



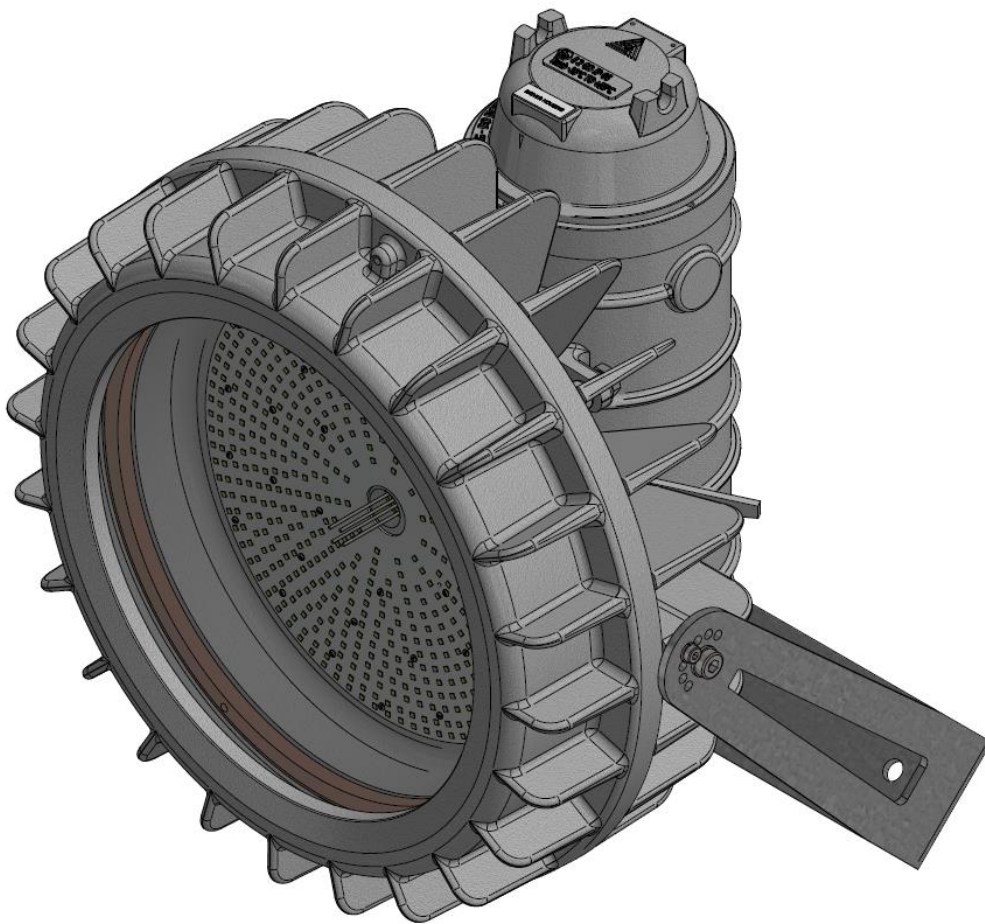
**S.E.M.C**

SHOMAL ENGINEERING & MANUFACTURING CO

OPERATING INSTRUCTION

**Explosion Protected LED Floodlight Luminaries**

**Series: FLD 95, FLD 125, FLD 145, FLD 180, FLD 220**



**WI-30(PCD-P-01)/00**



THIS GUIDE SHOULD BE READ CAREFULLY BEFORE INSTALLATION.  
INCORRECT INSTALLATION AND USE OF THE EQUIPMENT CAN INVALIDATE THE GUARANTEE!

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## Conformity with standards

This light fitting is conforming to the standards specified in the EU-Declaration of conformity. It has been designed, manufactured and tested according to the state of the art and to DIN EN ISO 9001 and IEC 80079-34.

## Properties and field of application

These luminaries are intended for use in potentially explosive atmospheres in Zones 1, 2 in accordance with IEC/EN 60079-10-1 and in Zones 21, 22 in accordance with IEC/EN 60079-10-2.

The FLD series has been specifically designed to meet the technical requirements of LEDs that are demanded installation in areas defined as hazardous due to the presence of gases and explosive dusts defined by the standards. As a result, the body is equipped with fins that act as a heat sink allowing a fast and effective dispersion of heat generated by the normal operation of the LED. The geometric conformation of the cooling fins was also designed with the objective of minimizing the deposit of combustible dust, allowing the self-cleaning of the lighting fixture by air or water present in the environment.

The enclosure materials used, including any external metal parts, are high quality materials that ensure a corrosion resistance and resistance to chemical substances according to the requirements for use in a "normal industrial atmosphere", as an example among others, the following:

- Aluminum alloy casting
- Epoxy powder coating finish
- Stainless steel
- Toughened glass

In case of use in an extremely aggressive atmosphere, please consult to the manufacturer.

This light fitting can be used inside or outside to illuminate areas with potentially explosive atmospheres.

The temperature class, explosion group and permissible ambient temperature can be found in the tables and technical data of this instruction manual.

The data according to mentioned standards shall be taken into account during use. Applications other than those described above are not permissible without a written declaration of consent from S.E.M.C Division.

- ! During operation the instructions stated in the maintenance section of the operating instructions shall be observed. The sole responsibility with respect to the suitability and proper use of these luminaries lies with the operator.

## Dimensional drawings

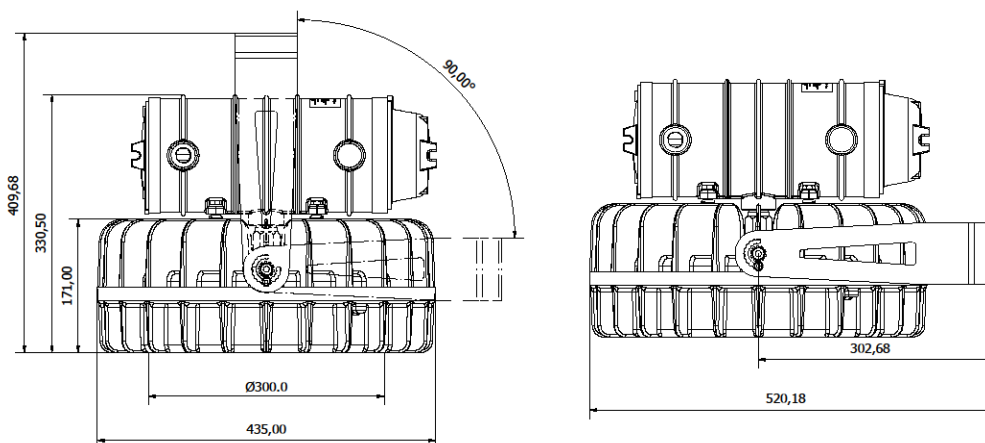




Fig. 1

## Types Configuration/Technical Data

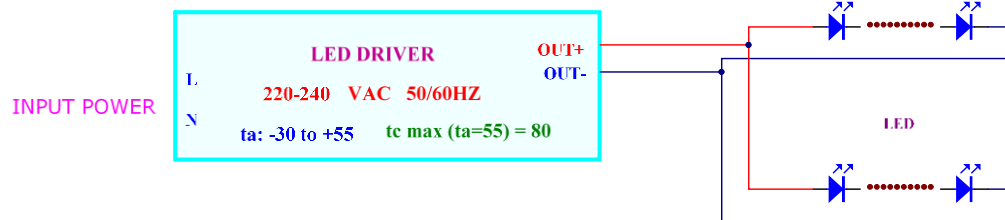
Technical Data																					
Hazardous Area	Gas										Dust										
LED Floodlight Luminaries	Series: FLD																				
Power consumption W	95	125	145	180	220	95	125	145	180	220	95	125	145	180	220	95	125	145	180	220	
Voltage Range Vac	220-240																				
Rated frequency Hz	50-60 Hz																				
Rated Current A	0.41-0.45	0.54-0.6	0.63-0.7	0.78-0.86	0.95-1.06	0.41-0.45	0.54-0.6	0.63-0.7	0.78-0.86	0.95-1.06	0.41-0.45	0.54-0.6	0.63-0.7	0.78-0.86	0.95-1.06	0.41-0.45	0.54-0.6	0.63-0.7	0.78-0.86	0.95-1.06	
Power factor	>0.95																				
EMC Protection	YES																				
THD (total harmonic distortion)	<10%																				
Over-voltage protection	2.5kV																				
Driver performances	Over-Voltage protection: YES Over-Current protection: YES Short-Circuit protection: YES																				
LED Lumen output lm	12000	16000	19000	23000	29000	12000	16000	19000	23000	29000	12000	16000	19000	23000	29000	12000	16000	19000	23000	29000	
LED	NF2757GR-V1																				
Color temperature	5000K																				
CRI	>70																				
T Rating (TX)	T6	T6	T6	T6	T6	T6	T6	T6	T5	T5	NA										
	@Ta +40°C					@Ta +55°C															
Surface Temperature (TXX°C)	NA					NA					80	80	80	80	80	80	80	80	80	100	100
Ambient Temperature	-20°C to +40°C					-30°C to +55°C					-20°C to +40°C					-30°C to +55°C					
Zone	1-2										21-22										
Conforming to ATEX 2014/34/EU	CE 0035  II 2 G										CE 0035  II 2 D										
Symbol of Protection ATEX	Ex db IIC TX Gb										Ex tb IIIC TXX°C Db										
Symbol of Protection IEC	or Ex db eb IIC TX Gb (See Note)																				
EU Declaration of Conformity																					
ATEX Certificate	LOM 19ATEX1068X																				
IECEx Certificate	IECEx LOM xx.xxxx																				
Index of Protection	IP66																				
Enclosure material	Aluminum alloy casting																				
Enclosure Surface finish	Paint Polyester powder coating																				
Glass Material	Toughened glass																				
Dimensions	See Fig. 1																				
Connection:	Direct connection to terminal L, N, Pe. 4mm <sup>2</sup> suitable for loop-in/loop-out																				

### Note:

Ex db IIC (TX) Gb:  
the connection box is used as flameproof. User must use "Ex d" cable glands.  
All the compartments are flameproof.

Ex db eb IIC (TX) Gb:  
the connection box is used as increased safety. User must use "Ex e" cable glands.  
All the compartments are flameproof except connection box.

## Wiring diagram and electrical connection



## Installation

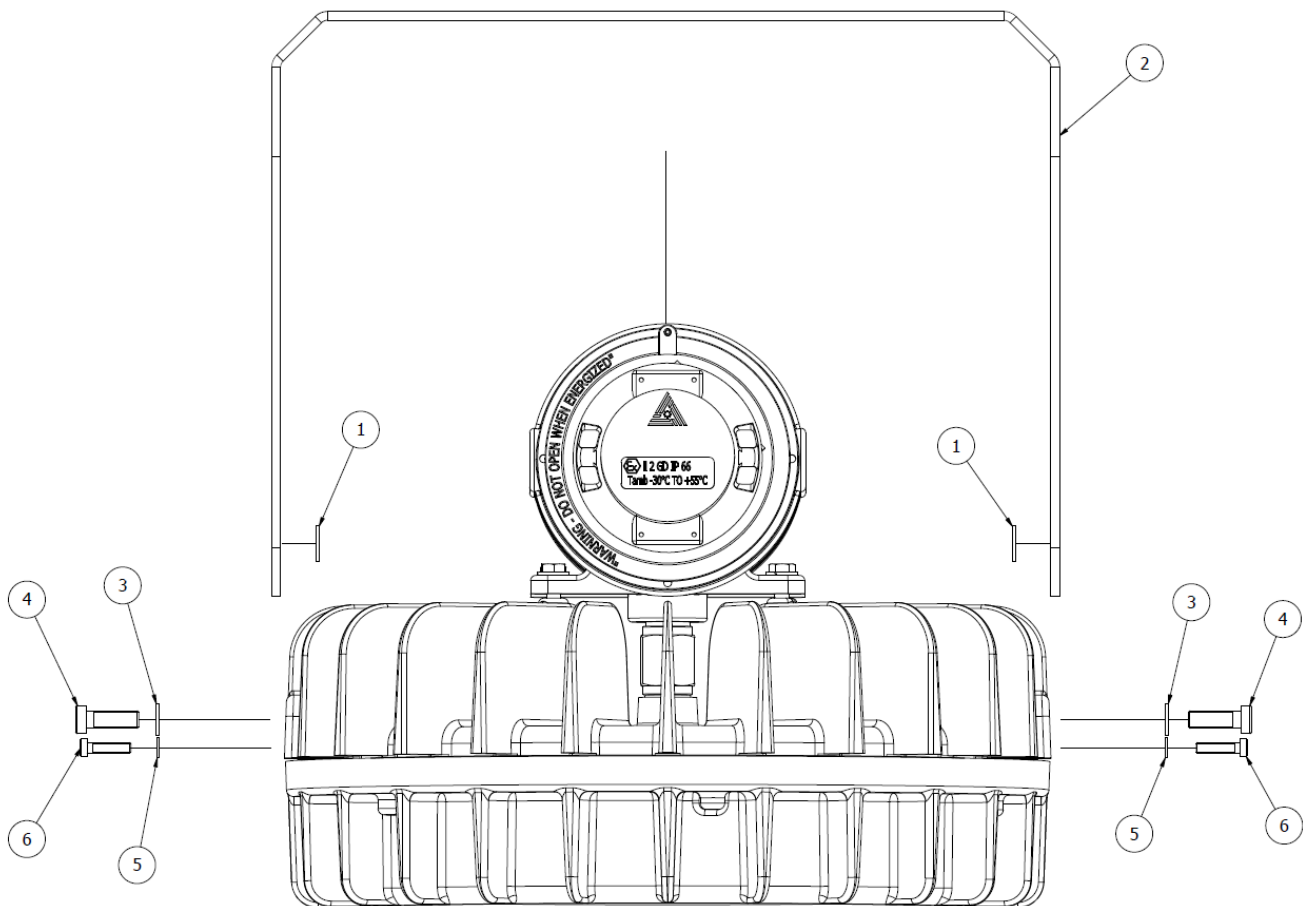
### General

The respective national regulations IEC/EN 60079-14 as well as the general rules of engineering which apply to the installation and operation of explosion protected apparatus will have to be observed!

- ⚠ Do not install where the marked operating temperature exceeds the ignition temperature of the hazardous atmosphere!
- ⚠ Do not operate in ambient temperatures above those indicated on the luminaire's nameplate!
- ⚠ Do not open or remove luminaire with the circuit energized.
- ⚠ Do not look directly at the LEDs when energized. Do not blind anyone.
- ⚡ The improper installation and operation may result in the explosion protection and invalidation of the guarantee.

### Light fitting yoke mounting instructions

- Install items 1&2 in numerical order and adjust the socket head screw 3 manually.
- Place the washer 3 and the screw 4 in the yoke.
- Adjust the desired angular position of the yoke and tighten screw 6 until the bracket is locked.
- Adjust screws 4 and 6 strongly with a wrench.



## Adjustment of floodlight

Loosen the set screw 6 and fixing screws 4 to rotate the bracket to set the required tilt angle between  $0^{\circ}$  and  $90^{\circ}$  according to the different mounting bracket. Retighten the set screw 6 and fixing screws 4.

⚠ The lamp must not be illuminated when at a distance of less than 0.5m from inflammable material.

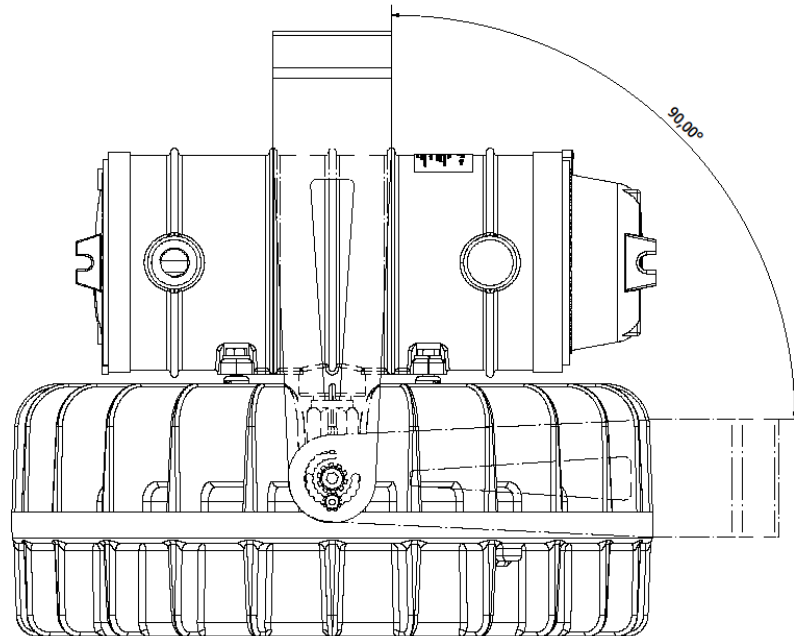


Fig. 4

## Bracket adjustment for wall mounting

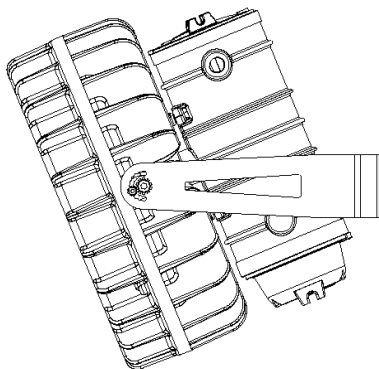


Fig. 5

## Bracket adjustment for ceil mounting

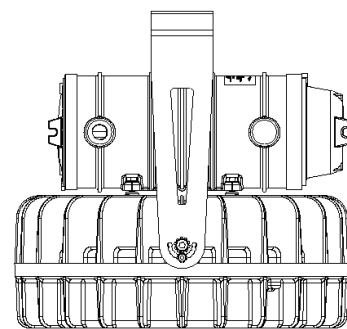


Fig. 6

## Safety instructions

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This product should be installed and connected by skilled electricians and instructed personnel in accordance with IEC/EN 60079-14, IEC/EN 60079-17 and the respective national legislation on electrical equipment for explosive atmospheres.

The national safety rules and regulations for the prevention of accidents, as well as the safety instructions shall be observed!

The luminaries must not be operated in Zone 0 or 20 hazardous areas. Potential electrostatic hazard clean only with a damp cloth.

The requirements of IEC/EN 60079-14 regarding excessive dust deposits and temperature must be considered by the user.

The indicated surface temperatures are not related to a layer above 5mm thickness. Before opening, electrical power to the luminaire must be turned off during at least 20 minutes! To allow adequate cooling.

The temperature class and explosion group stated on the luminaire, and in table 1, shall be observed. To adhere to the temperature class or surface temperature stated on the type label of the luminaire, and in table 1, the permissible ambient temperature shall be observed.

Light fitting shall be used for their intended purpose and shall be undamaged and in a perfect and clean condition. Keep tightly closed when in operation.

The technical data indicated in point 3 as well as those indicated in light fitting, must be observed.

- **STOP** Modifications or design changes to these luminaries that can affect the explosion protection are not permitted. Avoid multiple, short time switching operation.
- **STOP** Only original S.E.M.C Series spare parts may be used as replacements and for repairs. Repairs that affect the explosion protection may only be carried out by S.E.M.C Division or by a qualified electrician in compliance with the respective national regulations.
- ⚠ Before initial operation, any foreign matter shall be removed from light fitting,
- ⚠ Do not keep this operating instruction manual inside of the luminaire during its operation.



## Opening/Closing the terminal housing

### General

- ⚠ The opening of luminaire always shall be without voltage!
- ⚠ All gasket seals must be clean and undamaged before closing the luminaire.
- ⚠ Make sure the luminaire is well closed before operation!
- ⊛ Glass housing has been fixed to the heat sink housing by the manufacturer and the Exd thread joint has been tightened and locked by the set screw which is not permitted to be loosen by the user.

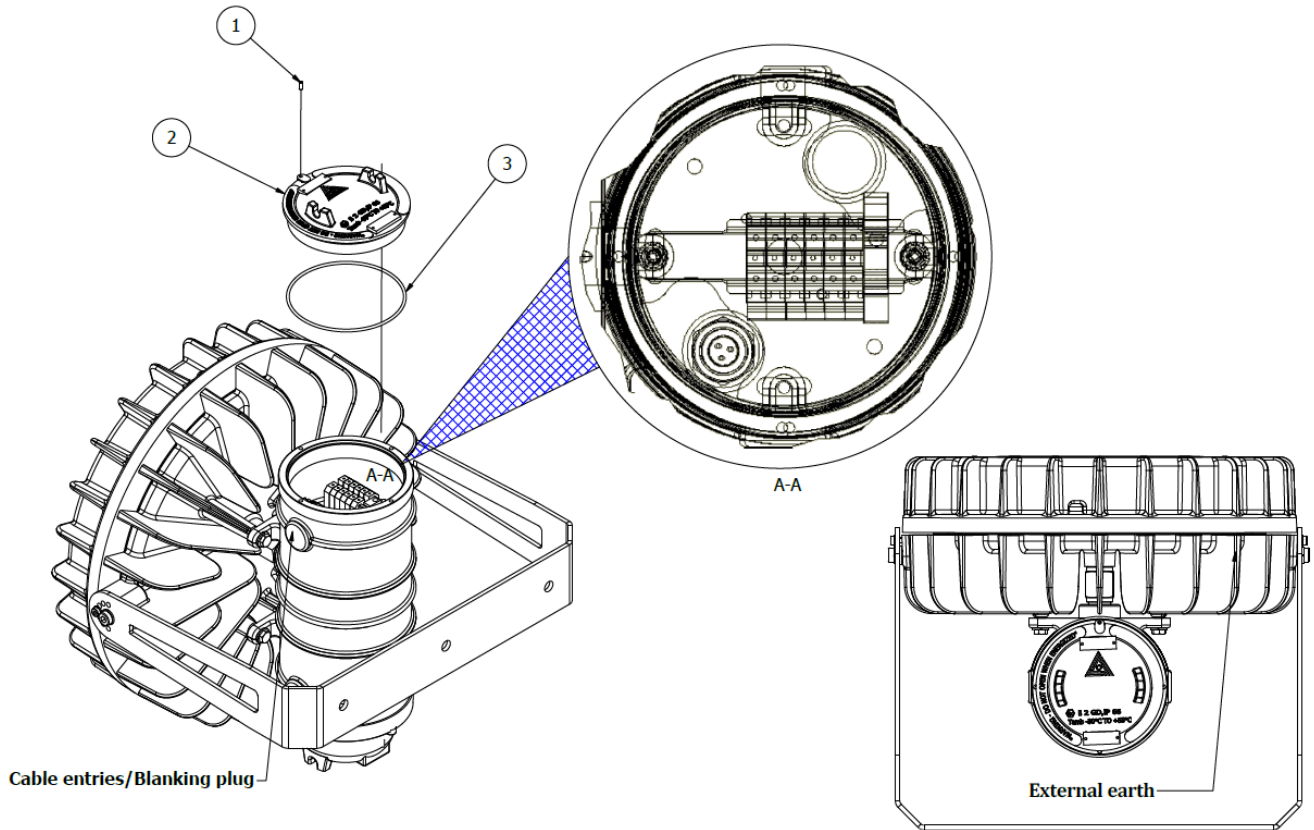


Fig. 7

### Terminal Cover

Unscrew the set screw 1 and remove the terminal compartment cover 2 see Fig. 7. Carry out the steps in reverse order to close the luminaire.

- ⚠ Check all screws to ensure a secure fit (Torque for the set screw: 1.5Nm).
- ⊛ The cover of driver housing has been tightened by the manufacturer and locked by the set screw which is not permitted to be loosen by the user under any circumstances.

### Electrical Connection

The electrical connection of the lighting must only be established by qualified electricians. Make sure the supply voltage is the same as the luminaire voltage!

Use proper supply wiring as specified on the nameplate of the luminaire and in this instructions!

Excessive tightening may affect or damage the connection.

Connect cable according to the terminal numbering and circuit diagram. The conductors shall be connected with special care in order to maintain the explosion category.

Leads connected to the terminals shall be insulated for the appropriate voltage and this insulation shall extend to within 1mm of the metal of the terminal throat.

When more than one single or multiple stranded wires connecting to terminal block, or multiple conductors join together, a single insulated crimped bootlace ferrule must be used.

The conductor itself shall not be damaged.

The connectible min and max conductor cross-sections shall be observed (see technical data).

- ⚠ All terminal screws, used and unused, shall be tightened down to between 1.2~2Nm.

## Cable entries/blanking plugs

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The "Increased safety (Exe)" properties must be preserved when, for example, using cables and wires of sufficient diameter.

Unused holes shall be closed with a certified blanking plug in order to establish the Exe protection category.

The cable glands and blanking plugs should be Ex tb certified if the whole product is Ex tb certified also.

The authoritative mounting guidelines for the cable glands used must be observed.

Mounting the selected cable entries (cable glands) acc. type and dimensions of the main connection cable. Following the manufacturer instructions.

## Earth connection

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This apparatus is provided with external and internal earth facility suitable for the largest conductor size. See Fig. 7

## Putting into operation

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Prior to putting the apparatus into operation, the tests specified in the relevant national regulations shall be carried out.

Insulation measurements may only be carried out between PE and the external conductor L1 (L2, L3) as well as between PE and N.

-Measurement voltage: See table of technical data

-Measurement current: See table of technical data

-The luminaire may only be operated when closed.

## Maintenance / Servicing

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The valid national regulations for the maintenance/servicing of electrical equipments for use in potentially explosive atmospheres shall be observed (i.e. IEC/EN 60079-17).

- ⚠ Before opening the enclosure, it is necessary to ensure that the voltage supply has been isolated and should be allowed to cool down for 20 minutes after switching off.

The necessary intervals between servicing depend upon the specific application and shall be stipulated by the operator according to the respective operating conditions. We recommend a regular maintenance according to an approved preventive maintenance program.

During servicing, above all, parts on which the explosion protection depends shall be tested or visually inspected to ensure their correct state, i.e.:

- Enclosure threaded parts like cover and cable entries, shall be properly greased, in good conditions, clean and without any corrosion or damage.
- The thread shall not be treated, painted nor varnished! Preferably with grease thermally and chemically stable. i.e. Lithium grease
- Check all seals for efficiency and intactness. Replace older or damaged seals with new seals.

Any damaged parts shall be replaced immediately using original parts or da

maged parts shall be repaired by the manufacturer.

Check that connection terminals, cable entries and blind plugs fit securely.

All electrical and electronic material inside of the enclosure shall be maintained as per their own instructions.

Observe the national rules applicable to maintenance, servicing, inspection and repairing of apparatus for explosive atmospheres, as well as the general rules of engineering.

- ⚠ For dust explosive application, ensure any dust layers on the apparatus do not exceed 50mm.

- ⚠ NOTE: Before opening the equipment ensure that the apparatus is disconnected from the supply voltage! Or take appropriate protective measures.

The required maintenance intervals depend on the respective application and will therefore have to be determined by the user depending on the conditions of use.

Those components that affect the explosion protection must be checked at servicing stages, e.g.:

- ⚠ The flameproof joints must be cleaned, undamaged, without corrosion and perfectly greased.

- ⚠ Gaskets/O-rings must be examined for their perfect conditions.

- ⚠ Cable entries must be free of corrosion.

- ⚠ Blinding plugs must be examined for their firm fit.

- ⚠ NOTE: If during servicing it is discovered that repairs are necessary, the Repair/Overhaul/Modification section of this manual must be observed.

- ⚠ The flame paths of these apparatus must be permanently greased in order to ensure protection in front of the corrosion, water ingress and seize-up problems. The remaining grease and corrosion must be cleaned without using sharp metallic devices, which can damage the surface of the joint. Thermally and chemically stable grease with a drop point > 200°C must be used.

## Inspection/ Repair / Overhaul / Modification

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- ! Repairs and overhaul may only be carried out with genuine S.E.M.C Series spare parts.
- △ Switch off the equipment before opening or isolate it before the dismantling of individual parts.
- △ Only use original spare parts. Repairs that affect the explosion protection may only be carried out by S.E.M.C Division or a qualified electrician in compliance with the applicable national rules. For repair electrical equipments in protection mode is suggested follow the instructions indicated in IEC/EN 60079-19.
- ! Reparation of the sealed part between collar and glass shall be done by S.E.M.C Division, only user care not authorized to repair any sealed part of the luminaire. Modifications to the equipments or changes of its design are not permitted.
- △ All reparations have to be done without voltage!
- ! In the event of damage to the flameproof enclosures or other parts of equipments that could affect the mode of protection, replacement of these components is mandatory. In case of doubt, the res-perceive equipments shall be sent to S.E.M.C Division for repair. Reconstruction or modifications to equipments are only possible within the scope of the approvals and shall be certified afterward.
- △ The national regulations must be observed. The tasks of repairing must be carried out by “qualified” personnel.
- △ Repairs may only be carried out using genuine SHOMAL spare parts.
- △ Repairs that affect the explosion protection may only be carried out by SHOMAL or a qualified electrician in compliance with the applicable rules.
- ⊛ Modifications to the apparatus or design changes are strictly prohibited.

## Storage Preservation Guide

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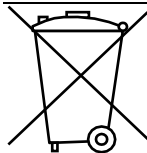
- △ The Products shall not be stored or left in a wet or damp environment.
- ⊛ Do not store The Products under direct sun light.

Permanent Storage Temperature in Original Package is: -40°C to +60°C

Transport and storage of equipment is permitted in the original package only.

## Disposal / Recycling

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When the equipment or their parts is disposed of the respective valid national regulations on waste disposal shall be observed. S.E.M.C. is concerned about environmental protection and therefore appropriate action should be taken with due consideration of relevant respect to terms and regulations of the goods destination to ensure the proper disposal of its goods' packing and wrapping. Diversified waste disposal is strongly recommended.

## EU Declaration of Conformity

Mashinsazi Shomal Pirooz

C2 Ave.-Salmanshahr industrial Park,

C2 Salmanshahr- Mazandaran-IRAN

TEL:(+9811)54663410-18 FAX:(+9811)54663410-18 Ext (141)



We declare that the DoC is issued under our sole responsibility and belongs to the following product:

Product(s):

**Floodlight**

Types: FLD 95, FLD 125, FLD 145, FLD 180, FLD220




The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

ATEX directive: 2014/34/EU, (Equipment and protective system intended for use in potentially explosive atmospheres.)

the following harmonized standards and technical specifications have been applied:

EN 60079-0: 2012+A11:2013 Explosive atmospheres-Part 0: Equipment – General requirements  
EN/IEC 60079-1:2014 Explosive atmospheres-Part 1: Equipment protection by flameproof enclosures "d"  
EN 60079-7:2015 Explosive atmospheres-Part 7: Equipment protection by increased safety "e"  
EN 60079-31: 2014 Explosive atmospheres-Part 31: Equipment dust ignition protection by enclosure "t"  
EN/IEC 60079-28:2015 Explosive atmospheres-Part 28: Protection of equipment and transmission systems using optical radiation  
EN 60529: 1992 + A2:2013 Degrees of protection provided by enclosures (IP Code)

Issued certificates from notified bodies:

Notified body (EC/EU type examination certificate): Laboratorio Oficial J.M. Madariaga - LOM  0163

LOM 19ATEX1068X

Notified body (Production Quality Assurance): TÜV Rheinland Industrie Service GmbH  0035

No.: 01 220 113562

For the safe use of this apparatus, the information given in the accompanying operation instructions must be followed

Place and date:

xxx xxxx

Tehran - Iran

H. Arabshahi Fard

Managing Director

**Head Office:** No. 1, Kaveh Dead End, Bahram St., East Akhlaghi St., Kaveh Blv., Dolat Ave., Tehran, Iran

TEL: (+9821)22763680-22541212-22547785-22792351-22564428

FAX: (+9821) 22763681

Postal Code: 19398-83351

Visit us at

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

E-mail: [shomal@shomal.com](mailto:shomal@shomal.com)

**Voice of Customer:**

TEL: (+9811) 54663420

E-mail: [VOC@shomal.com](mailto:VOC@shomal.com)

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