

Instructions

Edition: 09.2009

Safety Barrier SB 1

IECEX TUN 10.0003X

I Range of application

The safety barrier SB 1 is preferably used in conjunction with a certified flameproof enclosure (e.g. HPH Ex d) for connection of intrinsically safe sensors to non-intrinsically safe circuits. It is approved for installation in potentially explosive locations (Zone 1).

II Standards

See certificate of conformity Number IECEX TUN 10.0003X.

III Instructions for safe ...

III.a ... use

The approval is valid only for the safety barrier SB 1.

III.b ... mounting

The external thread M24 × 1.5 is preferably provided to be screwed into an approved flameproof enclosure. The connection of an intrinsically safe sensor is done via external thread M28 × 1.5. The safety barrier may be installed in approved flameproof enclosures. When installed in an enclosure it has to be paid attention that a clearance and creepage distance > 50 mm exists between input and output terminals.

III.c ... installation

For connection of the non-intrinsically safe power supply three individual wires are provided. The green/yellow wire must inside the enclosure securely be connected to the potential equalization (PA). The power supply is connected to the blue (-) and red (+) wire.

The intrinsically safe output has two wires (blue and red) to connect an intrinsically safe sensor.

All wiring operations must solely be carried out with the power disconnected. The special IEC-regulations including IEC 60079-14 and local installation regulations must be observed.

III.d ... putting into service

Before putting into service, all devices must be checked of right connection and fitting. The electrical supply, also for upstream and downstream devices, must be checked.


III.e ... maintenance, overhaul and repair

In general, the safety barrier is maintenance-free. In case of a defect, please send the safety barrier back to the manufacturer FAFNIR.

IV Specific conditions of use

- 1 The safety barrier SB 1 can be installed only in conjunction with a certificated flameproof enclosure (e.g. HPH Ex d) inside Zone 1.
- 2 Maximum permissible pressure is 12.9 bar.
- 3 The PA wire has to be connected with the potential compensation of the explosion hazardous area.
- 4 The intrinsically safe circuit is galvanically connected with the earth potential, potential compensation has to exist in the complete course of the erection of the intrinsically safe circuit.

V Equipment marking

- | | |
|-----------------------|---|
| 1 Manufacturer: |  |
| 2 Type designation: | SB 1 |
| 3 Serial number: | Ser. N°: ... |
| 4 Certificate number: | IECEX TUN 10.0003X |
| 5 Ex marking: | Ex d [ia Ga] IIC T4 Gb |

VI Technical data

- | | |
|----------------------------|---|
| Ambient temperature range: | -40 °C ... +85 °C |
| Maximum pressure: | 12.9 bar |
| Power supply circuit | |
| Connection thread: | M24 × 1.5 (in type of protection flameproof enclosure Ex d) |
| Maximum power supply: | $U = 26 \text{ V DC}$ |
| Maximum voltage: | $U_m = 253 \text{ V}$ |
| Supply current: | $I \leq 30 \text{ mA}$ |
| Potential equalization: | Cable green/yellow must securely be connected to the PA |

Output circuit (in type of protection intrinsic safety Ex ia)

- | | |
|------------------------|---------------------------|
| Connection thread: | M28 × 1.5 |
| Output voltage: | $U_o \leq 28.4 \text{ V}$ |
| Output current: | $I_o \leq 100 \text{ mA}$ |
| Output power: | $P_o \leq 708 \text{ mW}$ |
| Internal resistance: | $R_i \geq 285 \Omega$ |
| Internal capacity: | C_i negligibly small |
| Internal inductance: | L_i negligibly small |
| Output characteristic: | linear |

The maximum permissible values for the external inductance (L_o) and capacitance (C_o) are shown in the following table:

Pairs of values	IIC		IIB	
	$L_o \leq$	390 μH	200 μH	2 mH
$C_o \leq$	71 nF	79 nF	280 nF	560 nF

Aforementioned maximum values are valid at coincidental appearance of concentrated capacitance and inductance.