



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 PRE 18.0062X** Page 1 of 4 Certificate history:
Status: **Current** Issue No: 2 [Issue 1 \(2021-04-22\)](#)
[Issue 0 \(2018-10-23\)](#)
Date of Issue: 2021-11-25
Applicant: **Fluenta AS**
Haraldsgate 90, N-5501 Haugesund
Norway
Equipment: **Ultrasonic Sensor TFS-55 and TFS-55 Bias-90**
Optional accessory:
Type of Protection: **Intrinsic safety**
Marking: Ex ia IIC T* Ga -40°C ≤ Ta ≤ +60°C
T4: Process temperature -110°C ≤ Ta ≤ +120°C
T5: Process temperature -110°C ≤ Ta ≤ +85°C
T6: Process temperature -110°C ≤ Ta ≤ +60°C

Approved for issue on behalf of the IECEx
Certification Body:

Asle Kaastad

Position:

Certification Manager

Signature:
(for printed version)

Date:

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 www.iecex.com or use of this QR Code.



Certificate issued by:

DNV Product Assurance AS
Veritasveien 3
Hovik 1363
Norway





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Manufacturer: **Fluenta AS**
Haraldsgate 90, N-5501 Haugesund
Norway

Additional manufacturing locations: **Nordic Services Sp. Z.o.o.**
Leborska 3b
PO-80-386 Gdansk
Poland

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

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 Reports:

[NO/PRE/ExTR18.0075/01](#)

[NO/PRE/ExTR18.0075/02](#)

Quality Assessment Report:

[NO/NEM/QAR09.0001/08](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Fluenta ultrasonic sensor models TFS-55 and TFS-55 Bias-90 are used for flare gas measurement (measurement of the gas velocity, volume flow and mass flow). In an installation, one or two pairs of ultrasonic sensors are connected to the manufacturer's field computer which also functions as a safety barrier. (e.g. field computer FGM 160, covered by certificates IECEX NEM 09.0009X & Nemko 07 ATEX 1160X). The ultrasonic sensors, together with the field computer, comprise a system for flare gas measurement. The measurement principle requires that one or two pairs of sensors are mounted on the pipe containing the flow to be measured, facing each other in pairs, with the direction of the ultrasonic beams at an angle to the flow in the pipe (typically 45 degrees). Within each pair, both sensors alternately transmit and receive ultrasonic pulses and the transit times are measured. These transmit times are then used to calculate the gas flow velocity in the pipe. A larger metallic enclosure (the packing box) and commercially available flanges and ball valves are used to mount the ultrasonic sensors to the pipe. Internal parts of the ultrasonic sensors include a piezoelectric device at the sensor head, and a small PCB close to the cable entry end (other end) of the rod to which the sensor head is attached. The ultrasonic sensor assemblies are encapsulated and contained in metallic enclosure. The difference between the TFS-55 and TFS-55 Bias-90 transducers lies in orientation of the sensor head on the end of rod and the orientation of their mounting on the pipe.

Intrinsic safe input

Alternative 1: Ui: 11.7Vdc, Ii: 1.46A, Pi: 1.76W

Alternative 2: Ui: 13.8Vdc, Ii: 1.00A, Pi: 1.16W

(Li and Ci are not given since the sensor TFS-55 is only allowed to use specific cable type and length as indicated in Specific condition of use)

SPECIFIC CONDITIONS OF USE: YES as shown below:

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



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Correction of cable information in specific condition of use about the max. 50m cable length.

Note that Appendix B.2.2 Test of TFS with 50m, and for IIC cover this length in spark ignition tests. ExTR Reference No. NO/PRE/ExTR18.0048/00