



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 SGS 23.0043X** Page 1 of 4 [Certificate history:](#)
Status: **Current** Issue No: 0
Date of Issue: 2023-12-08
Applicant: **Emerson - Rosemount, Micro Motion Inc.**
12001 Technology Drive
Eden Prairie
MN 55344
United States of America
Equipment: **Model 8600/8800 Vortex Flowmeter**
Optional accessory:
Type of Protection: **Intrinsic safety, Protection by Enclosure 'tb', Type nA or Type ec**
Marking: See Annex
Ex ia IIC T4 Ga (-60°C ≤ Ta ≤ +70°C)
Ex ia IIC T4 Ga (-55°C ≤ Ta ≤ +70°C)
Ex ia IIC T4 Ga (-60°C ≤ Ta ≤ +60°C)
Ex tb IIIC T85°C Db (-20°C ≤ Ta ≤ +70°C)
Ex nA ic IIC T5 Gc (-50°C ≤ Ta ≤ +70°C) or Ex ec ic IIC T5 Gc (-50°C ≤ Ta ≤ +70°C)
Ex nA ic IIC T5 Gc (-50°C ≤ Ta ≤ +60°C) or Ex ec ic IIC T5 Gc (-50°C ≤ Ta ≤ +60°C)

Approved for issue on behalf of the IECEx
Certification Body:

R S Sinclair

Position:

Technical Manager

Signature:
(for printed version)

Date:
(for printed version)

8/12/2023

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:

SGS United Kingdom Ltd
Rockhead Business Park
Staden Lane
Buxton, Derbyshire SK17 9RZ
United Kingdom





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Manufacturer: **Emerson - Rosemount, Micro Motion Inc.**
12001 Technology Drive
Eden Prairie
MN 55344
United States of America

Manufacturing locations: **Emerson - Rosemount, Micro Motion Inc.**
12001 Technology Drive
Eden Prairie
MN 55344
United States of America

F-R Tecnologías De Flujo, S.A. De C.V.
Rosemount Flow Business Unit
Ave. Miguel de Cervantes 111
31136 Chihuahua
Mexico

Emerson Process Management Flow Technologies Co., Ltd.
111, Xing Min South Road
Jiangning District, Nanjing
Jiangsu Province
211100
China

See following pages for more 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 60079-11:2023](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:7.0

[IEC 60079-15:2010](#) Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:4

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
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:

[GB/SGS/ExTR23.0092/00](#)

Quality Assessment Reports:

[GB/BAS/QAR21.0007/02](#)

[NO/PRE/QAR15.0018/04](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Model 8600D / 8800D Vortex Flowmeter is a two-wire, piezoelectric-based flowmeter designed to measure the flow of a fluid within a pipe. It consists of a sensor board, 4-20mA HART, Fieldbus/FISCO or MODBUS output board, terminal board and optional Liquid Crystal Display (LCD) unit mounted within a coated aluminium alloy or stainless steel enclosure forming the transmitter assembly. This is either mounted on a stainless steel meter body or connected via a coaxial cable to a remote meter body, which contains the piezoelectric sensor. The transmitter converts the signal input to a 4-20mA HART, Fieldbus/FISCO or MODBUS digital output or pulse totalizer signal output.

This certification additionally covers the remote coax cable assembly supplied with the meter. The remote cable model option codes are RXX or AXX, where R indicates standard cable, A indicates armored cable, and XX indicates the length of the cable. The maximum allowed cable length is 152 meters (500 feet).

Connection to the external circuits is achieved by the use of a 4-way terminal block within the transmitter enclosure, entry to which is gained by a threaded conduit entry point. The installation of external connections and the plugging of the unused entry must be carried out using appropriate Ex e or Ex n cable glands or blanking plug components with a minimum degree of protection of IP54 certified by an approved certification body. When installed as Ex t equipment in a Zone 21 area, the installation of external connections and the plugging of the unused entry must be carried out using appropriate Ex e or Ex t cable glands or blanking plug components with a minimum degree of protection of IP66 certified by an approved certification body.

Four variants of the above Model 8800D Vortex Flowmeters can be mounted on process pipework to form the Model 8800DQ Quad Vortex Flowmeter. Each Model 8800D Vortex Flowmeter mounted to the arrangement has the same input parameters as noted below.

For certification codes and input parameters of the different variants of the equipment, see Annex:

SPECIFIC CONDITIONS OF USE: YES as shown below:

Intrinsic Safety, Ex ia

1. When fitted with 90V transient suppressors, the equipment is not capable of passing the 500V insulation test. This must be taken into account upon installation.
2. The enclosure may be made from aluminium alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion when located in Zone 0. The polyurethane paint finish may constitute an electrostatic hazard and must only be cleaned with a damp cloth.
3. When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range.
4. The equipment must be installed in accordance with local electrical installation regulations/codes and must meet the requirements of permanently earthed equipment.

Protection by enclosure, Ex tb

1. The enclosure may be made from aluminium alloy with a protective polyurethane paint finish which may constitute a potential electrostatic ignition risk. Care should be taken to protect it from external conditions conducive to the build-up of electrostatic charge on such surfaces. The enclosure must not be rubbed or cleaned with a dry cloth.
2. When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range.
3. Once installed as Ex t equipment, the equipment may no longer be installed as Ex i equipment. Indelible marks are made on the certification labels to indicate the concept utilised.

Type nA ic / ec ic

1. When fitted with 90V transient suppressors, the equipment is not capable of passing the 500V insulation test. This must be taken into account upon installation.
2. The enclosure may be made from aluminium alloy with a protective polyurethane paint finish. The polyurethane paint finish may constitute an electrostatic hazard and must only be cleaned with a damp cloth.
3. When the equipment is installed, particular precautions must be taken to ensure, taking into account the effect of process fluid temperature, that the ambient temperature of the electrical housing of the equipment meets the marked protection type temperature range.
4. The equipment must be installed in accordance with local electrical installation regulations/codes and must meet the requirements of permanently earthed equipment.
5. The equipment must be installed in an area of at least pollution degree 2, as defined in IEC 60664-1.
6. Once installed as Ex nA ic / ec ic equipment, the equipment may no longer be installed as Ex i equipment. Indelible marks are made on the certification labels to indicate the concept utilised.



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Additional manufacturing locations:

S.C. Emerson SRL
Str. Emerson 4
Cluj-Napoca 400638
Romania

Annex:

[IECEX SGS 23.0043X Annex Issue 0.pdf](#)

Intrinsic Safety, Ex ia

Model 8600D 4-20mA HART Vortex Flowmeter **Model 8800D 4-20mA HART Vortex Flowmeter**

Ex ia IIC T4 Ga (-60°C ≤ Ta ≤ +70°C)

Input Parameters

$$\begin{aligned}U_i &= 30V & C_i &= 0 \\I_i &= 185mA & L_i &= 0.97mH \\P_i &= 1.0W\end{aligned}$$

Model 8600D Foundation Fieldbus Vortex Flowmeter **Model 8800D Foundation Fieldbus Vortex Flowmeter**

Ex ia IIC T4 Ga (-60°C ≤ Ta ≤ +60°C)

Input Parameters

$$\begin{aligned}U_i &= 30V & C_i &= 0 \\I_i &= 300mA & L_i &= < 10\mu H \\P_i &= 1.3W\end{aligned}$$

Model 8600D FISCO Vortex Flowmeter **Model 8800D FISCO Vortex Flowmeter**

Ex ia IIC T4 Ga (-60°C ≤ Ta ≤ +60°C)

Input Parameters

$$\begin{aligned}U_i &= 17.5V & C_i &= 0 \\I_i &= 380mA & L_i &= < 10\mu H \\P_i &= 5.32W\end{aligned}$$

Model 8600D Modbus Vortex Flowmeter **Model 8800D Modbus Vortex Flowmeter**

Ex ia IIC T4 Ga (-55°C ≤ Ta ≤ +70°C)

Input Parameters

Power:

$$\begin{aligned}U_i &= 26V & C_i &= 0 \\I_i &= 170mA & L_i &= 0 \\P_i &= 1W\end{aligned}$$

Modbus:

$$\begin{aligned}U_i &= 4.2V & U_o &= 4.2V \\I_o &= 101mA \\P_o &= 106mW\end{aligned}$$

SGS United Kingdom Limited
Rockhead Business Park
Staden lane, Buxton, Derbyshire
SK17 9RZ
United Kingdom



ANNEX to IECEx SGS 23.0043X

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Protection by enclosure, Ex tb

Model 8600D 4-20mA HART Vortex Flowmeter
Model 8800D 4-20mA HART Vortex Flowmeter

Ex tb IIIC T85°C Db (-20°C ≤ Ta ≤ +70°C)

Maximum Working Voltage = 42V d.c.

Model 8600D Modbus Vortex Flowmeter
Model 8800D Modbus Vortex Flowmeter

Ex tb IIIC T85°C Db (-20°C ≤ Ta ≤ +70°C)

Maximum Working Voltage = 42V d.c.

Model 8600D Foundation Fieldbus Vortex Flowmeter
Model 8800D Foundation Fieldbus Vortex Flowmeter

Ex tb IIIC T85°C Db (-20°C ≤ Ta ≤ +70°C)

Maximum Working Voltage = 32V d.c.

Type nA ic / ec ic

Model 8600D 4-20mA HART Vortex Flowmeter / Model 8600D Modbus Vortex Flowmeter
Model 8800D 4-20mA HART Vortex Flowmeter / Model 8800D Modbus Vortex Flowmeter

Ex nA ic IIC T5 Gc (-50°C ≤ Ta ≤ +70°C) or Ex ec ic IIC T5 Gc (-50°C ≤ Ta ≤ +70°C)

Maximum Working Voltage = 42V d.c.

Model 8600D Foundation Fieldbus Vortex Flowmeter
Model 8800D Foundation Fieldbus Vortex Flowmeter

Ex nA ic IIC T5 Gc (-50°C ≤ Ta ≤ +60°C) or Ex ec ic IIC T5 Gc (-50°C ≤ Ta ≤ +60°C)

Maximum Working Voltage = 32V d.c.