Translation

(1) # EU-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**

(3) **Certificate Number** **TÜV 00 ATEX 1641 X** **issue:** 01

(4) for the product: Measuring Transducer type LS 500 ...

(5) of the manufacturer: **FAFNIR GmbH**

(6) Address: Schnackenburgallee 149 c, 22525 Hamburg, Germany

Order number: 8003011043

Date of issue: 2021-08-10

(7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential ATEX Assessment Report No. 21 203 254815.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 **EN 60079-11:2012**

except in respect of those requirements listed at item 18 of the schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions for Use specified in the schedule to this certificate.

11) This EU-Type Examination Certificate relates only to the design, and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the product shall include the following:

Ex **II (1) G [Ex ia Ga] IIC**

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

Head of the notified body

Roder

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(13) **S C H E D U L E**

(14) **EU-Type Examination Certificate No. TÜV 00 ATEX 1641 X issue 01**

(15) Description of product

The measuring transducer LS 500 ... is an associated apparatus and is used to supply intrinsically safe sensors, which can be used in a potentially explosive atmosphere. Furthermore, the measuring transducer serves to forward electrical signals between the non-safe and intrinsically safe area. The measuring transducer is primarily used as part of an overfill prevention or a dry-running protection.

The measuring transducer type LS 500 ... may also be manufactured in accordance with the test specifications listed in the ATEX test report.
The changes concern the electrical data as well as the removal of the types LS 500 19" ... and LS 500 LPG. In addition, the internal structure of the measuring transducer has changed. Furthermore, the measuring transducers were evaluated according to the latest standards.

Type designation

LS 500 ...	Measuring transducer in plug-in enclosure
LS 500 H ...	Measuring transducer in mounting rail enclosure
LS 500 H SIL ...	Measuring transducer in mounting rail enclosure with functional safety

Electrical Data

Type LS 500 ...

Power supply circuit (terminals 15, 14, 13/12)

U = 24/115/230 V a.c. ± 10 %, 40...60 Hz, app. 4 VA
U = 24 V d.c. ± 20 %, app. 5 W
U_m = 33 V at 24 V a.c. resp. 24 V d.c.
U_m = 130 V at 115 V a.c.
U_m = 253 V at 230 V a.c.

Type LS 500 H ...

Power supply circuit (contacts -, +, □)

U = 23...30 V d.c., app. 8 W
U_m = 253 V

Type LS 500 ..., type LS 500 H ...

Sensor circuits (terminals 1 and 2, resp. contacts 1, 1, 2 and 2)

in type of protection "Intrinsic Safety" Ex ia IIC/IIB
Maximum values: U_o = 15.8 V
I_o = 159 mA
R = 156.8 Ω
P_o = 993 mW
Characteristic line: trapezoidal
C_i = 1.2 nF
L_i negligibly small

The maximum permissible values pairs of the external capacitances (C_o) and inductances (L_o) have to be taken from the following table:

	Ex ia IIC		Ex ia IIB	
C_o	230 nF	260 nF	1,3 µF	1,6 µF
L_o	440 µH	200 µH	6,5 mH	5 mH

Schedule to EU-Type Examination Certificate No. TÜV 00 ATEX 1641 X issue 01

Type LS 500 L ..., type LS 500 H L ...

Sensor circuits (terminals 1 and 2, resp. contacts 1, 1, 2 and 2) in type of protection "Intrinsic Safety" Ex ia IIC/IIB

Maximum values: U_o = 15.8 V
I_o = 26 mA
R = 950 Ω
P_o = 164 mW
Characteristic line: trapezoidal
C_i = 1.2 nF
L_i negligibly small

The maximum permissible values pairs of the external capacitances (C_o) and inductances (L_o) have to be taken from the following table:

	Ex ia IIC		Ex ia IIB	
C_o	280 nF	310 nF	1,8 µF	2,2 µF
L_o	10 mH	5 mH	20 mH	10 mH

Type LS 500 ..., type LS 500 H ..., type LS 500 H SIL ...

Output circuits (terminals 6 to 11, resp. contacts Output 1 and 2, resp. contacts Output SIL Error)

Alternating voltage	Direct voltage
U ≤ 250 V	U ≤ 250 V
I ≤ 5 A	I ≤ 5 A
P ≤ 100 VA	P ≤ 100 W
cos φ ≥ 0.7	

Type LS 500 H SIL ...

Output circuit (contacts Output Sensor)

Alternating voltage	Direct voltage
U ≤ 42 V	U ≤ 60 V
I ≤ 5 A	I ≤ 5 A
P ≤ 100 VA	P ≤ 100 W
cos φ ≥ 0.7	

Type LS 500 H ...

Communication circuit (contacts A, B and G)
U < 12 V DC
U_m = 253 V

The signal transmitter circuits of type LS 500 ... are safely galvanically separated from the supply and output circuits up to a peak value of the nominal voltage of 375 V.

The output circuits of type LS 500 H ... are safely galvanically separated from all other circuits up to a peak value of the nominal voltage of 375 V.

The output circuit SIL Error of type LS 500 H SIL ... is safely galvanically separated from all other circuits up to a peak value of the nominal voltage of 375 V. The output circuit Sensor is safely galvanically separated from all other circuits up to a peak value of the nominal voltage of 60 V.

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(16) Drawings and documents are listed in the ATEX Assessment Report No. 21 203 254815

(17) Specific Conditions for Use

1. Measuring transducer LS 500 H ... is to be installed in such a way that the connecting terminals for intrinsically safe circuits are isolated from other circuits (e. g. by means of distance, thread measure ≥ 50 mm), to conform to the requirements of EN 60079-11, clause 6.2.

2. The potential equalization terminal of measuring transducer LS 500 H ... must be connected with the potential equalization of the potentially explosive area. This connects the intrinsically safe circuit with the earth potential and potential equalization must exist in the entire area in which the intrinsically safe circuit is installed.

(18) Essential Health and Safety Requirements

no additional ones

- End of Certificate -