

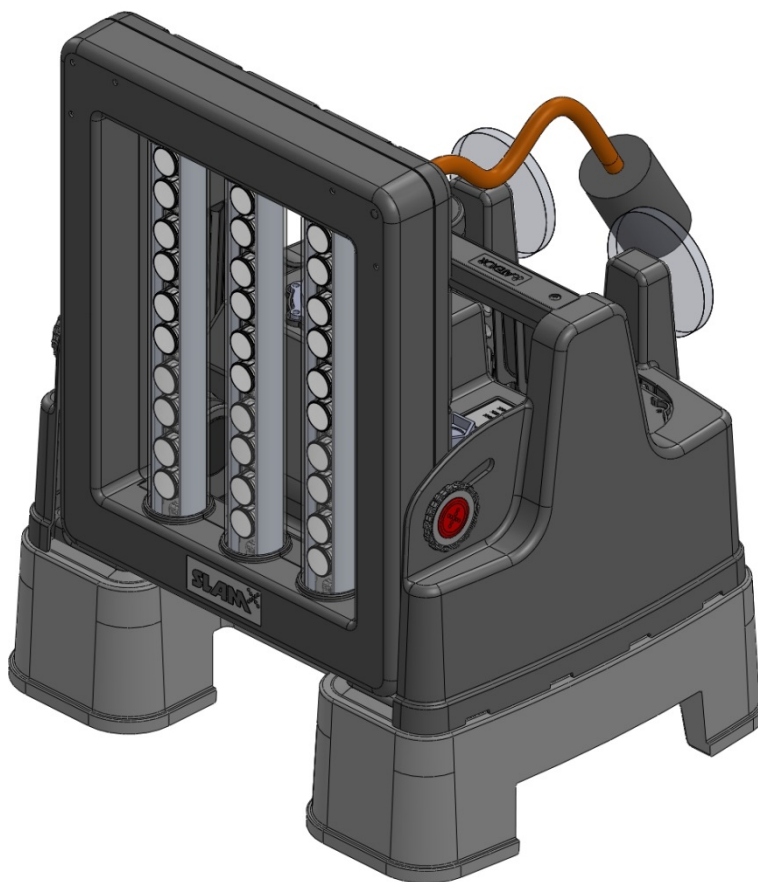
# Instructions for Safe Use

# SLAM

## Star

Certification N:o VTT 15 ATEX **077X** and IECEx by VTT

Thank you for choosing **SLAM Star** –portable work light for your job site. Purpose of this manual is to provide you all the necessary safety and product information to conduct your job conveniently and without any risks for health and safety.



**SLAM Star**

## Contents

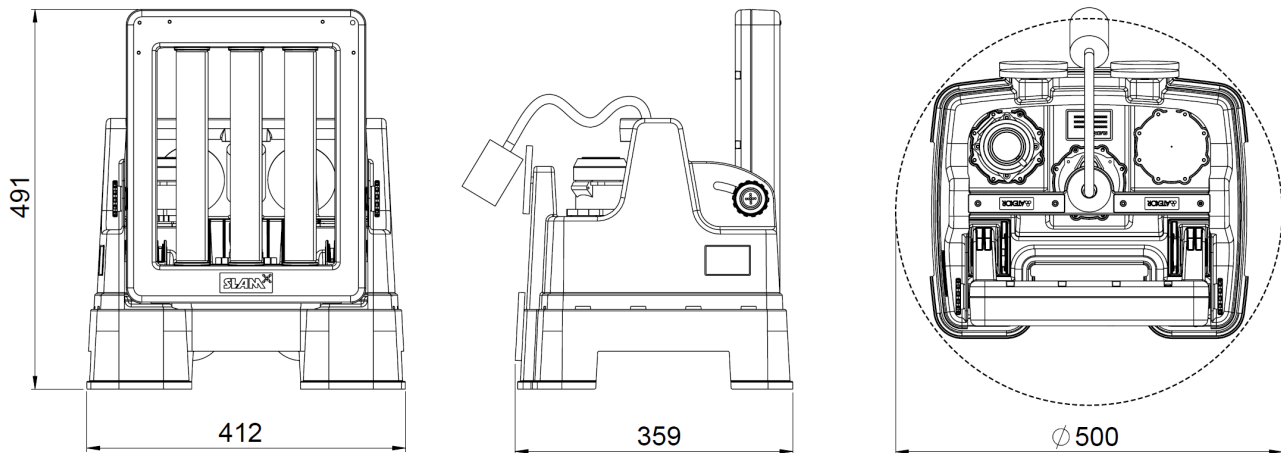
1	Introduction .....	3
1.1	Technical data .....	3
1.2	Unit construction .....	3
1.3	Certification of equipment .....	4
1.4	Quality guaranteed .....	5
1.4.1	General.....	5
1.4.2	Individual test report.....	5
1.4.3	Warranty.....	5
2	Prior to use.....	6
2.1	Selection of right equipment.....	6
2.2	Intended purpose of equipment .....	6
2.3	Application of use (Zone XX) in accordance with equipment category .....	6
2.4	Explosion group (IIA, IIB or IIC) in accordance with Equipment group (IIA, IIB or IIC) .....	6
2.5	Temperature class of the equipment.....	6
2.6	Environmental criteria .....	7
3	Operating instructions .....	8
3.1	Personnel .....	8
3.2	Storage.....	8
3.3	Before first use .....	8
3.4	Visual inspection .....	8
3.5	Special attention on 2-pole use (24 V or 42 V) .....	8
3.6	Connection to the supply.....	8
3.6.1	Requirements for supply (electricity).....	8
3.7	Adding accessories to SLAM Star.....	9
3.8	Linking luminaires in series .....	9
4	Inspection and maintenance.....	11
4.1	After Use .....	11
4.2	Repair.....	11
4.3	Testing .....	11
4.4	Repair report .....	11
4.5	More information about the use of Electrical Apparatus for Explosive Gas Atmospheres .....	12

# 1 Introduction

This instruction manual guides you through the process of selecting and adopting SLAM Star work light at your work site.

## 1.1 Technical data

### Dimensions



Weight without cable and accessories: 10 kg

Ambient temperature range: -20 °C ... +40 °C

## 1.2 Unit construction

The following list familiarizes you with some common features important to recognize.

### Enclosure with protective shell and bumper

Durable, plastic-made enclosure and protective shell with soft elastomer bumper ensure shock-absorbing and harmless contact to sensitive and hard surface in case the luminaire drops to the ground even from high position.

### Electronic control gear

Controlling the supply of energy to the light source of the luminaire. The control gears are independent from each others. Under failure of one control gear the others still continue operating. Low-voltage protection (smart-feature) brings reliability and convenience for use, especially when operating with transformers or with long cables.

### Light unit with three light modules

Light source combining Light Emitting Diodes with convenient and safe light distribution. Light module is explosion protected. Photobiological safety of Light module has been taken into account. Light module is enclosed with transparent polycarbonate tube. PC - being durable, flexible and lightweight plastic - brings advantage for use. Unique antistatic treatment allows the use of PC in explosion hazardous areas.

### Cable

Standard cable of the SLAM Star is H07BQ-F. The cable has polyurethane (PUR) outer sleeve. PUR withstands chemicals as well as mechanical wearing. However, the user has an option to specify cable type in accordance with work site requirements of own.

### Socket (optional)

It's possible to include up to two in-built sockets (receptacles) for linking unit in series with other SLAM Star or SLAM Hornet units.

### Accessories

- Antistatic protective film for PC tube against chemical splashes and other substances
- SLAM Star Magnet set for wall mounting

To view options on accessories, please visit [www.atexor.com](http://www.atexor.com) or call us directly +358 20 734 3250.

## 1.3 Certification of equipment

SLAM Star has been designed, tested and certified for portable use.

The equipment is to be used properly and according to its ratings, documentation and local applicable laws. Local, national certificates of the unit may exist outside the region of EU.

The aforementioned SLAM Star is certified as follows. You may find brief explanation of certificate beneath.

CE<sub>0537</sub>  II 2 G Ex e mb op is IIC T4 Gb  
IP 66

CE<sub>0537</sub> = Valid production quality system approved and notified by VTT (Finnish Notified Body, listed by EC)



= Certified for explosion hazardous areas

II = Certified for use in areas excluding mines

2 = Equipment category (suitable for Zone 1 and Zone 2)

G = Certification taking account explosion hazardous GASES

### Explanation of marking for explosion hazardous area due to Gases

**Ex** = Certified for use in explosion hazardous areas

**e** = Explosion protection method increased safety (of certain components)

**mb** = Explosion protection method encapsulation (encapsulating ignition sources)

**op is** = Explosion protection method optically inherently safe (visible or infrared radiation that is incapable of producing sufficient energy under normal or specified fault conditions to ignite a specific hazardous atmospheric mixture). This definition is analogous to the term "intrinsically safe" applied to electrical circuits

**IIC** = Equipment group (including explosion hazardous areas of IIA, IIB and IIC gases)

**T4** = Maximum temperature of the unit is 135°C (within the ambient temperature range of -20°C...+40°C)

**Gb** = Explosion Protection Level (EPL) marking for "HIGH" level of protection. Equipment for explosive **GAS** atmospheres, which is not a source of ignition in normal operation or during expected malfunctions

## 1.4 Quality guaranteed

### 1.4.1 General

SLAM Star is designed, certified, manufactured and tested under ISO 9001:2008 quality system as well as additional requirements of the Directive 94/9/EC (ATEX) or IECEx scheme. SLAM Star is designed and tested according to the latest directives and standards. The referred directives and standards of the production date in case are stated on the Declaration of Conformity included in the delivery.

### 1.4.2 Individual test report

Each SLAM Star unit has its own individual serial number and is provided with an original, individual test report when leaving the factory. The year of manufacture is specified on the type label of the equipment. Following tests have been done for SLAM Star units according to standards relating to portable luminaries for explosion hazardous area. The Declaration of Conformity is specifying the relevant standards. The test report which is included in the delivery specifies the results of the factory tests for that particular unit. The test report typically specifies the following tests.

#### **PE –resistance test**

The purpose of this test is to measure persistence of earth conductor. Vital test for electrical safety as well as explosion safety because of e.g static electricity control. The test current is 10 A (current) and the overall resistance should not exceed 0,5  $\Omega$ .

#### **High voltage test (electrical strength)**

The purpose of this test is to measure leakage current through insulation. Vital test for revealing broken components or similar failures which can not be identified visually. Testing voltage applied is 2130 VDC. Maximum leakage current is 5 mA.

#### **Test of expected use of equipment**

The luminary is subjected to shaking and vibration – to see that all the internal wires are properly attached and components are not loose.

#### **Operational test of luminaire and accessories**

The unit is plugged-in and checked that it is working properly after all accomplished tests above.

#### **Visual inspection**

A final check to see everything is fine (screws attached properly, wires connected and required markings attached).

### 1.4.3 Warranty

SLAM Star units have two-year warranty from purchasing date. You will find detailed warranty conditions from [www.atexor.com](http://www.atexor.com).

## 2 Prior to use

### 2.1 Selection of right equipment

You need to be sure that the equipment you intend to take into explosion-hazardous area matches up with the zone classification and other safety requirements related. The operator is solely responsible for the correct selection and use of the equipment at his site. At least the following points should be notified prior to use.

### 2.2 Intended purpose of equipment

Please keep in mind what the actual application of equipment is. For example in case the equipment is to be moved when connected to the supply it needs to be designed for that purpose. If the certification is mentioning “portable” it means that the equipment is suitable and tested for portable use. If the certification does not mention portable it means that the equipment shall not be moved when it is in operation (reliable fixing of equipment).

**SLAM Star is designed and tested for portable use**

### 2.3 Application of use (Zone XX) in accordance with equipment category

Operator has the best knowledge of area classification at his site. To help the operators' selection of equipment the certification is describing the equipment category. For explosion hazardous areas there are three equipment categories.

- Category 1 product is suitable for use in Zones 0, 1 and 2 / (20, 21 and 22)
- Category 2 product is suitable for use in Zones 1 and 2 / 21 and 22
- Category 3 product is suitable for use in Zones 2 / (22)

**SLAM Star is Category 2 equipment**

### 2.4 Explosion group (IIA, IIB or IIC) in accordance with Equipment group (IIA, IIB or IIC)

This information is vital because different substances require varied amount of energy to be ignited. Safety requirements for equipment are not the same for different substances (e.g. static electricity requirements). Therefore making the selection easier the gases are divided to three different groups (IIA, IIB and IIC). Further information about the substances can be found from EN/IEC 60079-20-1 (Data for flammable gases and vapours, relating to the use of electrical apparatus).

**SLAM Star belongs to Equipment group IIC**

### 2.5 Temperature class of the equipment

Please observe the Ignition Temperature (IT) of the substance creating the explosion hazard at your site. Select the equipment based on IT of the substance. The temperature of the equipment must be lower than IT. The highest temperature of the equipment is specified by using Temperature Classes T1 to T6.

#### Example

Petroleum ignition temperature is approximately 250°C → Maximum allowed temperature class of the equipment is T3 (< 200° C)

**SLAM Star has Temperature Class T4 (Gases)**

**2.6 Environmental criteria**

Please observe the ambient temperature of the application because certification is valid for temperatures between -20 °C...+40 °C. If the equipment is used in other temperatures the safety cannot be guaranteed.

**Selection and use of equipment is always under the responsibility of the operator. Please note that all of the aforementioned criteria are to be fulfilled when selecting the equipment.**

**Please do not take any unnecessary risks.**

## 3 Operating instructions

### 3.1 Personnel

The use of the equipment is to be controlled and accepted by the operator. The personnel using the unit have to be authorized by the operator or his representative. In case of further training of using the equipment please contact the local supplier of the equipment.

### 3.2 Storage

SLAM Star units should be stored in a dry place within normal operating temperatures ie. -20 °C...+40 °C. The units should not be stored in direct sunlight.

### 3.3 Before first use

Read this manual carefully before taking the product in to use. Archive the documents included with the unit for further reference (manual, test report and declaration of conformity).

### 3.4 Visual inspection

As for all equipment to be used inside explosion hazardous area it is recommended that before taking the unit into Ex –area, a visual re-inspection on the unit was taken and an analysis made that the unit is not damaged (e.g. any part or wires are loose damaged or disconnected).

In case faults or defects on the unit are noticed, it is prohibited to take the unit into Ex –area until corrective actions have been made.

### 3.5 Special attention on 2-pole use (24 V or 42 V)

Certain SLAM Star units are designed to be used together with step-down transformers. Using SLAM Star unit with transformers of 2-pole socket outlets (without grounding / bonding) imposes certain extra requirements for the unit itself.

Please inform us about your requirement for 2-pole use when placing the order. Products originally manufactured for 3-pole use can not be modified later for 2-pole use by the operator. Such modifications are only allowed to be carried out by the manufacturer or under supervision of the manufacturer.

Note! Lack of equipotential bonding may cause danger in Ex –area, therefore please pay special attention to all installations involving metallic parts. Static charging is especially noted on standards referring to installations in explosion hazardous areas (e.g. EN/IEC 60079-14).

### 3.6 Connection to the supply

It is recommended that the unit is first connected to the mains / transformer before entering the explosion hazardous area. Potential equalization should be arranged by the operator prior entering explosion hazardous area.

SLAM Star units with 2-pole supply (without bonding connection) can be taken to explosion hazardous area without connecting it to the supply first.

#### 3.6.1 Requirements for supply (electricity)

**Supply voltage:** Variation may be maximum  $\pm 10\%$  from the value stated in the unit type label.

**Current:** Maximum current of the system is 16 A.



**Frequency:** Standard 50 Hz if not otherwise stated in the type label.

**Fuse protection:** The supply has a fuse with a breaking capacity of at least 1500 A.

**Earth Leakage Circuit Breaker (ELCB):** It is recommended to use a supply with 30 mA ELCB.

Please observe the type label for further data. Luminaires for 110 VAC or 230 VAC supply are to be connected to a supply incorporating protective earth conductor.

### 3.7 Adding accessories to SLAM Star

Atexor provides a number of different accessories but in case you afterwards want to add accessories of your own for the SLAM Star unit, please note the following points:

1. The user is fully responsible for the use of the equipment including service and maintenance
2. In case of adding accessories the following is mandatory
  - a. The construction of the certified unit shall not change
  - b. The IP class of the unit shall not decrease
3. The static electricity is taken account (e.g. electrostatic bonding)

**In case you do not want to do your own risk assessment for the accessories please view the whole range of accessories at [www.atexor.com](http://www.atexor.com)**

### 3.8 Linking luminaires in series

SLAM Star units may be equipped with Ex-certified socket in the factory. Sockets are considered optional so they are added to the unit upon customer's special request.

In-built sockets are recommended when the illuminated area is notably large, complex or not enough wiring points are available. Linking the units in series save time, amount of cable and provide an opportunity to build a chain of lights to provide enough illumination.

**When linking the units together, please observe the following**

- 1) Connect the first luminaire to the power supply and then connect the other luminaries to each other one by one
- 2) The in-built sockets are only for chaining Atexor SLAM products
- 3) Amount of luminaires that may be connected with each other depends on the supply voltage
- 4) The total length of the light chain does not exceed 66 meters
- 5) The total current of the electrical installation does not exceed 16 A
- 6) Competent person of the operator shall control and accept the temporary electrical installation at the site

**General guide for linking SLAM Star luminaires with 5 m 3x1,5 mm<sup>2</sup> (or 3x2,5 mm<sup>2</sup>) cable:**

Supply voltage	Type of luminaire	Amount of luminaires
230 V	SLAM Star	3
110 V	SLAM Star	3
42 V	SLAM Star	3
24 V	SLAM Star	3

If you want to link SLAM Star with other SLAM luminaires, contact sales for further information.

Please note that even if the voltage drop allows certain amount of luminaries to be linked together, too long chain of luminaries may affect the ability of the fuses in the electrical input to work properly in a fault situation. Therefore it is not recommended to chain luminaries to a longer chain than 66 m measured from the protective fuse (when the electrical supply is protected with C-curve fuse). Please refer to local applicable laws and requirements for electrical installations.

The SLAM Star control gear protects itself against excessive voltage drops (numerous linking) by switching itself off. If too many units are connected to the chain, some units of the chain will switch off. You may start up by unplugging the last units on the line.

## 4 Inspection and repair

### 4.1 After Use

Take the following steps after the SLAM Star unit has been taken out from Ex-area

- 1) Clean the unit with a damp cloth (do not use detergents or solvents)
- 2) Change the anti-static film of the light unit tubes if only little light comes through it or it is damaged
- 3) Have a visual check on the unit (condition of cable, light unit, enclosure, tightness of parts)
- 4) Let the unit dry in open air
- 5) Store the unit (see 3.2 Storage)

### 4.2 Repair

The following procedure should be taken in case the SLAM Star unit needs to be repaired

- 1) Repairs may be carried out only outside Ex –area
- 2) Person responsible for maintenance should have been trained the basics of explosion-protection as well electricity
- 3) Only original spare parts from Atexor should be used. Please note that there are no components in this unit which can be repaired by using glue, silicone or any other similar method.
- 4) The dissipation feature (antistatic) on transparent parts of SLAM Star may be damaged because of external affects like solvents or chemicals or mechanical stress. In case the surface of the PC-tube is damaged in one area greater than 100 cm<sup>2</sup> the part has to be changed. The surface resistance of the transparent parts has to be between 1 MΩ...1 GΩ. Please contact Atexor in case you need a simple measuring device, which is needed for measuring surface resistance of the PC-tubes.
- 5) Maintenance instructions with exploded-view diagram and spare parts list are available at your local distributor and the manufacturer. Please, when requesting maintenance instructions with exploded-view diagrams, include the model and serial number of the product.

The device has electronics inside, please use required actions when disposing of the device or its components.



### 4.3 Testing

Tests are to be done according to EN/IEC 60079-19 before returning the repaired unit back to operation. The following tests shall be done in addition to the tests specified in EN/IEC 60079-19.

- PE –resistance test
- High-voltage test (500 VDC between Phase & Neutral against P/E conductor; N/A for 2-pole units)
- Operational test
- Test of expected use (vibrations, shaking)

**Proper testing ensures safe operation of repaired equipment.**

### 4.4 Repair report

The operator is responsible for keeping up to date record of the condition of his equipment (EN/IEC 60079-14). Ensuring the availability of this important information each repair procedure should be written down in repair report according to EN/IEC 60079-19.

**Repair report should include at least**

- Name of person who conducted the maintenance
- Date of maintenance
- Procedure of maintenance
- Signature of person responsible accepting the maintenance

**4.5 More information about the use of Electrical Apparatus for Explosive Gas Atmospheres**

Please observe the requirements of the valid standards of the day. Please study at least the following standards:

EN/IEC 60079-14 (Electrical installations in hazardous areas)

EN/IEC 60079-10 (Classification of hazardous areas)

EN/IEC 60079-17 (Inspection and maintenance of electrical installations in hazardous areas)

EN/IEC 60079-19 (Repair and overhaul for apparatus used in potentially explosive atmospheres)

---

## Help desk

Under any doubt or question, please contact your local distributor or the manufacturer.

Manufacturer contact details



P.O.B 89, FIN-60101 SEINÄJOKI, FINLAND

Phone: +358 20 734 3250

Fax: +358 20 734 3299

[info@atexor.com](mailto:info@atexor.com)

[www.atexor.com](http://www.atexor.com)

