

Product name - SM87 BG/PB EExi Versions

Date - 07.09.98

Issue - B

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**M E D C**

**SM87 BG/PB**

**EExi VERSIONS**

**TECHNICAL MANUAL**

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## **1.0 INTRODUCTION**

These manual alarm callpoints and pushbutton units have been designed for the most arduous environmental conditions. The units can be supplied in either stainless steel or aluminium alloy and are also available with features such as 'in line' and 'end of line' resistors and LED etc.

## **2.0 INSTALLATION**

The SM87 BG/PB is mounted via 4 x Ø9mm holes in the base, for further details see the attached data sheet.

The fixing holes have been designed to accept an M8 cap head screw or bolt.

MEDC recommend the use of stainless steel fasteners.

### **2.1 Removing/Replacing the Cover Assembly**

CAUTION: Before removing the cover assembly, ensure that the power to the callpoint or pushbutton is isolated.

Remove the 4 x M6 screws holding the cover to the base.

Twist the cover gently clockwise and anti-clockwise, whilst pulling away from the base, until the cover is separated from the base.

Replace the cover in a similar, but reverse, manner to that used for removal. Ensure the internal wires are clear of the microswitch actuator and operating mechanism.

### **2.2 Cable Termination**

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 the correct industrial glands are used and that the assembly is shrouded and correctly earthed.

All cable glands should be of an equivalent IP rating to that of the callpoint or pushbutton.

In order to maintain the IP rating of the callpoint or pushbutton, the glands should be sealed to the callpoint or pushbutton using a sealing washer or sealing compound.

## **3.0 OPERATION**

The callpoint or pushbutton can be operated by various means, this can be determined by reference to the drawing supplied with the callpoint or pushbutton.

#### **4.0 MAINTENANCE**

During the working life of the callpoint or pushbutton, it should require little or no maintenance. 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, then the callpoint or pushbutton can be repaired by MEDC. All parts are replaceable.

If you have acquired a significant quantity of callpoints or pushbuttons, then it is recommended that spares are also made available (please discuss your requirements with MEDC's Technical Sales Engineers).

For further maintenance procedures see :-

Appendix 1 SM87PB microswitch replacement  
Appendix 1A SM87PB inner actuator replacement  
Appendix 2 SM87BG microswitch replacement  
Appendix 3 SM87BG glass replacement

#### **5.0 BARRIER TYPES**

One Shunt Zener Diode Safety Barrier certified by BASEEFA or any EEC Approved Body to (EEx ia) IIC or (EExib) IIC having the following output parameters :-

$U_z$	=	28V	OR	$U_z$	=	22V
$I_{\max:\text{out}}$	=	93.3mA		$I_{\max:\text{out}}$	=	147mA
$W_{\max:\text{out}}$	=	0.66W		$W_{\max:\text{out}}$	=	0.8W

Any other barrier having lower values than the above are permitted.

Either the PEFUSAFE Z129 or Z123 to BASEEFA Certificate No. Ex822097 are also permitted.

#### **6.0 CERTIFICATION**

BASEEFA certification to EN50014, EN50020  
EExib, Gas group IIC T4 certificate no. Ex84B2086.

System certification to EN50039, Certificate No. Ex842087.

GOST Certification, 1Exib IIC T4.

#### **7.0 APPROVALS**

Ingress Protection (IP66 + 67) to BS EN 60598-1:1997.

## **APPENDIX 1**

### **REPLACEMENT OF THE MICROSWITCH AND UNIT** **SETTING-UP PROCEDURE SM87PB**

1. Replace the microswitch on its mounting brackets.

Assemble all parts to G.A. Drawing 162-305 and the customer G.A., except the potted unit (if fitted).

2. With the microswitch bracket screws slightly loose, push actuator fully in.
3. Place 0.2mm feeler gauge or 0.2mm shim behind the microswitch actuator level, push the microswitch up to the inner actuator and tighten the screws on the microswitch bracket ensuring the roller of the microswitch is in contact with the inner actuator.
4. Check the centre line of the roller is level with the start of the taper (inner end) on the inner actuator i.e. must just be on the parallel diameter. If not, use the shims available to achieve this.
5. Release the actuator, all the poles of the microswitch should operate - if not, remove a 0.5mm shim from the actuator assembly and re-check as in 3 above.
6. Press the actuator fully home and check the 0.2mm feeler gauge will still fit behind the microswitch actuator lever.
7. Fix the potted unit (if fitted).

**APPENDIX 1A**

**REPLACEMENT OF INNER ACTUATOR AND UNIT**  
**SETTING-UP PROCEDURE SM87PB**

1. Remove cover via 4 x M6 retaining screws.
2. Remove M5, inner actuator retaining screw, ensuring the main plunger cannot rotate.
3. The inner actuator may now be replaced.
4. To re-assemble, locate the inner actuator and tighten M5 retaining screw.
5. With the microswitch bracket screws slightly loose, push actuator fully in.
6. Place 0.2mm feeler gauge or 0.2mm shim behind the microswitch actuator lever, push the microswitch up to the inner actuator and tighten the screws on the microswitch bracket ensuring the roller of the microswitch is in contact with the inner actuator.
7. Check the centre line of the roller is level with the start of the taper (inner end) on the inner actuator i.e. must just be on the parallel diameter. If not, use the shims available to achieve this.
8. Release the actuator, all the poles of the microswitch should operate - if not, remove 0.5mm shim from the actuator assembly and re-check as in 3. above.
9. Press the actuator fully home and check the 0.2mm feeler gauge will still fit behind the microswitch actuator lever.
10. Fix the potted unit (if fitted).
11. Finally, replace cover and tighten 4 x M6 retaining screws.

## **APPENDIX 2**

### **REPLACEMENT OF THE MICROSWITCH UNIT** **SETTING-UP PROCEDURE SM87BG**

1. Replace the microswitch on its mounting bracket.

Assemble all parts to G.A. Drawing 162-306 and the customer G.A. if supplied, except the potted unit (if fitted).

2. With the microswitch bracket screws slightly loose, place glass in position and tighten bezel down fully to cover the casting.
3. Place 0.2mm feeler gauge or 0.2mm shim behind the microswitch actuator lever, push the microswitch up to the inner actuator and tighten the screws on the microswitch bracket ensuring the roller of the microswitch is in contact with the inner actuator.
4. Check the centre line of the microswitch roller is level with the start of the taper (inner end) on the inner actuator i.e. must just be on the parallel diameter. If not, use the shims available to achieve this.
5. Remove the bezel - all the poles of the microswitch should operate - if not, remove a 0.5mm shim from the actuator assembly and recheck with the glass in position and bezel fully tightened that there is a 0.2mm gap as before.
6. Remove the glass, press the actuator fully home and check the 0.2mm feeler gauge will still fit behind the microswitch actuator lever. Rotate the actuator to 90°, 180° and 270° ensuring the 0.2mm gap is constant i.e. the microswitch must not operate the switch during rotation.
7. Fix the potted unit (if fitted).

### **APPENDIX 3**

#### **REPLACEMENT OF GLASS PIECES ON SM87 BG UNITS**

1. To replace the glass, a kit containing 'O' Rings and glass is provided.
2. When replacing glasses, observe the following procedure:-
3. Remove the original 'O' Rings and glass and ensure the grooves in the bezel and cover are clean.
4. Fit the larger 'O' Ring to the groove on the cover.
5. Fit the smaller 'O' Ring to the bezel:-
  - (a) Offer the 'O' Ring up to the groove.
  - (b) Place thumbs of both hands side by side onto the 'O' Ring.
  - (c) Press the 'O' down into the groove circumference maintaining even pressure forcing the 'O' Ring into the groove.
  - (d) The 'O' Ring should be fully seated in the groove and not fall out when fitting the bezel to the cover.
6. Centralise the glass piece on the cover by holding down the glass with thumb through the bezel and pressing in the plunger until the glass is in full contact with the cover 'O' Ring. Ensure an even gap is all around the glass.
7. Without allowing the glass to move, screw down the bezel until the bottom of the bezel is tightened against the cover.



Add a copy of the sales leaflet at the  
back of the technical manual