


EU-Type Examination Certificate

- [2] EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 2014/34/EU
- [3] EU-Type Examination Certificate Number: Presafe 18 ATEX 12865X Issue 0
- [4] Product: Ultrasonic Sensor
- [5] Manufacturer: Fluenta AS
- [6] Address: Haraldsgate 90. N-5501 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 GL Presafe AS, notified body number 2460, in accordance with Article 17 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 section 16.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: EN 60079-0:2012/A11:2013 and EN 60079-11:2012
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of 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 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 $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$
 T2 : $-110^{\circ}\text{C} \leq \text{Tp} \leq +200^{\circ}\text{C}$ (Process temperature)
 T3 : $-110^{\circ}\text{C} \leq \text{Tp} \leq +180^{\circ}\text{C}$ (Process temperature)
 T4 : $-110^{\circ}\text{C} \leq \text{Tp} \leq +120^{\circ}\text{C}$ (Process temperature)
 T5 : $-110^{\circ}\text{C} \leq \text{Tp} \leq +85^{\circ}\text{C}$ (Process temperature)
 T6 : $-110^{\circ}\text{C} \leq \text{Tp} \leq +60^{\circ}\text{C}$ (Process temperature)



Date of issue:
2018-08-20



Asle Kaastad
For DNV GL Presafe AS
The Certificate has been digitally signed.
See www.presafe.com/digital_signatures for more info

This certificate may only be reproduced in its entirety and without any change, schedule included.

[13]

Schedule

[14] EU-TYPE EXAMINATION CERTIFICATE No.: Presafe 18 ATEX 12865X Issue 0

[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 NEM09.0009X & Nemko 07 ATEX 1160X). 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.:** D0003531-00

[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 20meter. However, the cable length can be extended to up to 50 meter when a 5.6Ω current limiting resistor is added in series.

[18] Essential Health and Safety Requirements

Essential Health and Safety Requirements (EHSRs) are covered by the standards listed at item 9

[19] Drawings and documents

Title	Number	Rev.	Date
TFS-HT Sensor Production	62.121.113	A	2018-07-24
TFS-HT Parts List - Ex Related Components	74.121.002	A	2018-07-26
FGM 160 Sensor Electronics - Parts and Check List	74.120.102	F	2015-05-15
TFS-HT Sensor Tag Plate ATEX/IECEX	77.121.212	B	2018-07-18
GA Sensor Unit TFS-HT with Lemo Insert Cable Connector	77.121.362	A	2018-07-04
Sensor Electronics Schematics	77.120.800	B	2009-01-14
Sensor Electronics PCB & Layouts	77.120.805	B	2008-12-05
Sensor Electroncis PCB Board Statistics	77.120.806	B	2008-12-05
Sensor Electronics Assembly Drawing w_Cable	77.120.807	B	2008-12-05

[20] Certificate History

Issue	Description	Issue date	Report no.
0	Original issue	2018-08-20	D0003531-00

END OF CERTIFICATE