9.0 End of Line Monitoring

An End of Line monitoring Diode or an End of Line monitoring Resistor can be connected across the 24V+ and 0 terminals. Resistor values for the End of Line will be determined by the customer with a minimum value of 1.2kΩ

10.0 Maintenance

Little or no maintenance is required during the normal working life of the product. The Moflash Exd enclosures are resistant to most acids, alkalis and chemicals and have been designed to withstand severe weather conditions. However it is suggested that to avoid the possibility of a potential electrostatic charge build up, the exterior of the product is periodically wiped down with a clean damp cloth. At this point a visual inspection is recommended to ensure that the product is in good working order and no damage has been sustained during its normal operation.

11.0 Conditions for Safe Usage

i) This apparatus is suitable to be used only in ambient temperature as stated below:

Type	Ambient Temp
PB150	-40^{0}C to +70^{0}C

ii) Do not paint or change the surface finish of the unit. The coating applied by the manufacturer is Anti-Static & UV Stable.

Specific Condition of Use

Repairs of the flameproof joints must be made in compliance with the structural specifications provided by the manufacturer. Repairs must not be made on the basis of values specified in tables 1 and 2 of EN/IEC 60079-1".

Contact Moflash Signalling Ltd for further information.

MOFLASH
SIGNALLING

INSTALLATION & TECHNICAL INFORMATION
PLEASE READ PRIOR TO INSTALLATION
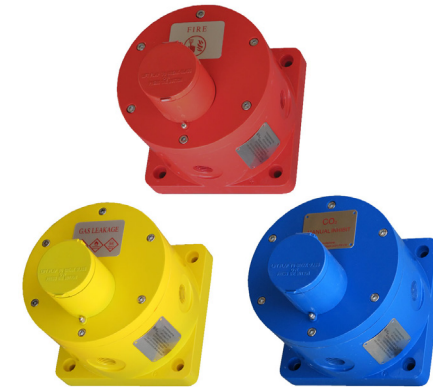
PB150 Series - (Explosion Proof Push Button)

Glass Reinforced Polyester

APPROVALS AND CONFORMITIES

1.0 Introduction

The PB150 Explosion Proof manual push button is designed for use and installation in Zones 1, 2, 21 and 22 areas with gas groups of IIA, IIB, IIC and temperature classification of T4~T6. It especially applies to Oil & Gas, Offshore Platform, Chemical, Petrochemical, Refinery and Marine Industries etc. Enclosure material is UV and corrosion resistance GRP (Glass Reinforced Polyester). The manual push button has been designed for ease of installation and operation.

These push buttons are compatible for use with PLC, DCS & ESD systems via a 4-20mA output. They are intended for use in Fire Alarm Systems as a fixed addressable unit in potentially explosive atmospheres.

There are three types of Push Buttons available with LED indication.

- **Red LED Indicator Only:** During normal operation the LED will not be on. The LED will only come on when the push button is activated by breaking the glass.

- **Green LED Indicator Only:** During normal operation the LED will be on. The LED will go off when the push button is activated by breaking the glass.

- **Red & Green Indicators:** During normal operation the Green LED will be on. The Red LED will come on when the push button is activated by breaking the glass. At this point the Green LED will go off.

7.0 Operation

In this model series, the units either come with a hinged flap (to prevent accidental activation of the unit) or no hinged flap (see diagram 3).
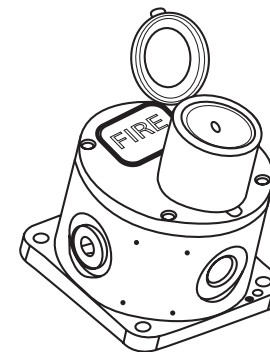
The unit is operated by pushing the button.

Diagram 3

Testing the Unit
To reset the unit after use, Insert the test key into the key hole located in the centre of the button. Turn the key clockwise 90 degrees and pull the button slightly towards you. Then turn the key anticlockwise 90 degrees to the set position & remove the key.

8.0 Cable Gland

Only cable glands approved for Exd applications can be used with Moflash Explosion Proof Products, these must be suitable for the type of cable being used and also meet the requirements of the Exd flameproof installation standard EN 60079-14.

SAFETY WARNING
If units are used at high ambient temperatures, i.e. over +40^{0}C then the cable entry temperature may exceed +70^{0}C and therefore suitable heat resisting cable glands must be used, with a rated service temperature of at least 95^{0}C.

If a high IP (Ingress Protection) rating is required, a suitable sealing washer must be fitted under the cable gland. Any unused cable entry holes must be closed with an Exd flameproof blanking plug, which must be suitably approved for the installation requirements.

The gland accessories below offer a wide selection to cover most Ex environments.

Gland and Plug Options			
50200:	M20 E1EX Nickel Plated Brass Gland	50210:	M20 E1EX Stainless Steel Gland
50201:	M20 A2EX Nickel Plated Brass Gland	50211:	M20 A2EX Stainless Steel Gland
50202:	M20 E1EX-QS Nickel Plated Brass Gland	50212:	M20 E1EX-QS Stainless Steel Gland
50203:	M20 A2EX Quick Stop Nickel	50213:	M20 A2EX Quick Stop
50204:	M20 Nickel Plated Brass Stopping Plug	50214:	M20 Stainless Steel Stopping Plug

6.0 Wiring

General Requirement
Moflash recommends that all cables and cores should be fully identified (suggest using cable from 2.0 to 2.5 mm²). Ensure that all nuts, bolts and screws are secured. Ensure that only the right and certified cable glands are used and earthed correctly. Ensure that only the right and certified stopping plugs are used to blank off unused gland entry points.

Cable Connection
The cable connection is made to the 8-hole terminal block marked T1-T8 inside the enclosure (see diagram 2). Cable connection should be carried out in accordance with relevant technical requirements.

Removing Front Cover
Unscrew the six (6) M5 retained Hex Head socket screws. This will release the cover from the base and allow the cover to hang on the retaining wire strap. Before replacing the cover, check that the flameproof joints are clean and not damaged and the gasket is still retained in its groove (see diagram 2).

CAUTION
Before removing the cover, ensure the power to the product is isolated. Remove the six pieces of M5 socket screws to open the cover. Twist the cover gently clockwise and anti-clockwise, whilst pulling away from the base, until it comes off. Replace the cover in similar way, but operate in reverse manner as above.

Diagram 2

1 2 3 4 5 6 7 8

8 HOLE
TERMINAL BASE

6-M5
SOCKET SCREW

FIRE
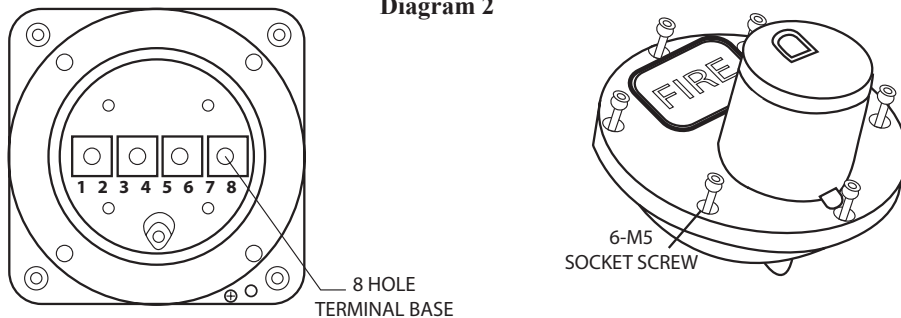
2.0 Explosion-Proof Labelling

All products have a rating label with the following important information:

Product order no: eg PB150SNNYNNABR (Refer to the datasheet for product order selection)

Input voltage:	<30v v DC / 6 amp or <250v AC / 11 amp
Code:	Exd IIB + H2 T6 Gb, Ex tb IIIC T85°C

Nemko ATEX Certificate No: Nemko 14ATEX 5439X

ATEX Mark:

IECEx Certificate:	IECEx-NEM 14.0013X
Gas Group and Category:	II 2GD
CE Mark:	Mark No: 0891

Warning: **DO NOT OPEN WHEN AN EXPLOSIVE GAS ATMOSPHERE IS PRESENT**

Finished product serial no: (Include date of construction)
Note: exact information is given on the actual label.

3.0 Type Approval Standard

The Moflash product range all have an EC Type Examination Certificate issued by Nemko and have been approved to the following standards:

EN 60079-0:2012 (IEC 60079-0:2011), EN-60079-1:2007 (IEC 60079-1:2007)
EN 60079-31:2009 (IEC 60079-31:2008)

4.0 Zones, Gas Group, Category and Temperature Classification

The PB150 series products have been certified Ex d IIC T4~T6.

This means that the units can be installed in locations with the following conditions:

Area Classification:

Zone 1: Explosive gas air mixture likely to occur in normal operation.

Zone 2: Explosive gas air mixture not likely to occur, and if it does, it will only exist for a short time.

Gas Groupings
IIA Propane Group, IIB Ethylene Group, IIC Hydrogen and Acetylene

Zone 21: Explosive dust air mixture likely to occur in normal operation.

Zone 22: Explosive dust air mixture not likely to occur, and if it does, it will only exist for a short time.

Equipment Category: 2GD

Temperature Range: -40^0C < Ta < 70^0C

5.0 Installation

General Requirement
The product must be installed in accordance with the latest EN60079-0 and EN60079-1 specification or the equivalent IEC specification. Product installation must be carried out in accordance with any local codes that may apply and should only be carried out by a competent electrical engineer.

Location
The location of the unit should be chosen with due regard to access. The unit should only be fixed to services that can support the weight of the unit.

Mounting
The product should be mounted on a vertical surface using four (4) fixing holes in the base. The fixing holes are designed to fit M5 Allen Screw only. Use of stainless steel fasteners is recommended by Moflash. The unit can be operated in any attitude. If you need a mounting plate, please contact Moflash to ask for the mounting plate installation drawing (see diagram 1).

Diagram 1