



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Certificate No.:	IECEX TUN 05.0004X	Page 1 of 4	<u>Certificate history:</u>
Status:	Current	Issue No: 9	Issue 8 (2020-03-24)
Date of Issue:	2023-04-04		Issue 7 (2018-06-28)
Applicant:	FAFNIR GmbH Schnackenburgallee 149 c 22525 Hamburg Germany		Issue 6 (2016-05-25)
Equipment:	Filling level sensors VISY-Stick ... resp. TORRIX Ex...		Issue 5 (2015-06-25)
Optional accessory:			Issue 4 (2013-12-06)
Type of Protection:	Equipment protection by Intrinsic Safety "ia"; Equipment protection by flameproof enclosures 'db'; Equipment dust ignition protection by enclosure 'tb'		
Marking:	Refers to Attachment to IECEx TUN 05.0004X issue No.9 for details.		

Approved for issue on behalf of the IECEx
Certification Body:

Andreas Meyer

Position:

Deputy Head of the IECEx Certification Body

Signature:
(for printed version)

Date:
(for printed version)

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Certificate issued by:

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Hanover Office
Am TÜV 1, 30519 Hannover
Germany





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Date of issue: 2023-04-04

Issue No: 9

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

Manufacturing
locations:

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 equipment 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](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-1:2014-06](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[IEC 60079-26:2021-02](#) Explosive atmospheres - Part 26: Equipment with Separation Elements or combined Levels of Protection
Edition:4.0

[IEC 60079-31:2022-01](#) Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
Edition:3.0

This Certificate **does not** indicate compliance with 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/ExTR10.0006/08](#)

Quality Assessment Report:

[DE/TUN/QAR06.0013/09](#)

IECEX ATR:

File reference:



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The filling level sensors type VISY-Stick ... and type TORRIX Ex... are used for continuous measurement of liquid levels within potentially explosive areas. Floaters are used to detect the fluid levels. These slide on a sensor tube. For interface or water detection, a second float can be mounted on the sensor tube. In addition, the density of the liquid can be determined by means of a density module.

The temperature measuring chain VISY-Stick ... Temp ... is used to measure temperatures at different heights and does not use any floats.

Refers to Attachment to IECEX TUN 05.0004X issue No.9 for details.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The permissible temperature range depending on temperature classes resp. on the maximum surface temperature is to be taken from the operating instructions.
2. A reverse heat flow from the process, e.g. by heat dissipation from components of the system, beyond the permissible ambient temperature of the filling level sensor is not permissible. This can be avoided, for example, by suitable thermal insulation of these components or by mounting the pressure transmitter at a greater distance (cooling distance).
3. The medium tangent materials of the filling level sensor have to be resistant to the media.
4. For the uses in potentially explosive gas atmospheres and when using plastic floats, the filling level sensors have to be installed and used in such a way, that electrostatic charging from operation, maintenance and cleaning is excluded.
For the uses in potentially explosive dust atmospheres and when using plastic floats process-related electrostatic charges, e.g. due to passing media have to be excluded.
5. When using titanium floats or the Sump Environmental Sensor, the ignition hazard caused by impact or friction has to be excluded.
6. For EPL Ga/Gb applications the whole device filling level type VISY-Stick ... resp. type TORRIX Ex has to be mounted in a way that allows an installation that results in a sufficiently tight joint (IP66 or IP67) or a flameproof joint (IEC 60079-1) in the direction of the less endangered area.
7. In case of hazards due to pendulum or swinging, the corresponding parts of the level sensor type VISY-Stick ... resp. type TORRIX Ex... have to be effectively secured against these hazards.
8. The cable glands for the filling level sensors type TORRIX Exd XT...; TORRIX Exd ...-A; TORRIX Exd ... Flex and TORRIX Exd ... PL have to be separately assessed and certified in accordance with IEC 60079-0; IEC 60079-1 and IEC 60079-31. In the end-use application the degree of protection min IP6X shall be maintained in accordance with IEC 60079-0 and in compliance with IEC 60529
9. The flameproof joints at type TORRIX Exd... are not intended to be repaired.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Proof of conformity of the filling level sensors type TORRIX Exd XT...; TORRIX Exd ...-A; TORRIX Exd ... Flex and TORRIX Exd ... PL to the current versions of the standards IEC 60079-0:2017; IEC 60079-1:2014; IEC 60079-11:2011; IEC 60079-26:2021 and IEC 60079-31:2022

Proof of conformity of the rest of the filling level sensors as shown in the "Type code and Marking" to the current versions of the standards IEC 60079-0:2017; IEC 60079-11:2011 and IEC 60079-26:2021

Annex:

[Attachment to IECEx TUN 05.0004X issue No.9.pdf](#)

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General product information:

Description:

The filling level sensors type VISY-Stick ... and type TORRIX Ex... are used for continuous measurement of liquid levels within potentially explosive areas. Floaters are used to detect the fluid levels. These slide on a sensor tube. For interface or water detection, a second float can be mounted on the sensor tube. In addition, the density of the liquid can be determined by means of a density module. The temperature measuring chain VISY-Stick ... Temp ... is used to measure temperatures at different heights and does not use any floats.

Type code and Marking:

Type VISY-Stick ... (Ex-relevant designations only):

VISY-Stick Sump ...	Environmental sensor (Leakage control)
VISY-Stick Advanced ...	Advanced precision of measurement and temperature sensors
VISY-Stick Flex ...	Flexible sensor tube
VISY-Stick ...	Serial communication
VISY-Stick ... RS485	RS-485 interface
VISY-Stick ... Temp ...	Temperature measuring chain
VISY-Stick ... TLS	TLS interface

Type TORRIX Ex... (Ex-relevant designations only):

TORRIX Ex...	4...20 mA interface (with configuration buttons) optionally with HART protocol
TORRIX Ex C...	4...20 mA interface (without configuration buttons) optionally with HART protocol
TORRIX Ex RS485...	RS-485 interface
TORRIX Ex SC...	Serial communication
TORRIX Ex TAG...	TAG interface (communication in accordance with EN 14116)
TORRIX Ex XT...	RS-485- or 4...20 mA interface optionally with display (Ex i)
TORRIX Exd XT...	RS-485- or 4...20 mA interface optionally with display (Ex d+t+i)
TORRIX Ex...-A	Advanced precision of measurement and temperature sensors
TORRIX Ex... Flex	Flexible sensor tube
TORRIX Ex... PL	With plastic coating against very aggressive media

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<ul style="list-style-type: none"> • VISY-Stick ... • VISY-Stick (Flex) Temp • VISY-Stick ... RS485 • VISY-Stick (Flex) Temp RS485 • TORRIX Ex ... • TORRIX Ex C... • TORRIX Ex RS485... • TORRIX Ex SC... • TORRIX Ex TAG... • TORRIX Ex XT... 	<p>Ex ia IIC T6...T1 Ga Ex ia IIC T6...T1 Ga/Gb Ex ia IIC T6...T1 Gb Ex ia IIIC TX°C Db (see thermal data)</p>
<ul style="list-style-type: none"> • VISY-Stick Advanced ... • VISY-Stick ... Flex ... • VISY-Stick ... Advanced RS485 • VISY-Stick ... Flex RS485 • TORRIX Ex ...-A • TORRIX Ex ... Flex • TORRIX Ex ... PL • TORRIX Ex C...-A • TORRIX Ex C... Flex • TORRIX Ex C... PL • TORRIX Ex RS485...-A • TORRIX Ex RS485... Flex • TORRIX Ex RS485... PL • TORRIX Ex SC...-A • TORRIX Ex SC... Flex • TORRIX Ex SC... PL • TORRIX Ex TAG...-A • TORRIX Ex TAG... Flex • TORRIX Ex TAG... PL • TORRIX Ex XT...-A • TORRIX Ex XT... Flex • TORRIX Ex XT... PL 	<p>Ex ia IIB T6...T1 Ga Ex ia IIB T6...T1 Ga/Gb Ex ia IIB T6...T1 Gb Ex ia IIIC TX°C Db (see thermal data)</p>
<ul style="list-style-type: none"> • VISY-Stick ... TLS • VISY-Stick (Flex) Temp TLS 	<p>Ex ia IIC T4...T1 Ga Ex ia IIC T4...T1 Ga/Gb Ex ia IIC T4...T1 Gb Ex ia IIIC TX°C Db (see thermal data)</p>
<ul style="list-style-type: none"> • VISY-Stick ... Advanced TLS • VISY-Stick ... Flex TLS 	<p>Ex ia IIB T4...T1 Ga Ex ia IIB T4...T1 Ga/Gb Ex ia IIB T4...T1 G Ex ia IIIC TX°C Db (see thermal data)</p>
<ul style="list-style-type: none"> • TORRIX Exd XT... 	<p>Ex ia/db IIC T6...T1 Ga/Gb Ex db ia IIC T6...T1 Gb Ex ia tb IIIC TX°C Db (see thermal data)</p>
<ul style="list-style-type: none"> • TORRIX Exd ...-A • TORRIX Exd ... Flex • TORRIX Exd ... PL 	<p>Ex ia/db IIB T6...T1 Ga/Gb Ex db ia IIB T6...T1 Gb Ex ia tb IIIC TX°C Db (see thermal data)</p>

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Electrical data:

VISY-Stick ...; VISY-Stick (Flex) Temp; TORRIX Ex SC...; VISY-Stick Advanced ...;
VISY-Stick ... Flex ...; TORRIX Ex SC...-A; TORRIX Ex SC... Flex and TORRIX Ex SC... PL:

Signal and power supply (Terminals +, -, A, B) or (M12-Plug)	In type of protection intrinsic safety Ex ia IIC/IIB/IIIC Only for connection to certified intrinsically safe circuits. Maximum values: $U_i = 15 \text{ V}$ $I_i = 60 \text{ mA}$ $P_i = 100 \text{ mW}$ Effective internal capacitance $C_i = 10 \text{ nF}$ Effective internal inductance $L_i = 100 \text{ }\mu\text{H}$
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VISY-Stick ... RS485; VISY-Stick (Flex) Temp RS485; TORRIX Ex ...; TORRIX Ex C...;
TORRIX Ex RS485...; TORRIX Ex TAG...; TORRIX Ex XT...; VISY-Stick ... Advanced RS485;
VISY-Stick ... Flex RS485; TORRIX Ex ...-A; TORRIX Ex ... Flex; TORRIX Ex ... PL;
TORRIX Ex C...-A; TORRIX Ex C... Flex; TORRIX Ex C... PL; TORRIX Ex RS485...-A;
TORRIX Ex RS485... Flex; TORRIX Ex RS485... PL; TORRIX Ex TAG...-A; TORRIX Ex TAG... Flex;
TORRIX Ex TAG... PL; TORRIX Ex XT...-A; TORRIX Ex XT... Flex and TORRIX Ex XT... PL:

Signal and power supply (Terminals +, -, A, B resp. +, -) or (M12-Plug)	In type of protection intrinsic safety Ex ia IIC/IIB/IIIC Only for connection to certified intrinsically safe circuits. Maximum values: $U_i = 30 \text{ V}$ $I_i = 200 \text{ mA at } T_a \leq +70 \text{ }^\circ\text{C}$ $I_i = 100 \text{ mA at } T_a \leq +85 \text{ }^\circ\text{C}$ $P_i = 1 \text{ W}$ Effective internal capacitance $C_i = 10 \text{ nF}$ Effective internal inductance $L_i = 20 \text{ }\mu\text{H}$
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VISY-Stick ... TLS; VISY-Stick (Flex) Temp TLS; VISY-Stick ... Advanced TLS and
VISY-Stick ... Flex TLS:

Signal and power supply (Terminals +, -) or (M12-Plug)	In type of protection intrinsic safety Ex ia IIC/IIB/IIIC Only for connection to certified intrinsically safe circuits. Maximum values: $U_i = 13 \text{ V}$ $I_i = 200 \text{ mA}$ $P_i = 625 \text{ mW}$ Effective internal capacitance $C_i = 20 \text{ nF}$ Effective internal inductance $L_i = 410 \text{ }\mu\text{H}$
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TORRIX Exd XT...; TORRIX Exd ...-A; TORRIX Exd ... Flex and TORRIX Exd ... PL:

Signal and power supply (Terminals +, -, A, B)	For connection to non-intrinsically safe circuits with the following values: $U = 12 \text{ V}_{d.c.} \dots 50 \text{ V}_{d.c.}; I = 4 \text{ mA} \dots 20 \text{ mA}$ $U_m = 253 \text{ V}$
Heating circuit (Terminals -, +)	For connection to non-intrinsically safe circuits with the following values: $U = 24 \text{ V}_{d.c.} \pm 10 \%$ $I = 160 \text{ mA}$

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Thermal data:

VISY-Stick ...; VISY-Stick (Flex) Temp; TORRIX Ex SC...; VISY-Stick Advanced ...; VISY-Stick ... Flex ...; TORRIX Ex SC...-A; TORRIX Ex SC... Flex and TORRIX Ex SC... PL:

For EPL Ga or EPL Ga/Gb or EPL Gb, the permissible temperature range depending on the variant and the temperature class can be taken from the following table:

Temperature class	Ambient temperature range	Medium temperature range
T6	-40 °C ... +50 °C	-40 °C ... +75 °C
T5	-40 °C ... +65 °C	-40 °C ... +90 °C
T4	-40 °C ... +85 °C	-40 °C ... +125 °C
T3	-40 °C ... +85 °C	-40 °C ... +190 °C
T2	-40 °C ... +85 °C	-40 °C ... +285 °C
T1	-40 °C ... +85 °C	-40 °C ... +435 °C

For EPL Db applications, the permissible ambient temperature range depending on the permissible surface temperature can be taken from the following table:

Maximum surface temperature		Ambient temperature range T_a
Dust layer ≤ 5 mm $T_5 X^\circ C$	With total immersion $T X^\circ C$	
$X^\circ C = T_a + 30^\circ C$	$X^\circ C = 135^\circ C$	-40 °C ... +85 °C

The equipment is suitable for dusts with an ignition temperature of more than 190 °C under a dust layer of 5 mm (glow temperature).

VISY-Stick ... RS485; VISY-Stick (Flex) Temp RS485; TORRIX Ex ...; TORRIX Ex C...; TORRIX Ex RS485...; TORRIX Ex TAG...; TORRIX Ex XT...; VISY-Stick ... Advanced RS485; VISY-Stick ... Flex RS485; TORRIX Ex ...-A; TORRIX Ex ... Flex; TORRIX Ex ... PL; TORRIX Ex C...-A; TORRIX Ex C... Flex; TORRIX Ex C... PL; TORRIX Ex RS485...-A; TORRIX Ex RS485... Flex; TORRIX Ex RS485... PL; TORRIX Ex TAG...-A; TORRIX Ex TAG... Flex; TORRIX Ex TAG... PL; TORRIX Ex XT...-A; TORRIX Ex XT... Flex and TORRIX Ex XT... PL:

For EPL Ga or EPL Ga/Gb or EPL Gb, the permissible temperature range depending on the variant and the temperature class can be taken from the following table:

Temperature class	Ambient temperature range	Medium temperature range
T6	$I_i \leq 100$ mA: -40 °C ... +40 °C $I_i \leq 200$ mA: -40 °C ... +25 °C	-40 °C ... +75 °C
T5	$I_i \leq 100$ mA: -40 °C ... +55 °C $I_i \leq 200$ mA: -40 °C ... +40 °C	-40 °C ... +90 °C
T4	$I_i \leq 100$ mA: -40 °C ... +85 °C $I_i \leq 200$ mA: -40 °C ... +70 °C	-40 °C ... +125 °C
T3	$I_i \leq 100$ mA: -40 °C ... +85 °C $I_i \leq 200$ mA: -40 °C ... +70 °C	-40 °C ... +190 °C
T2	$I_i \leq 100$ mA: -40 °C ... +85 °C $I_i \leq 200$ mA: -40 °C ... +70 °C	-40 °C ... +285 °C
T1	$I_i \leq 100$ mA: -40 °C ... +85 °C $I_i \leq 200$ mA: -40 °C ... +70 °C	-40 °C ... +435 °C

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For EPL Db applications, the permissible ambient temperature range depending on the permissible surface temperature can be taken from the following table:

Maximum surface temperature		Ambient temperature range T_a
Dust layer ≤ 5 mm $T_5 X^\circ C$	With total immersion $T X^\circ C$	
$I_i \leq 100$ mA: $X^\circ C = T_a + 40^\circ C$	Observe IEC 60079-14	-40 °C ... +85 °C
$I_i \leq 200$ mA: $X^\circ C = T_a + 55^\circ C$	Observe IEC 60079-14	-40 °C ... +70 °C

The equipment is suitable for dusts with an ignition temperature of more than 200 °C under a dust layer of 5 mm (glow temperature).

VISY-Stick ... TLS; VISY-Stick (Flex) Temp TLS; VISY-Stick ... Advanced TLS and VISY-Stick ... Flex TLS:

For EPL Ga or EPL Ga/Gb or EPL Gb, the permissible temperature range can be taken from the following tables, depending on the variant and the temperature class:

Temperature class	Ambient temperature range	Medium temperature range
T4	-40 °C ... +75 °C	-40 °C ... +125 °C
T3	-40 °C ... +85 °C	-40 °C ... +190 °C
T2	-40 °C ... +85 °C	-40 °C ... +285 °C
T1	-40 °C ... +85 °C	-40 °C ... +435 °C

For EPL Db applications, the permissible ambient temperature range depending on the permissible surface temperature can be taken from the following table:

Maximum surface temperature		Ambient temperature range T_a
Dust layer ≤ 5 mm $T_5 X^\circ C$	With total immersion $T X^\circ C$	
$X^\circ C = 135^\circ C$	$X^\circ C = 135^\circ C$	-40 °C ... +77 °C
$X^\circ C = T_a + 110^\circ C$	Observe IEC 60079-14	-40 °C ... +85 °C

The equipment is suitable for dusts with an ignition temperature of more than 270 °C under a dust layer of 5 mm (glow temperature).

TORRIX Exd XT...; TORRIX Exd ...-A; TORRIX Exd ... Flex and TORRIX Exd ... PL:

For EPL EPL Ga/Gb or EPL Gb, the permissible temperature range can be taken from the following tables, depending on the variant and the temperature class:

Temperature class	Ambient temperature range	Medium temperature range
T6	-55 °C ... +50 °C	-55 °C ... +75 °C
T5	-55 °C ... +65 °C	-55 °C ... +90 °C
T4	-55 °C ... +85 °C	-55 °C ... +125 °C
T3	-55 °C ... +85 °C	-55 °C ... +190 °C
T2	-55 °C ... +85 °C	-55 °C ... +285 °C
T1	-55 °C ... +85 °C	-55 °C ... +435 °C

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For EPL Db applications, the permissible ambient temperature range depending on the permissible surface temperature can be taken from the following table:

Maximum surface temperature		Ambient temperature range T_a
Dust layer ≤ 5 mm $T_5 X^\circ C$	With total immersion $T X^\circ C$	
$X^\circ C = T_a + 30^\circ C$	Observe IEC 60079-14	-55 °C ... +85 °C

The equipment is suitable for dusts with an ignition temperature of more than 190 °C under a dust layer of 5 mm (glow temperature).

Details of change:

Proof of conformity of the filling level sensors type TORRIX Exd XT...; TORRIX Exd ...-A; TORRIX Exd ... Flex and TORRIX Exd ... PL to the current versions of the standards IEC 60079-0:2017; IEC 60079-1:2014; IEC 60079-11:2011; IEC 60079-26:2021 and IEC 60079-31:2022.

Proof of conformity of the rest of the filling level sensors as shown in the "Type code and Marking" to the current versions of the standards IEC 60079-0:2017; IEC 60079-11:2011 and IEC 60079-26:2021

Specific Conditions of Use:

1. The permissible temperature range depending on temperature classes resp. on the maximum surface temperature is to be taken from the operating instructions.
2. A reverse heat flow from the process, e.g. by heat dissipation from components of the system, beyond the permissible ambient temperature of the filling level sensor is not permissible. This can be avoided, for example, by suitable thermal insulation of these components or by mounting the pressure transmitter at a greater distance (cooling distance).
3. The medium tangent materials of the filling level sensor have to be resistant to the media.
4. For the uses in potentially explosive gas atmospheres and when using plastic floats, the filling level sensors have to be installed and used in such a way, that electrostatic charging from operation, maintenance and cleaning is excluded.
For the uses in potentially explosive dust atmospheres and when using plastic floats process-related electrostatic charges, e.g. due to passing media have to be excluded.
5. When using titanium floats or the Sump Environmental Sensor, the ignition hazard caused by impact or friction has to be excluded.
6. For EPL Ga/Gb applications the whole device filling level type VISY-Stick ... resp. type TORRIX Ex has to be mounted in a way that allows an installation that results in a sufficiently tight joint (IP66 or IP67) or a flameproof joint (IEC 60079-1) in the direction of the less endangered area.
7. In case of hazards due to pendulum or swinging, the corresponding parts of the level sensor type VISY-Stick ... resp. type TORRIX Ex... have to be effectively secured against these hazards.
8. The cable glands for the filling level sensors type TORRIX Exd XT...; TORRIX Exd ...-A; TORRIX Exd ... Flex and TORRIX Exd ... PL have to be separately assessed and certified in accordance with IEC 60079-0; IEC 60079-1 and IEC 60079-31. In the end-use application the degree of protection min IP6X shall be maintained in accordance with IEC 60079-0 and in compliance with IEC 60529.
9. The flameproof joints at type TORRIX Exd... are not intended to be repaired.