1 # TYPE EXAMINATION CERTIFICATE

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

3 Type Examination Certificate Number: **Baseefa05ATEX0085X – Issue 14**

3.1 In accordance with Article 41 of Directive 2014/34/EU, Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

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

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

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

7 This re-issued certificate extends Type Examination Certificate No. Baseefa05ATEX0085X to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Baseefa certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products of Category 3 intended for use in potentially explosive atmospheres given in Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

The examination and test results are recorded in confidential Report No. **See Certificate History**

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

EN IEC 60079-0: 2018 EN 60079-11: 2012 EN 60079-15: 2010

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 TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment and not to specific items of equipment subsequently manufactured.

12 The marking of the product shall include the following :

⟨Ex⟩ II 3 G Ex nA ic IIC T5 Gc (-50°C ≤ T_a ≤ +70°C) – 4-20mA HART Versions
⟨Ex⟩ II 3 G Ex nA ic IIC T5 Gc (-50°C ≤ T_a ≤ +60°C) – Fieldbus Versions

SGS Baseefa Customer Reference No. **7305** Project File No. **19/0417**

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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa05ATEX0085X – Issue 14**

15 **Description of Product**

The Model 8800D Vortex Flowmeter is a two-wire, piezoelectric-based flowmeter designed to measure the flow of fluid within a pipe.

It consists of four printed circuit boards (PCB's), a terminal block and an optional liquid crystal display unit mounted within a coated aluminium alloy or stainless steel enclosure forming the transmitter assembly. This is either mounted on a stainless steel, nickel alloy, carbon steel or super duplex meter body, or connected via a coaxial cable to a remote meter body which contains the piezoelectric sensor.

The transmitter converts the sensor input to a 4-20mA output, HART digital output or pulse totalizer signal output. The transmitter can be fitted with an alternative Fieldbus output board to form Foundation Fieldbus variants of the Model 8800D Vortex Flowmeters.

Connection to external circuit 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 points. 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.

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

Model 8800D 4-20mA HART Vortex Flowmeter

⟨Ex⟩ II 3 G Ex nA ic IIC T5 Gc (-50°C ≤ T_a ≤ +70°C)

Maximum Working Voltage = 42V d.c.

Model 8800D Foundation Fieldbus Vortex Flowmeter

⟨Ex⟩ II 3 G Ex nA ic IIC T5 Gc (-50°C ≤ T_a ≤ +60°C)

Maximum Working Voltage = 32V d.c.

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 identified above.

16 **Report Number**

See Certificate History

17 **Specific Conditions of Use**

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.

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

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
08800-0101	1 to 7	BG	8/14/19	Approval Drawing for Model 8800D Intrinsically Safe Configuration, ATEX / IECEx, 4/20mA / HART / Fieldbus

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
08800-5506	1 of 1	AD	7/12/17	Filter: EMI
08800-7019	1 to 5	AE	10/22/15	Coplanar Transformer I.S. 250V Spaced
08800-7020	1 to 3	AJ	7/7/15	Transformer, Vortex
08800-7022	1 to 3	AE	2/14/17	Transformer, 250V IS, Vortex
08800-7606	1 of 1	AG	02/14/17	Schematic Diagram, Vortex Terminal Board
08800-7607	1 to 3	AD	02/14/17	PCB, Vortex Terminal Blk Common Electronics
08800-7608	1 to 4	BD	2/15/17	Terminal Block Assembly
08800-7609	1 of 1	AB	03/26/18	Schematic Diagram Vortex LCD Board
08800-7610	1 to 3	AF	08/09/17	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 to 3	AJ	09/07/17	Terminal Board Fieldbus
08800-7618	1 & 2	BB	9/8/17	Terminal Block Assembly
08800-7700	1 to 4	AP	12/19/16	Phoenix Vortex Sensor Board
08800-7701	1 to 10	AM	10/18/17	Printed Wiring Board, Phoenix Vortex Sensor Board
08800-7702	1 & 2	AY	12/19/16	PCA Phoenix Vortex Sensor Board
08800-7703	1 & 2	AR	03/08/18	8800D HART Output Board Schematic
08800-7704	1 to 9	AJ	12/19/16	Printed Wiring Board Phoenix Vortex HART Output Board
08800-7705	1 & 2	AP	12/19/16	PCA, Phoenix Vortex HART Output Board
08800-7719	1 to 5	AG	11/16/10	8800D Fieldbus Hornet Schematic
08800-7720	1 to 3	AC	11/16/10	PWB 8800D Fieldbus Hornet
08800-7721	1 of 1	AF	06/22/15	PCA, 8800D Foundation Fieldbus Hornet Output Board

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 05.0028X, and are also associated with IECEx Certificate No's. IECEx BAS 05.0029X & IECEx BAS 17.0019X, and ATEX Certificate No's. Baseefa05ATEX0084X & Baseefa17ATEX0020X.

20 Certificate History

Certificate No.	Date	Comments
Baseefa05ATEX0085X	22 June 2005	The release of the prime certificate. The associated test and assessment is documented in Certification Report No. 05(C)0045/1.
Baseefa05ATEX0085/1X	11 October 2006	To permit: - i) The optional use of 90V transient suppressors. As a result when fitted the equipment no longer passes the 500V isolation test. An 'X' was added to the equipment marking and a Special Condition of Safe Use was added to the certificate to warn the user of this. ii) Minor drawing changes not affecting the original assessment. iii) To permit the fitting of the Fieldbus Output Board to form the Foundation Fieldbus variant of the Model 8800D Vortex Flowmeter.
Baseefa05ATEX0085/2X	23 March 2007	To confirm the equipment covered by the certificate has been reviewed against the requirements of EN 60079-0: 2004 and EN 60079-15: 2005 in respect of the differences from EN 50021: 1999, and that, with exception of the marking, none of the differences affect the equipment. The equipment is now marked: - ⟨Ex⟩ II 3G Ex nA nL IIC T5 (-40°C ≤ T_a ≤ +70°C)
Baseefa05ATEX0085/3X	30 September 2008	To permit: - i) The fitting of the Hornet Fieldbus Output Board in the Fieldbus variants of the Model 8800D Vortex Flowmeter replacing the previously fitted Vortex Fieldbus Output Board. The Fieldbus variants of the equipment are now coded: - ⟨Ex⟩ II 3G Ex nA nL IIC T4 (-50°C ≤ T_a ≤ +70°C) Maximum Working Voltage = 32V d.c. ii) Minor changes to the Fieldbus Terminal Board and other drawing changes not affecting the original assessment.
Baseefa05ATEX0085/4X	20 January 2009	To permit minor circuit and layout changes to the Vortex Output Board and other minor drawing changes not affecting the original assessment.
Baseefa05ATEX0085/5X	27 September 2010	To permit minor component, PCB and drawing changes not affecting the original assessment.

Certificate No.	Date	Comments
Baseefa05ATEX0085/6X	12 October 2011	To permit: - i) Minor circuit and PCB layout changes to the Sensor Board fitted in all variants of the Model 8800D Vortex Flowmeter and minor component changes to the Fieldbus Hornet Output board fitted in the Fieldbus and FISCO variants of the equipment. These changes do not affect the original assessment. ii) A change of the process temperature range of the piezo sensor on the remote mount versions of the equipment to -202°C to +427°C.In order to ensure that the ambient temperature range of the main electronic housing of the equipment is unaffected, a Specific Condition of Use has been added to the certificate to inform the user that the effect of the process temperature on the ambient temperature of the equipment must be taken into account when installing the equipment. iii) Minor drawing changes not affecting the original assessment. v) To confirm the current designs of the Model 8800D Vortex Flowmeter have been reviewed against the requirements of EN 60079-0: 2009 and EN 60079-15: 2010 in respect of the differences from EN 60079-0: 2004 and EN 60079-15: 2005. As a result of this assessment, parts of the equipment are additionally assessed against the 'ic' requirements of EN 60079-11: 2007 in combination with the requirements of EN 60079-0: 2009 and EN 60079-15: 2010. The revised markings and input parameters of the equipment are as follows: - HART Models: ⟨Ex⟩ II 3G Ex nA ic IIC T5 Gc (-50°C ≤ T_a ≤ +70°C) Maximum Working Voltage = 42V d.c. Fieldbus Models: ⟨Ex⟩ II 3G Ex nA ic IIC T5 Gc (-50°C ≤ T_a ≤ +60°C) Maximum Working Voltage = 32V d.c. The equipment maybe housed in polyurethane coated aluminium enclosure. In accordance with the requirements of EN 60079-0: 2009, a Specific Condition of Use has been added to the certificate to inform the user of precautions relating to cleaning of the enclosure and its protection from impact or abrasion when located in Zone 0. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR11.0206/00.
Baseefa05ATEX0085X Issue 7	28 May 2014	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-0: 2012 & EN 60079-11: 2012 in respect to the differences with EN 60079-0: 2009 and EN 60079-11: 2007. This issue of the certificate also permits minor circuit and drawing changes not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR14.0125/00.

Certificate No.	Date	Comments
Baseefa05ATEX0085X Issue 8	9 March 2015	This issue of the certificate permits: - i) The fitting of an alternative transformer 08800-7022 on the Vortex Sensor Board. The fitting of the alternative transformer does not affect the original assessment. ii) Minor circuit and PCB layout changes to the Vortex HART Output Board not affecting the original assessment. The above changes are documented in Certification Report No. GB/BAS/ExTR15.0055/00 (held with IECEx Certificate No. IECEx BAS 05.0028X Iss. 10).
Baseefa05ATEX0085X Issue 9	18 February 2016	This issue of the certificate permits: - i) Minor changes to the design of the transformers fitted on the equipment not affecting the original assessment. ii) Minor PCB and drawing changes not affecting the original assessment. iii) To confirm the current designs of the Model 8800D Vortex Flowmeters has been reviewed against the requirements of EN 60079-0: 2012 + A11: 2013 with respect to the differences from EN 60079-0: 2012, and none of the differences affect the equipment. The standards listed on page 1 of the certificate were updated. The above changes are documented in Certification Report No. GB/BAS/ExTR16.0044/00 (held with IECEx Certificate No. IECEx BAS 05.0028X Iss. 11).
Baseefa05ATEX0085X Issue 10	5 May 2017	This issue of the certificate permits minor drawing changes not affecting the original assessment. The above changes are documented in Certification Report No. GB/BAS/ExTR17.0041/00 (held with IECEx Certificate No. IECEx BAS 05.0028X Iss. 12).
Baseefa05ATEX0085X Issue 11	20 October 2017	This issue of the certificate permits minor mechanical, PCB and drawing changes not affecting the original assessment. The above changes are documented in Certification Report No. GB/BAS/ExTR17.0223/00 (held with IECEx Certificate No. IECEx BAS 05.0028X Iss. 13).
Baseefa05ATEX0085X Issue 12	12 February 2018	This issue of the certificate permits the fitting of an alternative piezo sensor in all variants of the equipment, and the fitting of an alternative fire rated cable on remote sensor mounted variants of the equipment. The above changes are assessed not to affect the original assessment of the equipment, and are documented in Certification Report No. GB/BAS/ExTR17.0375/00 (held with IECEx Certificate No. IECEx BAS 05.0028X Iss. 14), Project File No. 17/0626.

Certificate No.	Date	Comments
Baseefa05ATEX0085X Issue 13	11 April 2019	This issue of the certificate permits minor circuit and drawing changes not affecting the previous assessment. This issue also confirms the current designs of the Model 8800D Vortex Flowmeter have been reviewed against the requirements of EN IEC 60079-0: 2018 in respect of the differences to EN 60079-0: 2012 + A11: 2013, and none of the differences affect the equipment. The standards listed on page 1 of the certificate were updated. The above changes are documented in Certification Report No. GB/BAS/ExTR19.0066/00 (held with IECEx Certificate No. IECEx BAS 05.0028X Iss. 15).
Baseefa05ATEX0085X Issue 14	27 August 2019	This issue permits the fitting of four Model 8800D Vortex Flowmeters onto a common process pipework to form the Model 8800DQ Quad Vortex Flowmeter. The four flowmeters fitted can be either the fixed or remote mounted variants of the Model 8800D and be a mixture of HART or Foundation Fieldbus variants of the equipment. The certification and input parameters to each Model 8800D remain as previously assessed. The Equipment Schedule was revised to detail the Model 8800DQ variant. The above changes are documented in Certification Report No. GB/BAS/ExTR19.0207/00 (held with IECEx Certificate No. IECEx BAS 05.0028X Iss. 16). Project File No. 19/0417.
For drawings applicable to each issue, see original of that issue.		