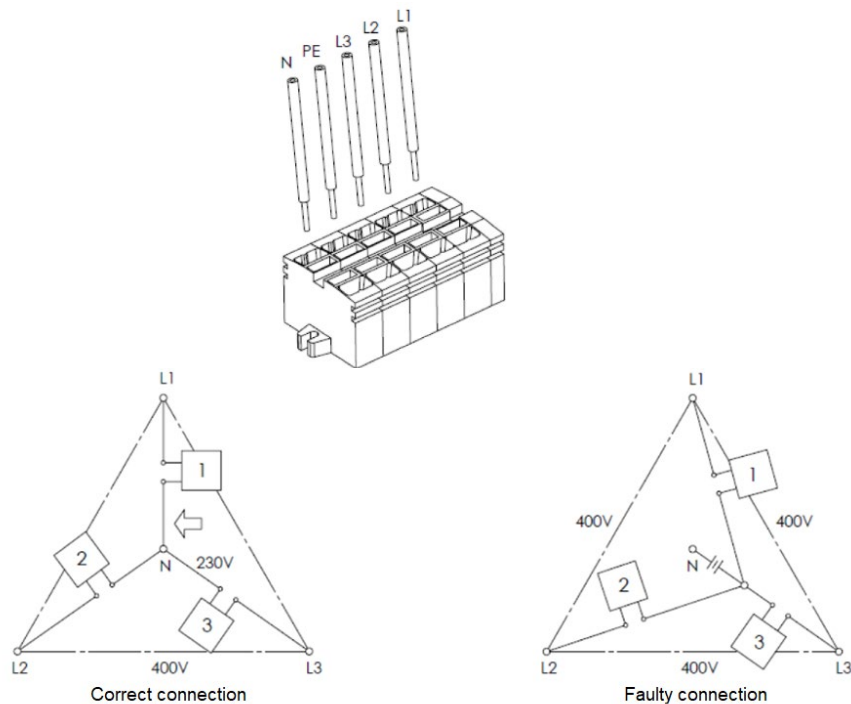
To connect power supply:

- 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 (L, PE, N) in standard connection and (L1, L2, L3, PE, N) in 3 phase connection,
- the wires L2, L3 in 3 phase connection are only a through connection,
- precisely tighten power cable in the gland with two wrench,
- check the effectiveness of grounding.

**Standard connection:**



### 3 Phase connection:



#### Remarks:

- 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.
- Not following this remark may cause may damage the seals, resulting in lowering of IP rating and explosionproof security.
- If neutral line is damaged or voltage occurs in it, a floodlight or group of floodlights may start to work under larger than predicted load, witch in consequence may lead to damage of power delivery system.

## 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.
- As power cables, use 3-core cables (with PE core) or 5-core cables (with PE core) for the 3F version.

- Use power wires with cross section **1-4mm<sup>2</sup>**. Cross-section **1-6mm<sup>2</sup>** for special luminaire execution.
- Maximum cross current **I=16A**. For 3 phase connection cross current **I=10A**
- Depending on the version, the diffuser is made of tempered glass or PC. Version with PC diffuser should not be exposed to chemicals that can damage it, 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 diffuser shall carry the warning label "Caution! Risk of electrostatic charge".



- 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. Work of luminaire can be carried out if:

- concentration level of the explosive atmosphere does not exceed 10% of the lower explosion limit (LEL) in the case of installation in zones 1 and 2 with explosion hazard,
- cleaning activities were carried out to ensure cleanliness of the installation (house-keeping) and the possibility of dust cloud occurrence was excluded in the case of development in zones 21, 22 with explosion hazard.

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.

## 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 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

## 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 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/](http://www.atmlighting.pl/en/)



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