DEKRA Testing and Certification GmbH
Standort Bochum

Explosionsschutz
Elektrotechnik

Dinnendahlstraße 9
44809 Bochum

Prüfprotokoll - *Test and Assessment Report*
Nachtrag 2 - *Supplement 2*

BVS PP 19.2136 EU

EU - Baumusterprüfung für Produkte zur Verwendung in explosionsgefährdeten Bereichen (Richtlinie 2014/34/EU)

EU - Type Examination for Products Intended for Use in Potentially Explosive Atmospheres (Directive 2014/34/EU)


Zentralstelle der Länder für Sicherheitstechnik ZLS
Befugniserteilung

Reg.-Nr.: ZLS-NB-0321

Gegenstand: Gerät Typ *Subject: Equipment type*	**Ultrasonic gas flow meter FLOWSIC500 series** **type FLOWSIC500 FL5-abccdefghijklmnopqrstuv**	
Hergestellt und zur Prüfung vorgelegt *Manufactured and submitted for examination*	**Endress+Hauser SICK GmbH+Co. KG**	
Anschrift *Address*	**Bergener Ring 27, 01458 Ottendorf-Okrilla, Germany**	
Prüfgrundlage *Basis for verifications and tests*	**Anhang II der Richtlinie 2014/34/EU** ***Annex II of Directive 2014/34/EU***	
Verwendete Normen *Standard basis*	EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-28:2015	Allgemeine Anforderungen *General requirements* Eigensicherheit „i“ *Intrinsic safety “i”* Optische Strahlung *Optical radiation*
Prüfgrundlage für Sicherheits- und Gesundheitsanforderungen, die nicht von den verwendeten Normen abgedeckt werden. *Basis for those health and safety requirements not covered by the standard basis*	**Entfällt** ***Not relevant***	
Kennzeichnung *Marking*	**II 2G Ex ia [ia] IIC T4 Gb** or **II 2G Ex ia [ia] IIB T4 Gb** **II 2G Ex op is IIC T4 Gb**	
Antragsnummer / Jobnummer *Project number / Job number*	**A 20250097 / 343632800**	

1) Subject and Type

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.

2) Description

Reason for this supplement:

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.

Description of product:

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 FTZU 01 ATEX 0083.
Elgas Digital temperature transmitter type EDT 34. Certificate number FTZU 01 ATEX 0176.
Elgas Digital pressure transmitter type EDT 96, Certificate number FTZU 18 ATEX 0141X.
Elgas Digital temperature transmitter type EDT 87, Certificate number FTZU 19 ATEX 0065X.

(Connection via T1/P1 sensor, only internal wiring, see parameters)

3) Descriptive Documents

All relevant documents are defined in IECEx Test Report Cover DE/BVS/19/2135/N2.

4) Parameters

4.1 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.

4.2 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

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

5) Marking

The marking shall be visible, legible, and durable. It shall contain the following:

5.1 The name and address of the manufacturer
Type FLOWSIC500 FL5-abccdefghijklmnopqrstuv
Year of construction
 II 2G Ex ia [ia] IIC T4 Gb or II 2G Ex ia [ia] IIB T4 Gb
II 2G Ex op is IIC T4 Gb
Serial number
Certificate number
-40 °C ≤ T_a ≤ +70 °C

5.2 A CE marking followed by the identification number of the notified body which is involved in the production control phase.

5.3 The regular marking corresponding to the product standard for the subject.

6) Routine verifications and tests

The manufacturer shall carry out the routine verifications and tests by EN IEC 60079-0:2018 necessary to ensure that the subject produced complies with the specification submitted to the testing station together with the prototype or sample. He shall also make any routine verifications and tests required by the respective European Standards.

These routine verifications and tests do not substitute for the procedure defined in annexes IV to VII inclusive of Directive 2014/34/EU as required, in addition to the module EU-Type Examination, for the conformity assessment procedure (article 13 of Directive 2014/34/EU).

7) Special conditions for use

7.1 Special conditions for use to be listed in EU Type Examination Certificate

7.1.1 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.

7.1.2 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.

7.1.3 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.

7.1.4 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 EN 60079-11:2012. This shall be considered during installation.

7.1.5 The apparatus is not capable of withstanding the 500 V insulation test required by clause 6.3.13 of EN 60079-11:2012 (Except at the optically isolated inputs / outputs). This must be taken into account when installing the equipment.

7.2 Additional special conditions for use

None

8) Information relevant for safety

The information as given in clauses 1, 2, 4 and 7 is relevant for safe use. The information is included in the relevant extract of the manufacturer's instructions (see 3).

Bochum, 13.03.2025
BVS-Rip/MGR A 20250097

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Reviewed by

Compiled by

The annexes

EN IEC 60079-0:2018	**General requirements**
EN 60079-11:2012	**Intrinsic safety "i"**
EN 60079-28:2015	**Optical radiation**

were deemed as not necessary, because they have for this device the same content as

IEC 60079-0:2017	**General requirements**
IEC 60079-11:2011	**Intrinsic safety "i"**
IEC 60079-28:2015	**Optical radiation**

of the IECEx Test Report DE/BVS/19/2135/N2.
The deviation is the marking.
This was taken into account in clause "5) Marking".