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EU-TYPE EXAMINATION CERTIFICATE

[2] Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014

[3] EU-Type Examination Certificate Number: **Presafe 18 ATEX 12865X** **Issue 1**

[4] Product: **Ultrasonic Sensor**

[5] Manufacturer: **Fluenta AS**

[6] Address: **Haraldsgate 90. N-5528 Haugesund. Norway**

[7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] DNV Product Assurance AS, notified body number 2460, in accordance with Article 17 and Article 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 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 confidential reports listed in item 16.


[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: **EN IEC 60079-0:2018 and EN 60079-11:2012**

Where additional criteria beyond those given here have been used, they are listed at item 18 in the Schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

 **II 1 G Ex ia IIC T* Ga -40°C ≤ Ta ≤ +60°C**
T2 : -110°C ≤ Tp ≤ +200°C (Process temperature)
T3 : -110°C ≤ Tp ≤ +180°C (Process temperature)
T4 : -110°C ≤ Tp ≤ +120°C (Process temperature)
T5 : -110°C ≤ Tp ≤ +85°C (Process temperature)
T6 : -110°C ≤ Tp ≤ +60°C (Process temperature)



Date of issue:
2022-11-10



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For DNV Product Assurance AS
The Certificate has been digitally signed.
See www.dnv.com/digitalsignatures for info

[13] **Schedule**

[14] **EU-Type Examination Certificate No:** Presafe 18 ATEX 12865X Issue 1

[15] **Description of Product**

The ultrasonic sensor model TFS-HT is used for flare gas measurement (measuring the gas velocity). It is connected to manufacturer's field computer which is functioned as safety barrier (e.g. field computer FGM 160 covered by certificates IECEx DNV 22.0043 & DNV 22 ATEX 39032). They are parts comprising a system for flare gas measurement. Detection principle requires a pair of sensors to be mounted on pipeline with a certain angle, facing to each other. Both sensors transmit and receive ultrasonic pulses and the difference in transit time is measured. Equipment is built-up by a larger metallic enclosure. Internal parts are a small PCB close to the cable entry's end and a piezoelectric device at the sensor head. Equipment is encapsulated and is enclosed by metallic enclosure.

Type designation

TFS-HT (Transducer Full Size – High Temperature version)

Electrical Data

Intrinsic safe input

Alternative 1: U_i : 11.7Vdc, I_i : 1.46A, P_i : 1.76W

Alternative 2: U_i : 13.8Vdc, I_i : 1.00A, P_i : 1.16W

(I_i and C_i are not given since the sensor TFS is only allowed to use specific cable type and length as indicated in Specific condition of use)

Degrees of protection (IP Code)

IP66

Ambient temperature:

$-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

Process temperature:

$-110^{\circ}\text{C} \leq T_a \leq +200^{\circ}\text{C}$ for temperature class T2

$-110^{\circ}\text{C} \leq T_a \leq +180^{\circ}\text{C}$ for temperature class T3

$-110^{\circ}\text{C} \leq T_a \leq +120^{\circ}\text{C}$ for temperature class T4

$-110^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$ for temperature class T5

$-110^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ for temperature class T6

Routine tests

Routine tests for infallible transformer T811 according to clause 11.2 in EN 60079-11

[16] **Report No.:** 406120

Project No.: PRJN-406120

[17] **Specific Conditions of Use**

- The Ultrasonic sensor head is made of titanium, avoid impact or friction.

- The minus polarity of piezoelectric device is connected to metallic enclosure.

- Use only two types of cable, Draka RFOU 250 V S2/S6 4 pair 0.75mm² or Draka FlexFlame RFOU(i) 150/250(300V) S1/S5 1Pair 0.75mm². Max allowed length is 20 meter. However, the cable length can be extended to up to 50 m when a 5.6 Ω current limiting resistor is added in series.

[18] **Essential Health and Safety Requirements**

Met by compliance with the requirements mentioned in item 9.

[19] **Drawings and documents**

Number	Title	Rev.	Date
74.121.002	TFS-HT Parts List - Ex Related Components	A	2018-07-26
74.120.102	TFS Sensor Electronics - Parts and Check List	G	2022-10-17
77.121.212	TFS-HT Sensor Tag Plate ATEX/IECEX	C	2022-10-24
77.121.362	GA Sensor Unit TFS-HT with Lemo Insert Cable Connector	A	2018-07-04
77.120.805	Sensor Electronics PCB & Layouts	B	2008-12-05
77.120.806	Sensor Electronics PCB Board Statistics	B	2008-12-05
77.120.807	Sensor Electronics Assembly Drawing w Cable	B	2008-12-05
62.121.027	TFS-HT General, Safety and Maintenance Manual – ATEX IECEX	A	2022-10-24
77.120.866	Sensor Electronics Schematics	A	2022-10-24

[20] **Certificate History**

Issue	Description	Issue date	Report no.
0	Original issue but is based on Nemko projects which are associated to certificates IECEX NEM 09.0009X and Nemko 07 ATEX 1160X	2018-04-11	D0003245-00
1	Upgrade to new edition standard of EN IEC 60079-0:2018 Minor correction of descriptive documents.	2022-11-10	406120

END OF CERTIFICATE