



## Technical Manual for the Strobe - SM87 HXB

Please note that every care has been taken to ensure the accuracy of our technical manual. We do not, however, accept responsibility for damage, loss or expense resulting from any error or omission. We reserve the right to make alterations in line with technical advances and industry standards.



## 1. INTRODUCTION

These strobe units have been designed for use in harsh environmental conditions.

## 2. INSTALLATION

### General

When installing and operating explosion-protected electrical equipment, requirements for selection, installation and operation should be referred to eg. IEC 60079-14 worldwide and the 'National Electrical Code' in North America. Additional national and/or local requirements may apply.

Ensure that all nuts, bolts and fixings are secure.

Ensure that only the correct UL listed stopping plugs are used to blank off unused gland entry points and that the NEMA/IP rating of the unit is maintained.

The strobe is mounted via 4 x Ø 0.354" (Ø 9mm) fixing holes in the base.

The fixing holes have been designed to accept an M8 screw or bolt. MEDC recommend the use of stainless steel screws.

### Cable Termination

**CAUTION: Before removing the cover assembly, ensure that the power to the unit is isolated.**

Unscrew and remove the 4 off screws holding the cover assembly to the base. Keep in a safe, accessible location.

Twist the cover assembly gently clockwise and anti-clockwise, whilst pulling it away from the base. Remove to gain access to the interior of the base.

Cable termination should be in accordance with specifications applying to the application. MEDC recommend that all cables and cores should be fully identified.

Ensure that only correct UL Listed cable glands are used and that the assembly is shrouded and correctly earthed.

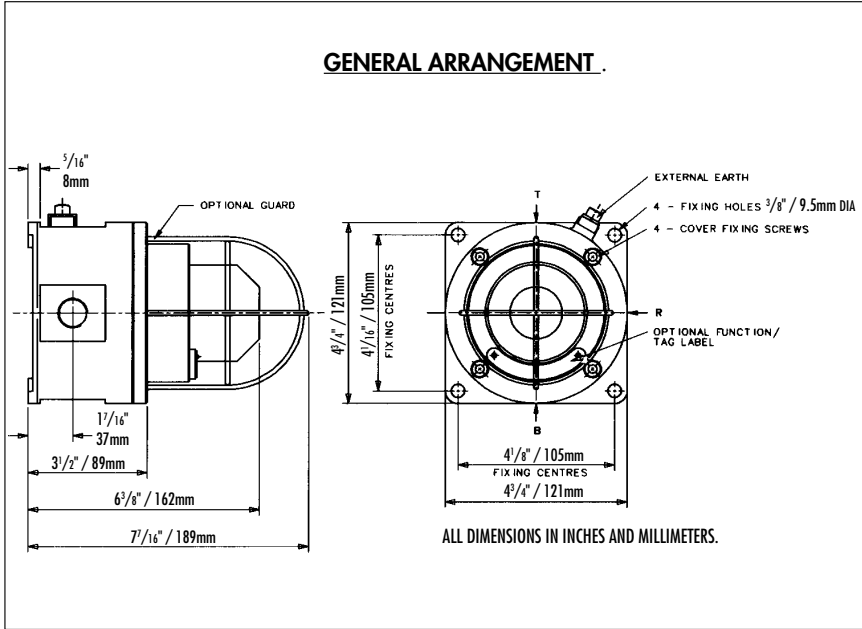
All cable glands should be of an equivalent NEMA/IP rating to that of the strobe and integrated with the unit such that this rating is maintained.

The internal earth terminal (where fitted), must be used for the equipment grounding connection and the external terminal is for a supplementary bonding connection where local codes or authorities permit or require such a connection.

Once termination is complete, carefully push the cover assembly back onto the base, avoiding damage to the mating surfaces. Replace the 4 off screws into the holes in the cover assembly and tighten evenly, to ensure maintenance of the required gap between the cover and base.

### 3. OPERATION

The unit is initiated directly from the power source.



### 4. MAINTENANCE

During the working life of the strobe, little or no maintenance is required. However, if abnormal or unusual environmental conditions occur due to plant damage or accident etc., then visual inspection is recommended.

If a fault should occur, it is recommended that the unit be returned to MEDC for repair. All parts are replaceable.

If you have acquired a significant quantity of units, it is recommended that spares are also made available. Please discuss your requirements with the Technical Sales Engineers at MEDC.

Description	Part Number
Cover assembly (Without lens guard fitted)	Contact MEDC
Cover assembly (With lens guard fitted)	Contact MEDC
O-ring (Alloy units)	PX99900312
O-ring (Stainless Steel units)	PX99900233
Electronics assembly (110Vac / 60fpm)	PX99900094
Electronics assembly (240Vac / 60fpm)	PX99900121
Electronics assembly (24Vdc / 60fpm)	PX99900099
Spare xenon tube	PX99900122
Cover screw for st. steel unit (4 off required)	PX99900584
Cover screw for alloy unit (4 off required)	PX99900818

## 5. **WARNING STATEMENTS**

- i) To reduce the risk of ignition of hazardous atmospheres, disconnect the equipment from the supply circuit before opening. Keep assembly tightly closed when in operation
- ii) Not to be used as a Visual Public mode alarm notification appliance
- iii) To reduce the risk of ignition of hazardous atmospheres, conduit runs must have a sealing fitting connection within 50mm of the enclosure

Cable entries are either 3/4" NPT or 1/2" NPT. Terminals are suitable for up to a 14AWG conductor.

## **Avertissements**

- i) Afin de réduire le risque d'allumage et d'incendie dans des atmosphères dangereuses, déconnectez l'équipement du circuit d'alimentation avant de procéder à son ouverture. Maintenez l'appareil fermé hermétiquement lors de son utilisation
- ii) Ne doit pas être utilisé comme appareil de signal d'alarme mode public visuel
- iii) Afin de réduire le risque d'allumage et d'incendie dans des atmosphères dangereuses, les courses de conduits doivent être dotées d'un raccord d'étanchéité situé à 50 mm ou moins du boîtier

Les entrées de câbles mesurent soit 3/4 po NPT ou 1/2 po NPT. Les terminaux sont adaptés pour un conducteur maximum de 14 AWG .

DNV Type approved. Approved according to IEC60945: Maritime navigation and radio communication equipment and systems.

The equipment is classed as exposed.

Minimum compass safe distance is 5m.

## 6. **CERTIFICATION/APPROVALS**

Please refer to marking on the unit for specific approval details.

- UL listed for use in            Class 1, Div. 1, Groups C & D  
  USA (USL)                    Class 1, Zone 1, Groups IIA & IIB.
- ULS tandards                UL1203, UL1638, UL60079-0 6th Ed.,  
                                          UL60079-1 6th Ed
- CSA Standards                CSA C22.2 No 30M-1986,  
                                          CSA C22.2 No 60079-0,  
                                          CSA C22.2 No 60079-1,  
                                          CAN/CSA C22.2 No 205-M1983

## 7. **CERTIFIED TEMPERATURE**

-55°C to +55°C

-67°F to +131°F

## 8. FUNCTIONAL SAFETY

### Introduction

The SM87HXB Beacon has been designed for use in potentially explosive atmospheres and harsh environmental conditions. The marine grade alloy or stainless steel enclosures are suitable for use offshore or onshore, where light weight combined with corrosion resistance and strength is required.

The safety function of the Beacon is to provide an intermittent spherical visual warning light when the correct voltage is applied to the unit. The DC versions of the Beacon are designed to operate on a supply voltage tolerance of +/- 20%; the AC versions of the beacon are designed to operate on a supply voltage tolerance of +/- 10%.

The telephone initiate versions of the Beacon are not included in this safety manual.

Under No fault (Normal) Operating conditions the SM87HXB Beacon will provide a spherical visual warning light when required by the system.

Under fault conditions the failure mode of the Beacon is a failure to provide a spherical visual warning light. For the failure rate associated with this failure mode please refer to the table below.

### Assessment of Functional Safety

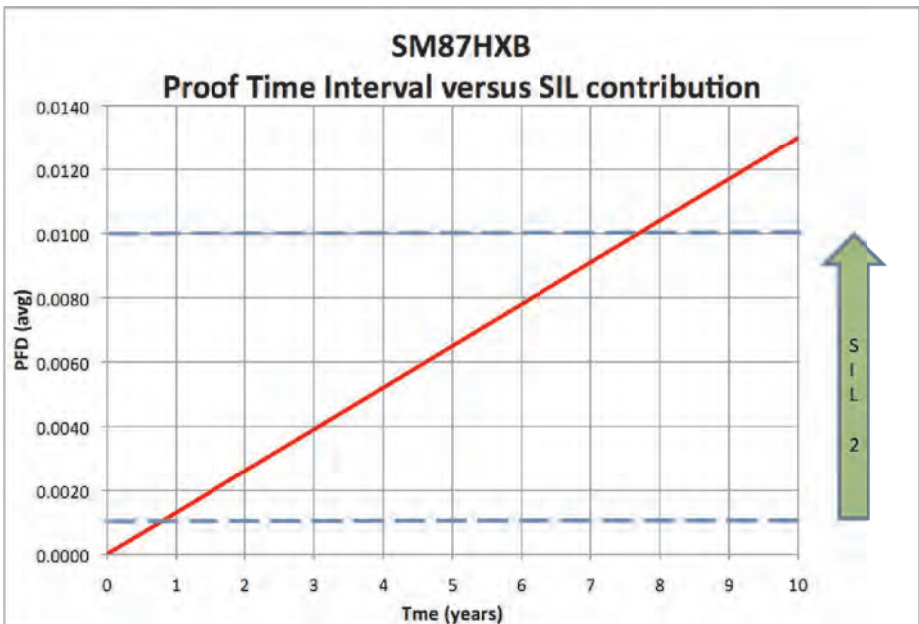
The SM87HXB Call Point is intended for use in a safety system conforming to the requirements of IEC61508.

UL has conducted a Failure Modes Effect and Diagnostic Analysis (FMEDA) of the SM87HXB Beacon against the requirements of IEC61508-2 using a proof test interval of 8760hrs.

The results are shown below and are based on Route 1H

The Beacon is classed as a Type A device.

<b>SM87HXB Beacon</b>			
Safety Function of SM87HXB Beacon: <i>To provide a spherical cycled visual warning light when energised'</i>			
Architectural constraints:	Type A HFT=0 SFF= 73%	Proof Test Interval =8760Hrs MTTR = 8 Hrs	SIL2
Random hardware failures:	$\lambda_{DD} = 0$ $\lambda_{DU} = 2.96E-07$	$\lambda_{SD} = 0$ $\lambda_{SU} = 8.12E-07$	
Probability of failure on demand:	PFD <sub>AVG</sub> =1.30E-03 (Low Demand Mode)		SIL2
Probability of Dangerous failure on safety function:	PFH = 2.96E-07 (High Demand Mode)		SIL2
Hardware safety integrity compliance <sup>[1]</sup>	Route 1 <sub>H</sub>		
Systematic safety integrity compliance	Route 1 <sub>S</sub>		
Systematic Capability	SC2		
Overall SIL-capability achieved	SIL 2 (Low Demand) SIL 2 (High Demand)		



### Conditions of Safe use

The following conditions apply to the installation, operation and maintenance of the assessed equipment. Failure to observe these may compromise the safety integrity of the assessed equipment:

1. The user shall comply with the requirements given in the manufacturer's user documentation (This Safety Manual and Technical manual) in regard to all relevant functional safety aspects such as application of use, installation, operation, maintenance, proof tests, maximum ratings, environmental conditions, repair, etc;
2. Selection of this equipment for use in safety functions and the installation, configuration, overall validation, maintenance and repair shall only be carried out by competent personnel, observing all the manufacturer's conditions and recommendations in the user documentation.
3. **All information associated with any field failures of this product should be collected under a dependability management process (e.g., IEC 60300-3-2) and reported to the manufacturer.**
4. The unit should be tested at regular intervals to identify any malfunctions; in accordance with this safety manual.

MEDC Ltd, Unit B, Sutton Parkway, Oddicroft Lane, Sutton in Ashfield, United Kingdom NG17 5FB  
Tel: +44 (0)1623 444444 Fax: +44 (0)1623 444531  
Email: [MEDCSales@Eaton.com](mailto:MEDCSales@Eaton.com) [MEDCOrders@Eaton.com](mailto:MEDCOrders@Eaton.com)  
Web: [www.medc.com](http://www.medc.com)

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