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 CSAE 24.0013X**

Certificate history:
Issue 0 (2025-02-11)

Status: **Current**

Issue No: 1

Date of Issue: 2025-07-10

Applicant: **Endress+Hauser SICK GmbH+Co. KG**
Bergener Ring 27
01458 Ottendorf-Okrilla
Germany

Equipment: **Ultrasonic flowmeter, model FLOWSIC900 and FLOWSIC610**

Optional accessory:

Type of Protection: **Flameproof 'db' Intrinsic Safety 'ia'**

Marking: Ex db ia [ia Ga] IIA T4 Gb, for FLOWSIC900
Ex db ia [ia Ga] IIC T4 Gb, for FLOWSIC610
-40 °C ≤ Ta ≤ +60 °C

Approved for issue on behalf of the IECEx Certification Body: **Michelle Halliwell**

Position: **Senior Director of Operations**

Signature:
(for printed version)

Date:
(for printed version)

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:

CSA Group Testing UK Ltd
Unit 6, Hawarden Industrial Park
Hawarden, Deeside CH5 3US
United Kingdom

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Manufacturer: **Endress+Hauser SICK GmbH+Co. KG**
Bergener Ring 27
01458 Ottendorf-Okrilla
Germany

Manufacturing locations: **Endress+Hauser SICK GmbH+Co. KG**
Bergener Ring 27
01458 Ottendorf-Okrilla
Germany

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 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

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:

GB/CSAE/ExTR25.0006/00 GB/CSAE/ExTR25.0055/00

Quality Assessment Report:

DE/TUN/QAR09.0005/12

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The ultrasonic flow meter FLOWSIC900 and FLOWSIC610 measures the flow of gas or liquid in pipelines utilizing an ultrasonic technology. Model FLOWSIC900 is intended for measurement of LNG flow and model FLOWSIC610 is intended for measurement of gaseous hydrogen flow.
Both models consist of SPU (Signal Processing Unit), Model FLOWSIC900 consists of SPU Holder, Ultrasonic transducers with connection cables *(Multi Coax cables for ultrasonic transducers and the sensor cable for Pt 1000 sensor)* and meter body. Model FLOWSIC610 consists of common meter body and SPU connected, with ultrasonic sensors connected inside of the meter body.

The Signal Processing Unit (SPU) is further comprised of the following pre-certified Ex components.

FPH (FLOWSIC Platform Housing):

FPES electronics is installed inside the flameproof chamber.
IECEx certificate: IECEx CSA 24.0016U, Report: R80178598A, Marking: Ex db ia IIC Gb

PPT (PCB Pass Through):

IECEx Certificate: IECEx CSAE 23.0042U, Report: R80175157A, Marking: Ex db ia IIC Gb

FPES (FLOWSIC Platform Electronics Stack):

IECEx Certificate: IECEx CSAE 23.0046U, Report: R80180282A, Marking: [Ex ia Ga] IIA for model FLOWSIC900; [Ex ia Ga] IIC for model FLOWSIC610

See Annexe for more information and the Conditions of Manufacture

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The flameproof joints of the flameproof enclosure are not intended to be repaired.
2. For the painted enclosures - Potential electrostatic charge hazard. The enclosure shall not be installed in a location where the external conditions can build-up the electrostatic charge on the non-metallic surface of an enclosure. In addition, the enclosure shall only be cleaned with a damp cloth.
3. The threaded entries to the flameproof enclosure must be closed with suitably certified cable entry devices.
4. The maximum piezo-electric energy released by impact on the ultrasonic sensor/transducer exceeds the limits specified in Clause 10.7 of IEC 60079-11:2011. The end user must ensure that the meter body is suitably protected against danger from impact.
5. The non-intrinsically safe field wiring must be supplied with a 24 Vdc SELV/PELV or similar power supply compliant with Um = 60 V voltage.
6. The maximum prospective short circuit current at the connections to non-intrinsically safe circuits shall not exceed 50 A.
7. An external earth conductor is required between the external Grounding terminal of the enclosure and earth. This earth conductor should have a copper cross-sectional area of no less than 4 mm2, be permanently installed and adequately mechanically protected.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Issue 1 – this Issue introduced the following changes:

1. To include model FLOWSIC610 based on the TIS project 80228074.
2. To change the applicant/manufacturer's name from SICK Engineering GmbH to Endress+Hauser SICK GmbH+Co. KG
3. To include editorial corrections in conditions of safe use of Model FLOWSIC900.

Annex:

IECEx CSAE 24.0013X Annexe Issue 1_1.pdf

EQUIPMENT (continued)

Model FLOWSIC900, Entity parameters, in type of protection Ex ia IIA:

Transducer, MCX Connectors J100-J115, values per connector:					
Uo = 18.1 V	Io = 1293 mA	Po = 1159 mW	Ci = 0 nF	Co = 7.45 µF	Lo = 0.17 mH
Service, connector M12 *(to the side of the Ex-i chamber):*					
Uo = 6.42 V	Io = 117 mA	Po = 410 mW	Ci = 110 nF	Co = 999.7 µF	Lo = 10.39 mH
Display, connector M12 *(front of the Ex-i chamber):*					
Uo = 6.42 V	Io = 117 mA	Po = 410 mW	Ci = 13.2 nF	Co = 999.7 µF	Lo = 10.39 mH
Interface for additional pressure sensor, connector J205, J206, J208 inside of the Ex i chamber					
Uo = 7.42 V	Io = 190 mA	Po = 322 mW	Ci = 3.742 µF	Co = 174 µF	Lo = 3.94 mH

Model FLOWSIC610, Entity parameters, in type of protection Ex ia IIC:

Service, connector M12, to the side of the Ex-i chamber:					
Uo = 6.42 V	Io = 117 mA	Po = 410 mW	Ci = 0.3 µF	Co = 24.58 µF	Lo = 2.59 mH
Display, connector M12, front of the Ex-i chamber:					
Uo = 6.42 V	Io = 117 mA	Po = 410 mW	Ci = 0.3 µF	Co = 24.68 µF	Lo = 2.59 mH
Interface for additional pressure sensor, connector J205, J206, J208 inside of the Ex i chamber					
Uo = 6.85 V	Io = 153 mA	Po = 236 mW	Ci = 0 µF	Co = 16.8 µF	Lo = 1.51 mH

Conditions of Manufacture

Applicable to all models:

i. The products covered by this certificate incorporate previously certified devices as shown below in the table, it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer shall inform CSA Group of any modifications of the devices that may impinge upon the explosion safety design of their products.

Ex Component	Manufacturer	Certificate	Marking	Applicable standards
PCB Pass Through, Model: PPT	Endress+Hauser SICK GmbH+Co. KG	IECEx CSAE 23.0042U Issue 1	Ex db ia IIC Gb	IEC 60079-0:2017 (Ed. 7.0) IEC 60079-1:2014 (Ed. 7.0) IEC 60079-11:2011 (Ed. 6.0)
FLOWSIC Platform Housing, Model: FPH	Endress+Hauser SICK GmbH+Co. KG	IECEx CSA 24.0016U Issue 1	Ex db ia IIC Gb	IEC 60079-0:2017 (Ed. 7.0) IEC 60079-1:2014 (Ed. 7.0) IEC 60079-11:2011 (Ed. 6.0)
FLOWSIC Platform Electronics Stack, Model: FPES	Endress+Hauser SICK GmbH+Co. KG	IECEx CSAE 23.0046U Issue 1	FLOWSIC900: [Ex ia Ga] IIA FLOWSIC610: [Ex ia Ga] IIC	IEC 60079-0:2017 (Ed. 7.0) IEC 60079-11:2011 (Ed. 6.0)

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ii. Each FPH enclosure (Die casted) and PPT bushing used shall be subjected to routine batch overpressure testing of 17.07 Bar for at least 10 seconds as per clause 16.6 of IEC 60079-1 Ed. 7.0. There should not be permanent deformation of the joints or damage to the enclosure/bushing.

Applicable only to model FLOWSIC610:

i. The products covered by this certificate incorporate previously certified devices as shown below in the table, it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer shall inform CSA Group of any modifications of the devices that may impinge upon the explosion safety design of their products.

Ex Component	Manufacturer	Certificate	Marking	Applicable standards
Pressure transmitter, Type PA-21D-Ei	Keller Druckmesstechnik AG	IECEx EPS 14.0027X Issue No: 0	Ex ia IIC T6 Ga	IEC 60079-0:2017 (Ed. 7.0) IEC 60079-11:2011 (Ed. 6.0) IEC 60079-26:2014 (Ed. 3.0)

ii. Meter body shall be manufactured using metal alloy which contains no more than 7.5 % in total of magnesium, titanium and zirconium.

iii. Meter body shall not contain other electronic equipment than:
   a. transducers which are part of FLOWSIC610
   b. pressure transmitter Type PA-21D-Ei

iv. Sealing of the meter body openings comprising of metal lid covers with gaskets, shall comply with the sealing system shown in section 14.2.1 of document number E407917. In particular, the following features shall be uniform across different versions of the meter bodies:
   a. Gasket material
   b. Gasket cross section geometry
   c. Groove cross section geometry
   d. Material of the groove in which the gasket is located
   e. Thickness of the metallic material of the lead

v. The flow meter shall be provided with at least one pressure compensation element having a minimum venting rate in total, which is greater than the value specified in section 14.4 of Technical Description document number.

vi. The construction principle of meter body is to comply with the following:
   a. Metal part with process openings for the sensor connections.
   b. Internal channelling of the sensor cabling inside of the metal body
   c. Process containment and ventilation of the cable space

   Refer to Technical Description, document number E40719, section 14

vii. The copper content of the metallic material of the meter body shall not exceed 65%.

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