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 BVS 19.0061X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 2	Issue 1 (2023-02-14) Issue 0 (2019-10-25)
Date of Issue:	2025-03-18		

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

Equipment: **Ultrasonic gas flow meter FLOWSIC500 series type FLOWSIC500 FL5-abccdefghijklmnopqrstuv**

Optional accessory:

Type of Protection: **Intrinsic Safety “i”, Optical radiation**

Marking: Ex ia [ia] IIC T4 Gb or Ex ia [ia] IIB T4 Gb

Ex op is IIC T4 Gb

Approved for issue on behalf of the IECEx Certification Body: **Dr Franz Eickhoff**

Position: **Senior Lead Auditor, Certification Manager and officially recognised expert**

Signature:
(for printed version)

Date:
(for printed version)

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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:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

IECEx Certificate of Conformity

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

Manufacturing locations:

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

IEC 60079-28:2015 Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
Edition:2

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 Report:

DE/BVS/ExTR19.0066/02

Quality Assessment Report:

DE/TUN/QAR09.0005/12

IECEx Certificate of Conformity

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

General product information:

See Annex

Ratings

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:
Plastic parts of the electronics enclosure: Under certain extreme circumstances, in Gas Group IIC, exposed plastic and unearthed metal parts of the enclosure may store an ignition-capable level of electrostatic charge. Therefore, the user / installer shall implement precautions to prevent the build up of electrostatic charge, e.g. locate the equipment where a charge-generating mechanism (such as wind-blown dust) is unlikely to be present and clean with a damp cloth.

Plastic portable battery pack: No precautions against electrostatic discharge are necessary for portable equipment that has an enclosure made of plastic, metal or a combination of the two, except where a significant static-generating mechanism has been identified. Activities such as placing the item in a pocket or on a belt, operating a keypad or cleaning with a damp cloth, do not present a significant electrostatic risk. However, where a static-generating mechanism is identified, such as repeated brushing against clothing, then suitable precautions shall be taken, e.g. the use of anti-static footwear.

The ultrasonic sensors are manufactured from titanium. The pipeline adaptor and part of the electronic enclosure may be made from aluminium. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation.

The maximum piezo-electric energy released by impact on the ultrasonic sensors exceeds the limit for Gas Group IIC specified in Clause 10.7 of IEC 60079-11:2011. This shall be considered during installation.

The apparatus is not capable of withstanding the 500 V insulation test required by clause 6.3.13 of IEC 60079-11:2011 (Except at the optically isolated inputs / outputs). This must be taken into account when installing the equipment.

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
The Applicant's name and the Manufacturer's name has changed from SICK Engineering GmbH to Endress+Hauser SICK GmbH+Co. KG.
The marking plates were modified.
The documentation was partly modified.

Annex:

BVS_19_0061X_Sick_Annex_issue2.pdf

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 19.0061X issue No: 2
Annex

General product information:

Ultrasonic gas flow meter FLOWSIC500 series

Individual models in the FLOWSIC500 series are identified by a string of alphanumeric code characters as shown below:

Type **FLOWSIC500 FL5-abccdefghijklmnopqrstuv**

Key to the model specification codes:

a-f Not applicable to certification

g Material for pipe adapter / electronics cartridge
X – no pipe adapter / aluminium
1 – aluminium / aluminium
2 – iron cast / aluminium
3 – aluminium / no cartridge
4 – iron cast / no cartridge

h-v Not applicable to certification

The type code may be followed by additional alphanumeric digits indicating more features but not critical to the certification.

An Ultrasonic gas flow meter of the FLOWSIC500 series measures the gas flow in pipelines. The FLOWSIC500 is intended to be used in classified hazardous areas. The FLOWSIC500 comprises a metallic process adaptor with an integral electronic unit. The process adaptor may be aluminium or cast iron.

The electronic unit is mounted inside an aluminium enclosure, one face of the enclosure is an access panel secured by screws. The electronic circuits are comprised of a main printed circuit board, an optional data input / output circuit board mounted on the main circuit board and a display / keypad unit. The display and keypad are mounted in the face of the access panel and are of plastic materials. The display and keypad unit contains a window to permit optical data exchange with external equipment. A single type of electronic package is used for a range of process adaptor sizes.

Power may be supplied from two Battery Packs, or by an external intrinsically safe power supply with a Back-Up Battery or a Battery Pack. The Battery Pack is SICK Part no. 2064018 and comprises a cell type TADIRAN SL-2880, the Back-Up Battery SICK Part no. 2065928 comprises cell type TADIRAN SL-860.

The main circuit board supply connection is either a plug connector for a battery supply or a terminal for an external supply, the two connector types are not fitted together. The main circuit board is partially encapsulated. The external connectors and some associated circuits are not encapsulated.
The battery packs may be replaced in the hazardous area. Connection to other Ex i associated equipment is provided by terminals and connectors inside the electronics enclosure and by optionally fitted external access panel feed-through sockets.

The FLOWSIC500 may incorporate optionally the following certified devices:
Elgas Digital pressure transmitter type EDT 23, Certificate number IECEx FTZU 12.0022.
Elgas Digital temperature transmitter type EDT 34, Certificate number IECEx FTZU 12.0021.
Elgas Digital pressure transmitter type EDT 96, Certificate number IECEx FTZU 18.0021X.
Elgas Digital temperature transmitter type EDT 87, Certificate number IECEx FTZU 19.0005X.
(Connection via T1/P1 sensor, only internal wiring, see parameters)

IECEx Certificate of Conformity

Certificate No.: IECEx BVS 19.0061X issue No: 2
Annex

Ratings:

1 Power supply, connections are accessible in the terminal compartment

Terminal/ Connector	Function	U_i (V)	I_i (mA)	P_i (mW)	C_i (nF)	L_i (mH)
BAT1	External power supply	20	667	753	*	*

The character * indicates a negligible value

Note: The combination of a Battery Pack and an external supply on the same "BAT1" connection is not allowed and is prevented because a connector or a terminal are alternative PCB fitting option for the "BAT1" connection.

2 Inputs / Outputs, connections are accessible in the terminal compartment

Terminal/ Connector	Function	U_o (V)	I_o (mA)	P_o (mW)	C_o (µF)	L_o (mH)	U_i (V)	I_i (mA)	P_i (mW)	C_i (µF)	L_i (mH)
DO0 +/- terminal	Digital output 0 optical isolated	--	--	--	--	--	20	--	1100	*	*
DO1 +/- terminal	Digital output 1 non-isolated	8.2	0.83	1.7	7.6	100	20	--	753	*	*
DO2 +/- terminal	Digital output 2 optical isolated	--	--	--	--	--	20	--	753	*	*
DO3 +/- terminal	Digital output 3 optical isolated	--	--	--	--	--	20	--	753	*	*
RS485 -/-/+/+/A/B 6-pole terminal	optional subassembly RS485, optical isolated	--	--	--	--	--	20	--	1100	IIC: 0.22 IIB: 1.35	0.03
P1/T1 sensor 2x4-pole connector	RS 485 included power supply p/T sensors	8.2	396	673	6.4	0.2	--	--	--	--	--

The character * indicates a negligible value

3 Ambient / Process temperature range -40 °C ≤ T_a ≤ +70 °C