

1 **EU - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 2014/34/EU**

3 EU - Type Examination Certificate Number: **SGS23ATEX0088X**

4 Product: **Model 8600D / 8800D Vortex Flowmeter**

5 Manufacturer: **Emerson – Rosemount, Micro Motion Inc.**

6 Address: **12001 Technology Drive, Eden Prairie, MN 55344, USA**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/SGS/ExTR23.0092/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 IEC 60079-11:2023 EN 60079-31:2014

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

See Schedule

SGS Fimko Oy Customer Reference No. **7305**

Project File No. **23/0184**

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Schedule

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Certificate Number SGS23ATEX0088X

15 Description of Product

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.

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.

The certification codes and input parameters of the different variants of the equipment are as follows:

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

⊕ II 1 G 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

⊕ II 1 G 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

⊕ II 1 G 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

⊕ II 1 G 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:

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

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

⊕ II 2 D 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

⊕ II 2 D 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=

⊕ II 2 D Ex tb IIIC T85°C Db (-20°C ≤ Ta ≤ +70°C)

Maximum Working Voltage = 32V d.c.

16 Report Number

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17 Specific Conditions of Use

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.

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	LVD type requirements
1.2.8	Overloading of equipment (protection relays, etc)
1.4.1	External effects
1.4.2	Aggressive substances, etc

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
08600-0101	1 - 4	AH	07/24/23	Approval Drawing for Model 8600D Intrinsically Safe Configuration, ATEX / IECEx, 4/20mA / HART / Fieldbus / MODBUS
08800-0101	1 – 6	BI	07/24/23	Approval Drawing for Model 8800D Intrinsically Safe Configuration, ATEX / IECEx, 4/20mA / HART / Fieldbus / MODBUS
08800-5506	1 of 1	AE	05/02/19	Filter: EMI
08800-7019	1 – 5	AH	01/06/21	Coplanar Transformer I.S. 250V Spaced
08800-7020	1 to 3	AJ	7/7/15	Transformer, Vortex
08800-7022	1 – 3	AG	01/26/23	Transformer, 250V IS, Vortex
08800-7606	1 of 1	AG	02/14/17	Schematic Diagram, Vortex Terminal Board
08800-7607	1 – 3	AE	12/19/19	PCB, Vortex Terminal Blk Common Electronics
08800-7608	1 – 4	BE	07/02/20	Terminal Block Assembly
08800-7609	1 of 1	AB	03/26/18	Schematic Diagram Vortex LCD Board
08800-7610	1 – 3	AG	12/19/19	Printed Circuit Board LCD Board, 2 Line
08800-7611	1 & 2	AL	03/26/18	PCA, Vortex Shrouded, LCD Board, 2 Line
08800-7616	1 of 1	AG	11/01/06	Schem, Vortex Fieldbus Terminal Board
08800-7617	1 – 3	AK	12/19/19	Terminal Board Fieldbus
08800-7618	1 & 2	BC	07/02/20	Terminal Block Assembly
08800-7700	1 – 4	AQ	08/11/21	Phoenix Vortex Sensor Board
08800-7701	1 to 10	AN	05/01/23	Printed Wiring Board, Phoenix Vortex Sensor Board
08800-7702	1 & 2	AZ	05/02/03	PCA Phoenix Vortex Sensor Board
08800-7703	1 & 2	AR	03/08/18	8800D HART Output Board Schematic
08800-7704	1 – 9	AL	05/02/23	Printed Wiring Board Phoenix Vortex HART Output Board
08800-7705	1 of 1	AS	05/02/23	PCA, Phoenix Vortex HART Output Board
08800-7719	1 – 5	AJ	06/18/19	8800D Fieldbus Hornet Schematic
08800-7720	1 – 6	AH	08/17/23	PWB 8800D Fieldbus Hornet
08800-7721	1 & 2	AI	08/09/23	PCA, 8800D Foundation Fieldbus Hornet Output Board

Number	Sheet	Issue	Date	Description
08800-7740	1 of 1	AB	08/12/20	Schematic Diagram, Vortex Modbus Terminal Brd
08800-7741	1 – 3	AE	05/21/21	PCB, Vortex Modbus Terminal Board
08800-7742	1 of 1	AD	05/21/21	PCA, Vortex Modbus Terminal Board
08800-7743	1 – 4	AD	10/18/21	Schematic Diagram, Vortex Modbus Interface Brd
08800-7744	1 – 3	AE	05/21/21	PCB, Vortex Modbus Interface Board
08800-7745	1 of 1	AE	05/21/21	PCA, Vortex Modbus Interface Board
08800-7746	1 of 1	AE	11/03/21	Vortex HMC HART to Modbus Converter, IS, ROHS

All drawings are common to SGS23ATEX0089X & IECEx SGS 23.0043X