



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx TUN 10.0003X

Issue No: 1

Certificate history:

Status: **Current**

Issue No. 1 (2019-08-27)

Issue No. 0 (2010-07-07)

Date of Issue: **2019-08-27**

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Applicant: **FAFNIR GmbH**
Schnackenburgallee 149 c
22525 Hamburg
Germany

Equipment: **Safety barrier type SB 1 and SB 3**

Optional accessory:

Type of Protection: **Intrinsic Safety "i", Flameproof Enclosure "d", Enclosure "t"**

Marking:

SB 1: Ex db [ia Ga] IIC T6...T4 Gb resp. Ex ta [ia Da] IIIC T115 °C Da

SB 3: [Ex ia Ga] IIC resp. [Ex ia Da] IIIC

Approved for issue on behalf of the IECEx
Certification Body:

Christian Roder

Position:

Head of the IECEx Certification Body

Signature:
(for printed version)

Date:

2019-08-27

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1, 30519 Hannover
Germany





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Manufacturer: **FAFNIR GmbH**
Schnackenburgallee 149 c
22525 Hamburg
Germany

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[DE/TUN/ExTR10.0005/00](#) [DE/TUN/ExTR10.0005/01](#)

Quality Assessment Report:

[DE/TUN/QAR06.0013/06](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The safety barrier type SB 1 is preferably used in conjunction with a certified flameproof enclosure, e. g. HPH Ex d ..., for the connection of intrinsically safe sensors (two-wire) to non-intrinsically safe circuits.

The safety barrier type SB 3 is used to connect intrinsically safe sensors (four-wire) to non-intrinsically safe circuits.

See attachment for technical data.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The side of the safety barrier SB 1, where the encapsulation can be seen, must be operated protected against UV light.
2. The safety barrier SB 1 has no terminal compartment. It must be installed in an enclosure that corresponds to a suitable type of protection. In addition, it can only be installed in zone 1 in conjunction with a flameproof enclosure (such as HPH Ex d ...).
3. Repair of flameproof joints of SB 1 is not planned.
4. The equipotential bonding connection must be connected to the equipotential bonding of the potentially explosive area (an equipotential bonding must exist for the entire intrinsically safe area). Therefore, the safety barriers do not meet the dielectric strength requirements. When carrying out an insulation test on the intrinsically safe circuit, the device must therefore be disconnected from equipotential bonding.
5. The maximum permissible pressure of SB 1 is 30 bar.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

The changes affect the addition of the new type SB 3 and the dust explosion protection.

Furthermore, the equipment was assessed according to the latest standards.
Further the address was changed.

Annex:

[Attachment to IECEx TUN 10.0003X Issue 1.pdf](#)

Temperatures

The ambient temperature range for type **SB 3** is -40 °C to +70 °C.

The ambient temperature range for type **SB 1** is

Used as Category 2G equipment

Temperature class	Ambient temperature
T6	-40 °C to +40 °C
T5	-40 °C to +55 °C
T4	-40 °C to +85 °C
T3	-40 °C to +85 °C
T2	-40 °C to +85 °C
T1	-40 °C to +85 °C

Used as Category 1D equipment

Maximum surface temperature		Ambient temperature
dust layer ≤ 5 mm	Immersed in dust	
+115 °C	+115 °C	-40 °C to +85 °C

Electrical data

Type SB 1

Supply circuit

$$U = 24 V_{DC}$$

$$U_m = 253 V$$

Output circuit

in type of protection “Intrinsic Safety” Ex ia IIC/IIB/IIIC

Maximum values: $U_o = 28.4 V$
 $I_o = 100 mA$
 $P_i = 705 mW$

Characteristic line: linear

Maximum permissible outer capacitance and inductance:

	Ex ia IIC		Ex ia IIB/IIIC	
L_o	500 μH	560 μH	5 mH	2 mH
C_o	71 nF	68 nF	330 nF	400 nF

Type SB 3

Supply circuit

$$U = 24 V_{DC} \text{ for channel 1}$$

$$U = 5 V_{DC} \text{ for channel 2 and 3}$$

$$U_m = 253 V$$

Output circuit

in type of protection “Intrinsic Safety” Ex ia IIC/IIB/IIIC

Maximum values: $U_o = 28.4 V$
 $I_o = 95 mA$
 $P_i = 507 mW$

Characteristic line: linear

Maximum permissible outer capacitance and inductance:

	Ex ia IIC		Ex ia IIB/IIIC	
L_o	500 μH	200 μH	5 mH	2 mH
C_o	72 nF	79 nF	340 nF	410 nF