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 19.0062X**

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Certificate history:

Issue 4 (2023-08-24)
Issue 3 (2023-03-13)
Issue 2 (2021-07-13)
Issue 1 (2020-03-04)
Issue 0 (2019-10-25)

Status: **Current**

Issue No: 5

Date of Issue: 2025-03-31

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

Equipment: **Ultrasonic gas flowmeters FLOWSIC600-XT series type F6a-bbccdd-eeff-gggg**

Optional accessory:

Type of Protection: **Flameproof Enclosures "d", Intrinsic Safety "i", Optical Radiation, Increased Safety "e"**

Marking: Ex ia op is IIC/IIB/IIA T4 Ga
Ex db ia op is [ia Ga] IIC/IIB/IIA T4 Gb
Ex db eb ia op is [ia Ga] IIC/IIB/IIA 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: 2025-03-31 (for printed version)

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Certificate issued by:

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

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Date of issue: 2025-03-31 Issue No: 5

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

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

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

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/ExTR19.0067/05

Quality Assessment Report:

DE/TUN/QAR09.0005/12

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

Equipment:

FLOWSIC600-XT Ultrasonic Gas Flowmeter

Description

See Annex

Parameters:

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

1) Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge.
Therefore the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth. This is particularly important when installed in a Zone 0 location.
(See clause 7.4.2 of IEC 60079-0)
2) The enclosure may be made from low copper aluminium alloy. In rare cases, ignition sources due to impact and friction sparks could occur. The user must ensure that the enclosure is suitably protected against danger from impact or friction, particularly when installed in a Zone 0 location.
(See clause 8.3 of IEC 60079-0)
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. The user must ensure that the enclosure is suitably protected against danger from impact or friction. (See clause 8.3 of IEC 60079-0)
4) The maximum piezo-electric energy released by impact on the ultrasonic sensors exceeds the limits specified in Clause 10.7 of IEC 60079-11:2011. The user must ensure that the ultrasonic sensors are suitably protected against danger from impact.
5) 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). See the installation instructions regarding the correct electrical installation.
6) Contact the manufacturer if dimensional information of flameproof joints is needed. (See clause 5.1 of IEC 60079-1)
7) The equipment contains a shunt Zener diode barrier, which requires connection to a barrier earth in accordance with IEC 60079-14.
8) The replaceable backup battery pack and connecting circuit have been assessed for intrinsic safety in accordance with IEC 60079-11:2011, and is acceptable for use in the non-intrinsically safe versions of the equipment.
9) When 3/4 NPT entries are provided, entry devices shall be installed with five fully engaged threads, tightened with a minimum torque of 90 Nm (800 in-lbs).
10) Ambient temperature range and Process temperature range: See Thermal Ratings

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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_0062X_Sick_Annex_issue5.pdf

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Certificate No.: **IECEx BVS 19.0062X issue No: 5**
Annex

Description:

The FLOWSIC600-XT model series, otherwise referred to FL600-XT, is a gas flowmeter intended for permanent connection / mounting on a pipeline flange sensor block, with a maximum of sixteen internal ultrasonic flow transducers, and optional temperature sensor and / or pressure sensor. Outputs are provided for HART, RS-232, RS-485 and / or Ethernet communications data interfaces, digital status signals and frequency I/O. The intrinsically safe Display Interface Unit contains a window which permits infrared data exchange with external equipment. An internal intrinsically safe LTC
(Lithium Thionyl-Chloride) backup battery pack can be replaced while the device is energized within the hazardous area.
The FL600-XT assembly consists of a multi-compartment cast stainless steel or aluminium enclosure, with the overall physical dimensions of 27.1 x 15.5 x 22.7 cm (L x W x H). The polymeric Display Interface Unit is concealed by a door on the front of the enclosure. Field wiring connections for power, communications, and I/O are accomplished through cable or conduit, through threaded entries, depending upon the application.

The FLOWSIC600-XT 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.
(Connection via T1/P1 sensor, only internal wiring)	

Several different model configurations of the FL600-XT series are available in order to afford a range of field wiring connection options in different hazardous locations. Individual models in the FL600-XT series are identified by the following model type code:

FLOWSIC600-XT model F6a-bbccdd-eeff-gggg

Where a = special using

I – Extended process temperature range

Any other alphanumeric digit not ex-relevant

Where ee = Ex classification

DA – Ex db ia op is [ia Ga] IIA T4 Gb

DB – Ex db ia op is [ia Ga] IIB T4 Gb

DC – Ex db ia op is [ia Ga] IIC T4 Gb

EA – Ex db eb ia op is [ia Ga] IIA T4 Gb

EB – Ex db eb ia op is [ia Ga] IIB T4 Gb

EC – Ex db eb ia op is [ia Ga] IIC T4 Gb

IA – Ex ia op is IIA T4 Ga

IB – Ex ia op is IIB T4 Ga

IC – Ex ia op is IIC T4 Ga

XX – Custom configuration (further character combinations for further device type variants are possible, these further variants base on IECEx/ATEX device types)

Where ff = I/O Configuration / Data Interfaces
1A – 3*RS485 / 2*FO / 2*DO
1B – 3*RS485 / 2*FO / 2*DO / 1*AO (Note 1)
1C – 2*RS485 / 2*FO / 2*DO / 1*AO / 1*HART (Slave), (Note 1)
1D – 2*RS485 / 2*FO / 2*DO / 1*AO / 1*Encoder (Note 1)
1E – 2*RS485 / 2*FO / 2*DO / 1*AO / 1*Ethernet (Note 2)
1J – 2*RS485 / 2*FO / 2*DO / 1*Encoder
2A – 1*HART-pT / 2*RS485 / 2*FO / 2*DO
2B – 1*HART-pT / 2*RS485 / 2*FO / 2*DO / 1*AO (Note 1)
2C – 1*HART-pT / 1*RS485 / 2*FO / 2*DO / 1*AO / 1*HART (Slave) (Note 3)
2D – 1*HART-pT / 1*RS485 / 2*FO / 2*DO / 1*AO / 1*Encoder (Note 3)
2E – 1*HART-pT / 1*RS485 / 2*FO / 2*DO / 1*AO / 1*Ethernet (Note 2)
3A – 1*pT / 2*RS485 / 2*FO / 2*^{DO} (Note 4)
XX – Custom configuration
Notes:
1. In Ex ia version numbers of RS485 reduced by one
2. Configurations not available in Ex ia version
3. In Ex ia version RS485 not available
4. Configurations in Ex ia version only
Where gggg = Ultrasonic Transducer (The general construction of the transducers is equal, and the same materials are used. Ex-relevant requirements are covered by the specific conditions of use.)
Note: Alphanumeric characters bbccdd are not critical to certification. The type code may be followed by additional alphanumeric characters indicating additional features which are not critical to the certification.

Ratings:

Electrical ratings: (Ex db, Ex db eb)	12 to 24 V DC, max. 400 mA, SELV ($U_m \leq 50$ V_{rms} resp. $U_m \geq 120$ V DC) Optionally 12 to 24 V DC, max. 400 mA, $U_m = 250$ V_{rms} (optionally, only on request)

Intrinsically safe when installed per drawing 9236580 with entity parameters:

Entity parameters: (Ex ia only)	U_i (V)	I_i (mA)	P_i (W)	C_i (µF)	L_i (mH)
Power Input	20	667	1.65	--	0.005
FO.0 (optional)	20	--	0.717	--	--
FO.1 (optional)	20	--	0.717	--	--
DO.2 (optional)	20	--	0.717	--	--
DO.3 (optional)	20	--	0.717	--	--
RS485 (optional)	10.5	--	0.717	1.21	0.02
ENCODER (optional)	18.2	--	1.0	--	--
HART-PT (optional)	26.6	667	1.0	0.0012	--
AO (optional)	26.6	667	1.0	0.0012	0.01
AO + HART (optional)	26.6	667	1.0	0.0012	0.01

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Thermal ratings:

Ambient temperature range:		-40 °C up to +70 °C
Process temperature range:	Standard:	-46 °C up to +105 °C
	Extended:	-46 °C up to +180 °C *1)
	Extended:	-196 °C up to +230 °C *2)

*1) Requires possibly adequate distance between the electronics housing and a thermal insulated meter body to ensure that the temperature around the electronics housing does not exceed the specified ambient temperature limits.

*2) For type FLOWSIC600-XT type F6I-bbccdd-eeff-gggg with remote installation.
The cable installation must be carried out in such a way that damage to the cable can be excluded.

If the sensors Elgas digital pressure transmitter type EDT 23 and/or Elgas digital temperature transmitter type EDT 34 are installed, the temperature range of these transmitters (T_a = -40 °C up to +85 °C) must be observed at the installation location.

Listing of all components used referring to older standards

Subject and type	Certificate	Standards
Weidmüller Terminal Block model AKZ 2.5	IECEx SIR 05.0038U	IEC 60079-0: 2004[1] Edition: 4.0 IEC 60079-7: 2001[1] Edition: 3
Phoenix Contact Terminal Block model MBK 2,5/E	IECEx KEM 07.0016U	IEC 60079-0: 2004[1] Edition: 4.0 IEC 60079-7: 2006-07[1] Edition: 4

[1] No applicable technical differences

Listing of all used components

Subject and type	Certificate
BARTEC Line-Bushing models 07-9161-C233/G and 07-9151-C202/G.	IECEx EPS 13.0045U
QUINTEX Line-Bushing models LBP132220 and LBP122220	IECEx EPS 11.0004X
Hummel Blanking Plug type V	IECEx KEM 07.0012
Hummel Blanking Plug type RSD	IECEx BVS 07.0021
WAGO Terminal Block type 264	IECEx PTB 04.0003U
Elgas Digital Pressure Transmitter type EDT 23	IECEx FTZU 12.0022
Elgas Digital Temperature Transmitter type EDT 34	IECEx FTZU 12.0021