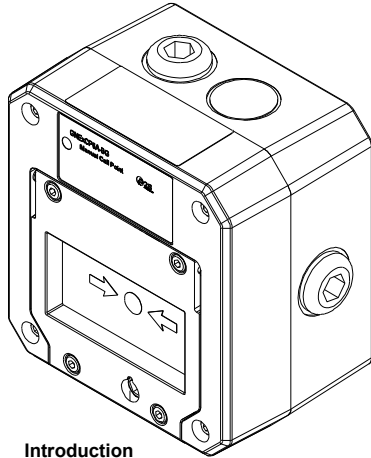


GNExCP6B-BG & GNExCP6C-BG

Manual Call Point - Breakglass With Resistor Modules For use in Flammable Gas and Combustible Dust Atmospheres.



1) Introduction

The GNExCP6B-BG and GNExCP6C-BG is a break glass manual call point which is certified to the European and International Gas and Dust standards. The unit meets the requirements of the ATEX directive 94/9/EC and IECEx scheme.

The call point can be used in hazardous areas where potentially flammable gas and dust atmospheres may be present.

The GNExCP6B-BG has up to two of the following monitoring resistors/diodes/zeners/LEDs.

The GNExCP6C-BG has up to two of the following monitoring resistors/LEDs.

The units are Group II, EPL (equipment protection level) Gb. The equipment is certified 'Ex e d mb IIC T4 Gb' and as such may be used in Zones 1 and 2 with flammable gases and vapours with gas groups IIA, IIB & IIC and temperature classes T1, T2, T3 and T4.

These units are also Group III, EPL Db. The equipment is certified 'Ex t IIIC T80°C Db' and as such may be used in Zones 21 and 22 for combustible dusts groups IIIA, IIIB & IIIC.

2) Marking

All units have a rating label, which carries the following important information:-

Unit Type No.:
GNExCP6B-BG Manual Call Point
GNExCP6C-BG Manual Call Point

Input Voltages:

48VDC nominal	56VDC Max	0.75Amax
24VDC nominal	28VDC Max	1.0A Max
12VDC nominal	15VDC Max	1.0A Max
6VDC nominal	9VDC Max	1.0A Max


GNExCP6B-BG Manual Call Point
GNExCP6C-BG Manual Call Point


Code:

GNExCP6B-BG	GNExCP6C-BG
Ex e d mb IIC T4 Gb	Ex e d mb IIC T4 Gb
Ex t IIIC T80 °C Db	Ex t IIIC T80 °C Db
IP66	IP66
-40°C <= Ta <= +50°C	-40°C <= Ta <= +55°C

Certificate No.:

SIRA 09ATEX3286X
IECEx SIR 09.0121X

Epsilon x:  II 2GD

CE Marking  0518
Notified body No.

Year/Serial No. i.e. 12/1CP6BBG000001
Or 12/1CP6CBG000001

WARNING - DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE MAY BE PRESENT, ELECTROSTATIC HAZARD - CLEAN ONLY WITH A DAMP CLOTH

3) Type Approval Standards

The call point has an EC Type examination certificate issued by SIRA and have been approved to the following standards:-

IEC 60079-0:2007

EN 60079-1:2004 / IEC 60079-1:2003
EN 60079-7:2007 / IEC 60079-7:2006
IEC 60079-18:2009

EN 60079-31:2014/ IEC 60079-31:2013

The equipment is certified for use in ambient temperatures in the range
GNExCP6B-BG -40°C to +50°C
GNExCP6C-BG -40°C to +55°C
and shall not be used outside this range.

4) Installation Requirements

Installation of this equipment shall only be carried out by suitably trained personnel in accordance with the applicable code of practice e.g.

IEC 60079-14/EN 60079-14

Repair of this equipment shall only be carried out by the manufacturer or in accordance with the applicable code of practice e.g. IEC 60079-19/EN 60079-19.

The certification of this equipment relies on the following materials used in its construction:

Enclosure: GRP - Glass Reinforced Polyester

Through enclosure mechanism: Plastic Nylon Zytel Injection Moulded

Sealing of enclosure and mechanism: O-ring Acrylonitrile-Butadiene Rubber

Potting Compound of resistors where used: Epoxy Resin

If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.

"Aggressive substances" - e.g. acidic liquids, gases or solvents that may affect polymeric materials.

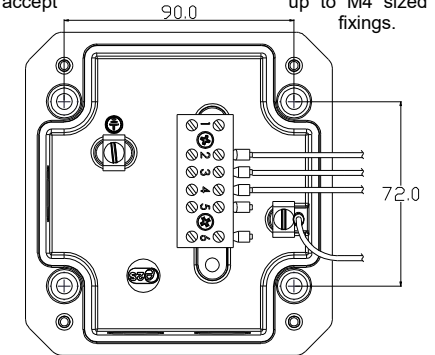
"Suitable precautions" - e.g. regular checks as part of routine inspections or establishing from the material's data sheet that it is resistant to specific chemicals.

Refer to certificates SIRA 09ATEX3286X and IECEx SIR 09.0121X for special conditions of safe use.

Under extreme conditions the unit may generate an ignition-capable level of electrostatic charges. The unit must not be installed in a location where it may be subjected to external conditions (such as high pressure steam) which may cause a build-up of electrostatic charges on non-conducting surfaces. Cleaning of the unit must only be carried out with a damp cloth.

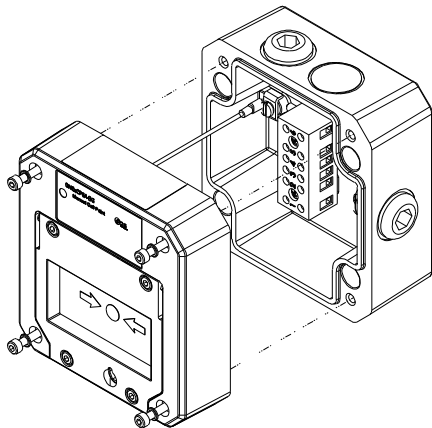
5) Call Point Location and Mounting

The location of the call point should enable ease of access for operation and testing. The unit should be mounted using the 4 off fixing holes which will accept up to M4 sized fixings.



View of base unit showing fixing centres (in mm).

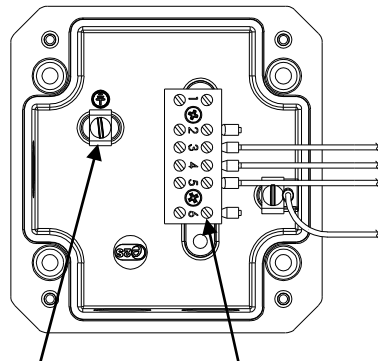
To gain access to the mounting holes in the base the front cover must be removed. This is achieved by removing the 4 off M4 cap head bolts holding on the cover.



Once the screws are removed the cover will hang down out of the way to gain access to the Ex e terminal block, the internal earth terminal and mounting hole recesses.

6) Earthing

The unit has an internal earth terminal. It is recommended that a cable crimp lug is used on the earth wires. The internal earth wire is placed under an earth clamp which will stop the cable twisting. This is secured by an M4 screw and spring washer.



Internal Earth terminal

Ex e terminal block

7) Cable connections

There are 3 off cable entries for M20x1.5 Ex e approved cable glands or stopping plugs with a minimum ingress protection of IP66

The unit can be wired in a number of different ways depending on the device combination selected.

GNExCP6B-BG
EOL (End of line) device; resistor – ExxxR / diode – ED1 / zener – ExxxZ
Series (In line) device; resistor – SxxxR / diode – SD1 / zener – SxxxZ / LED
Microswitch 1 = M/S 1
Microswitch 2 = M/S 2

GNExCP6C-BG
EOL (End of line) device; resistor – ExxxR
Series (In line) device; resistor – SxxxR / LED
Microswitch 1 = M/S 1
Microswitch 2 = M/S 2

The unit can be wired with a maximum of 2 module devices – see wiring diagrams.

Note:- The maximum voltage stated must not be exceeded, as the internal resistor modules are rated as compliant with Ex mb according to the units voltage

Please refer to wiring diagrams on sheets 4 & 5.

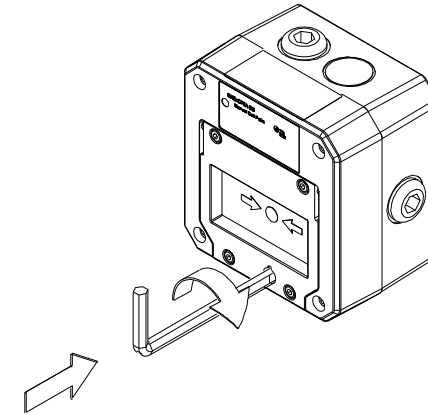
When wiring to Increased Safety terminal enclosures, you are only permitted to connect one wire into each way on the terminal block, unless a pair of wires are crimped into a suitable ferrule. Wire sizes allowable are 0.5sqmm to 4.0sqmm

The terminals are only permitted to be wired with cable in an ambient temperature range of between -10°C to 80°C. All terminal screws, used or unused, must be fully tightened down.

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

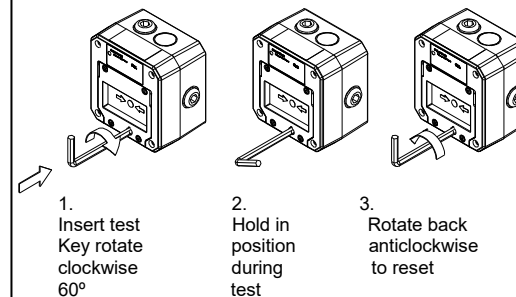
8) Testing unit operation

The break glass unit can be tested without the need to break/replace the frangible glass element. A test key (7mm Allen key) is used to mechanically drop the glass down activating the switch.



The test key is inserted in the test cam and rotated clockwise by an angle of 60° the glass element will visibly drop down in the viewable window. The call point switch will now change over its contacts to operate the alarm.

Once testing is complete the unit needs to be reset, the test key is rotated back anticlockwise by an angle of 60° back to its original position. The glass element should now raise up so it is level again in the viewable window.



1. Insert test Key rotate clockwise 60°

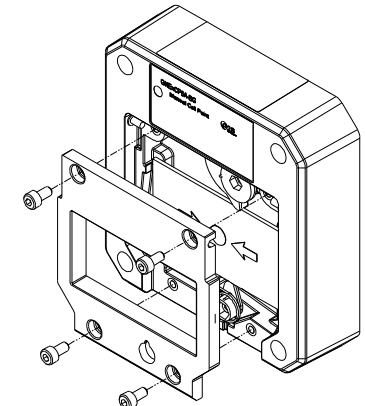
2. Hold in position during test

3. Rotate back anticlockwise to reset

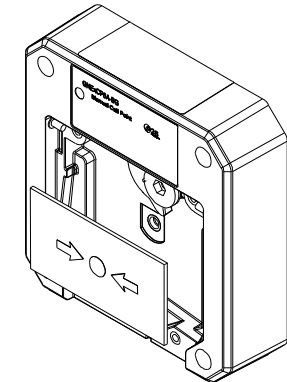
9) Replacement of glass element

If the break glass unit has been operated the broken glass element can be quickly replaced.

The break glass cover plate is removed by unscrewing the 4 off M4 cap head screws attaching it.

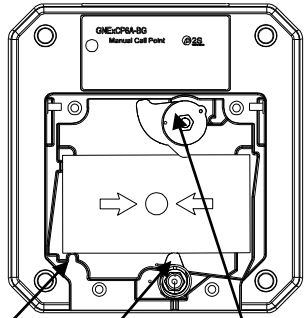


Once the cover is removed the broken glass will be free to be removed, clean out any other fragments of glass carefully.



To fit the new glass element rotate the top cam clockwise by an angle of 50° (use a 6mm Allen key) this will then allow the glass to fit back into the

pocket it sits in, resting on the pivot point and test cam, release the top cam to rest on the top of the glass element.



Pivot point Test Cam Top Cam (rotate)

Replace the cover plate and tighten the 4 off M4 cap head screws.

Ensure the glass element is free to move under the cover plate. This can be done by running through the units test operation. See section 8 of this instruction manual.

9) SIL 2 Reliability Data

Reliability and Functional safety IEC/EN61508 which has been assessed and is considered suitable for use in low demand safety function:

- Random Hardware Failures and Systematic Failures (route 2H)
- As an unvoted item (i.e. hardware fault tolerance of 0) at SIL 2

The product was assessed against failure modes:

- Failure to close a contact when the call point is struck with specified force
- Failure to open a contact when the call point is struck with specified force
- Spurious output despite no input

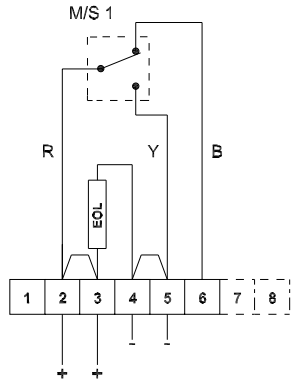
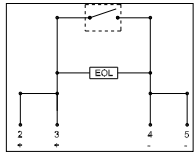
Integrity in respect of failure to close	SIL 2
Total Failure rate	0.133 pmh
“hazardous” failure rate (revealed)	0 pmh
“hazardous” failure rate (unrevealed)	0.1 pmh
“safe” failure rate (revealed)	0.033 pmh
“safe” failure rate (unrevealed)	0
Diagnostic Coverage	99%
System type	A
Hardware Fault Tolerance	0
Safe Failure Fraction	>99%
PFH (hazardous failure)	1.25×10^{-3}
Proof Test Interval	Up to 1 year

Wiring Diagrams

Note : Zener Diodes and Diodes are not allowed for use in Type C units only Type B Units

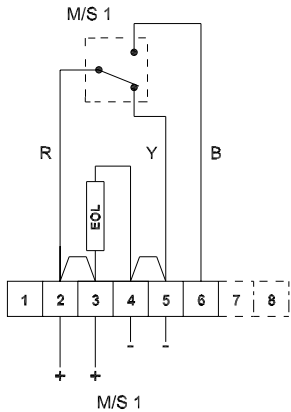
Single Microswitch with EOL (End Of Line) Device

Resistor: - ExxxR
Diode: - ED1
Zener Diode: - ExxxZ



1A - Circuit shown in Unoperated condition (Glass Intact)

Terminals +(2,3) & -(4,5) open
Terminals +(2,3) & (6) closed

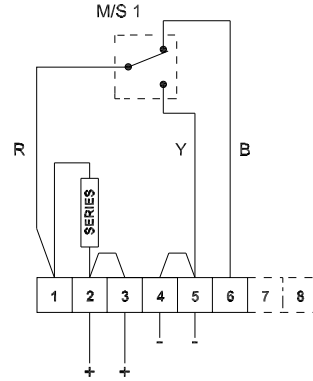
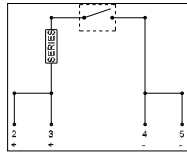


1B - Circuit shown in Operated condition (Glass Broken)

Terminals +(2,3) & -(4,5) closed
Terminals +(2,3) & (6) open

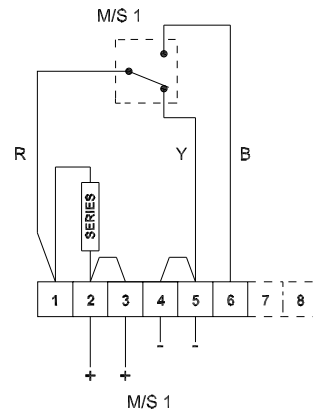
Single Microswitch with Series Device

Resistor: - SxxxR
Diode: - SD1
Zener Diode: - SxxxZ
LED: - LED



2A - Circuit shown in Unoperated condition (Glass Intact)

Terminals +(2,3) & -(4,5) open
Terminals +(2,3) & (6) closed

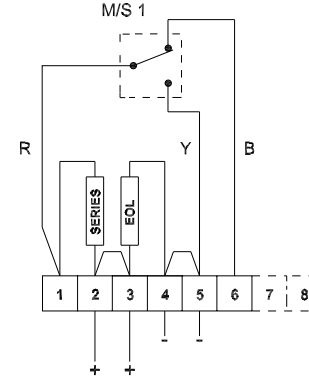
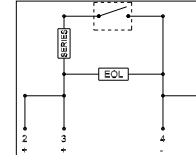


2B - Circuit shown in Operated condition (Glass Broken)

Terminals +(2,3) & -(4,5) closed
Terminals +(2,3) & (6) open

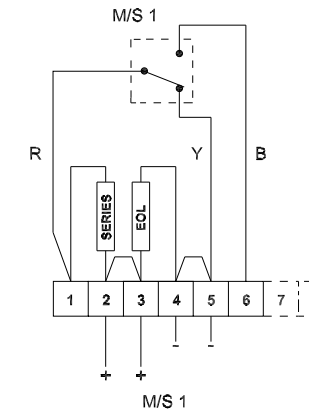
Single Microswitch with EOL & Series Device

Resistor: - EOL Series
Diode: - ExxxR SxxxR
Zener Diode: - ExxxZ SxxxZ
LED: - N/A LED



3A - Circuit shown in Unoperated condition (Glass Intact)

Terminals +(2,3) & -(4,5) open
Terminals +(2,3) & (6) closed

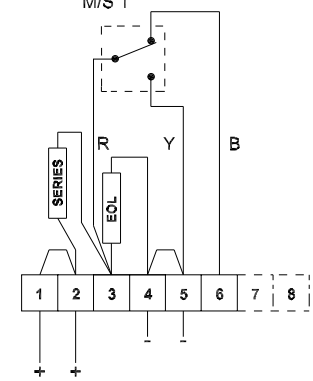
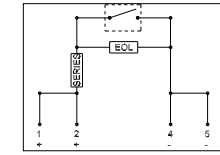


3B - Circuit shown in Operated condition (Glass Broken)

Terminals +(2,3) & -(4,5) closed
Terminals +(2,3) & (6) open

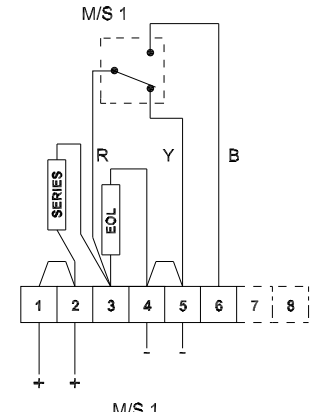
Single Microswitch with EOL & Series Device - Wiring Option 2 -W2

Resistor: - EOL Series
Diode: - ExxxR SxxxR
Zener Diode: - ED1 SD1
LED: - ExxxZ SxxxZ
N/A LED



4A - Circuit shown in Unoperated condition (Glass Intact)

Terminals +(1,2) & -(4,5) M/S 1 open
Terminals +(1,2) & (6) M/S 1 closed

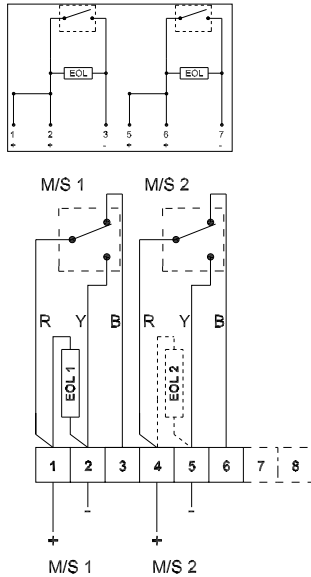


4B - Circuit shown in Operated condition (Glass Broken)

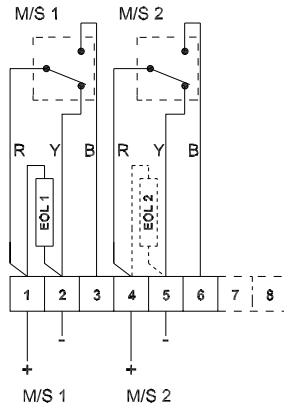
Terminals +(1,2) & -(4,5) M/S 1 closed
Terminals +(1,2) & (6) M/S 1 open

Dual Microswitch with EOL (End Of Line) Device/s

Resistor: - ExxxR
 Diode: - ED1
 Zener Diode: - ExxxZ



4A - Circuit shown in Unoperated condition (Glass Intact)
 Terminals + (1) & -(2) M/S 1 open and +(4) & -(5) M/S 2 open
 Terminals +(1) & (3) M/S 1 and +(4) & (6) M/S 2 closed

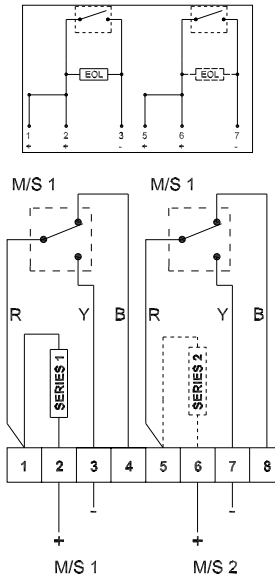


4B - Circuit shown in Operated condition (Glass Broken)
 Terminals+ (1) & -(2) M/S 1 open and +(4) & -(5) M/S 2 closed
 Terminals +(1) & (3) M/S 1 and +(4) & (6) M/S 2 open

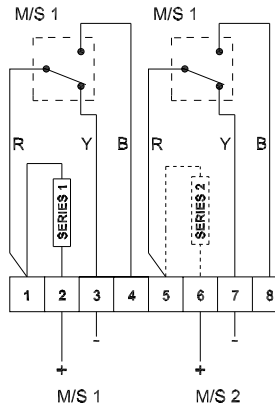
(DIN RAIL ONLY)

Dual Microswitch with Series Device/s

Resistor: - SxxxR
 Diode: - SD1
 Zener Diode: - SxxxZ
 LED: - LED



5A - Circuit shown in Unoperated condition (Glass Intact)
 Terminals +(2) & -(3) M/S 1 and +(6) & -(7) M/S 2 open
 Terminals +(2) & (4) M/S 1 and +(6) & (8) M/S 2 closed

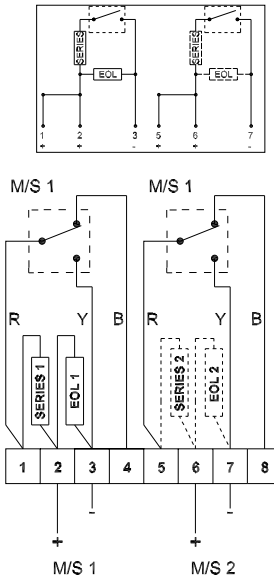


5B - Circuit shown in Operated condition (Glass Broken)
 Terminals +(2) & -(3) M/S 1 and +(6) & -(7) M/S 2 closed
 Terminals +(2) & (4) M/S 1 and +(6) & (8) M/S 2 open

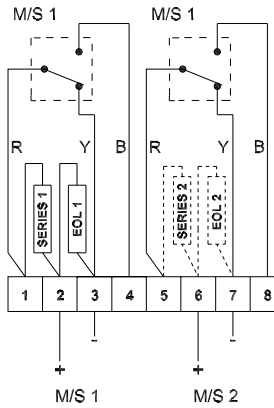
(DIN RAIL ONLY)

Dual Microswitch with EOL & Series Device/s

Resistor: - EOL Series
 Diode: - ExxxR SxxxR
 Zener Diode: - ED1 SD1
 LED: - ExxxZ SxxxZ
 LED: - N/A LED



6A - Circuit shown in Unoperated condition (Glass Intact)
 Terminals +(2) & -(3) M/S 1 and +(6) & -(7) M/S 2 open
 Terminals +(2) & (4) M/S 1 and +(6) & (8) M/S 2 closed



6B - Circuit shown in Operated condition (Glass Broken)
 Terminals +(2) & -(3) M/S 1 and +(6) & -(7) M/S 2 closed
 Terminals +(2) & (4) M/S 1 and +(6) & (8) M/S 2 open