1. EU-TYPE EXAMINATION CERTIFICATE

2. **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 2014/34/EU**

3. **EU-Type Examination Certificate No:** **FM08ATEX0052X**

4. **Equipment or protective system: (Type Reference and Name)** **4000 M-Series Magnetic Flowmeter, Magnetic Flowmeter Amplifier and Magnetic Flowmeter Detector**

5. **Name of Applicant:** **Badger Meter Inc**

6. **Address of Applicant** **4545 W Brown Deer Rd, Milwaukee, Wisconsin 53223, United States of America**

7. This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

8. FM Approvals Europe Ltd, notified body number 2809 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

   The examination and test results are recorded in confidential report number:

   3033898EC dated 6th July 2009

9. Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

   EN IEC 60079-0:2018, EN 60079-1:2014, EN IEC 60079-7:2015+A1:2018, EN 60079-11:2012, EN 60529:1991+A1:2000+A2:2013

10. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

11. This EU-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

Certificate issued by:

Digitally signed by Richard Zammitt
Location: Ireland
Foxit PDF Editor Version: 13.1.0

Certification Manager, FM Approvals Europe Ltd. Date 25 June 2024

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12. The marking of the equipment or protective system shall include:

    Refer to Annex.

13. **Description of Equipment or Protective System:**

    The model 4000 M-series are flowmeters used for the measurement of the flow of conductive fluid in pipes. A magnetic field is generated by coils and a voltage proportional to the flow is induced across two electrodes. A third electrode is used to detect an empty pipe. The 4000 M-Series flowmeters come in two different configurations; with the sensor mounted integral to the transmitter (meter mount) and with the sensor mounted remotely from the transmitter (remote mount). The 4000 M-series flowmeters are designed as Category 2 apparatus with intrinsically safe electrodes. The operating ambient temperature range is -20ºC to +50°C.

    The enclosures have a ingress protection rating of IP66.

    The flow-tube detectors are available in sizes from ¼" (DN6) through 12" (DN300). Different liner and electrode materials are available depending upon the option code specified.
    The electrodes in contact with the process media are intrinsically safe "ia" and have been evaluated as simple apparatus. The power to these electrodes is provided from a barrier circuit located in the transmitter enclosure.

    Electrical Ratings:
    U = 85 to 240Vac, 50 to 60 Hz, power consumption 15 VA; or 24Vdc, power consumption 4.7 VA.

    Refer to Annex for model code information.

14. **Specific Conditions of Use:**

    1. Contact the manufacturer for dimensional information on the flameproof joints.

15. **Essential Health and Safety Requirements:**

    The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16. **Test and Assessment Procedure and Conditions:**

    This EU-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

    Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Europe Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

    This Certificate has been issued in accordance with FM Approvals Europe Ltd's ATEX Certification Scheme.

17. **Schedule Drawings**

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A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body. These drawings are maintained under project ID 3015930.

18. **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
7 July 2009	Original Issue.
12 February 2010 to 5 April 2019	Supplement 1 to Supplement 14: See certificate dated 5th April 2019 for details.
8 May 2019	Supplement 15: Report Reference: RR217944 dated 07th May 2019. Description of the Change: New version of the product, with Modbus or without Modbus.
28 June 2019	Supplement 16: Report Reference: RR219460 dated 27th June 2019. Description of the Change: Minor documentation updates related to the previous Modbus addition.
23 August 2019	Supplement 17: Report Reference: RR220226 dated 22nd August 2019. Description of the Change: Update to 24Vdc Power supply board component and additional minor document updates.
25 February 2020	Supplement 18: Report Reference: RR222442 dated 20th February 2020. Description of the Change: Update firmware on Document No. 98997.
9 April 2020	Supplement 19: Report Reference: RR223238 dated 08th April 2020. Description of the Change: Updated Data Sheets and User Manuals to match report, correct power supply information for 85-240 VAC units.
25 March 2021	Supplement 20: Report Reference: RR226790 dated 25th March 2021. Description of the Change: Updated assembly drawings, editorial corrections and component update.
24 May 2021	Supplement 21: Report Reference: RR228262 dated 21st May 2021. Description of the Change: Updated Fixation Stopper Cover Latch drawing 64835.

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SCHEDULE

EU-Type Examination Certificate No. FM08ATEX0052X

Date	Description
14 October 2021	Supplement 22: Report Reference: RR227058 dated 12th October 2021. Description of the Change: 1. Minor technical document revisions for additional UKCA certification and clarification of Specific Conditions of Use in instructions. 2. Gap analysis EN 60079-0:2012 +A11:2013 to EN IEC 60079-0:2018.
31 March 2022	Supplement 23: Report Reference: RR231859 dated 23rd March 2022. Description of the Change: Minor editorial drawing revisions only: corrected manufacturer address, changed color of logo.
24 October 2022	Supplement 24: Report Reference: RR233281 dated 21st October 2022 Description of the Change: Minor design change not affecting compliance. Minor drawing changes not affecting compliance.
4 April 2023	Supplement 25: Report Reference: RR235877 dated 31st March 2023. Description of the Change(s): Minor drawing changes not affecting compliance.
28 March 2024	Supplement 26: Report Reference: RR240420 dated 3 March 2024. Description of the Change(s): Updated to Instruction Manual. Certificate Annex added.
25 June 2024	Supplement 27: Report Reference: RR241863 dated18 June 2024. Description of the Change(s): Minor documentation updates.

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ANNEX

4000-MbcdMfghi. M-Series Magnetic Flowmeter

Markings:

Magnetic Flowmeter
II 2 G Ex db eb ia IIC T3 Gb Ta = -20°C to +50°C

Description of Equipment:

4000-MbcdMfghi. M-Series Magnetic Flowmeter
b = Liner material R, T, P, H, or S.
c = Electrodes H, S, G, T, or R.
d = End flange D or S.
f = Number of electrodes T or F.
g = Detector size 6, 8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200, 250, or 300.
h = Input Voltage H (85 – 240Vac) or L (24Vdc)
i = Modbus M or blank.

4000-RbcdMfghi. M-Series Magnetic Flowmeter Amplifier.

Markings:

Magnetic Flowmeter Amplifer
II 2(2) G Ex db [ia Gb] IIC T4 Gb Ta = -20°C to +50°C

Description of Equipment:

4000-RbcdMfghi. M-Series Magnetic Flowmeter Amplifier.
b = Liner material R, T, P, H, or S.
c = Electrodes H, S, G, T, or R.
d = End flange D or S.
f = Number of electrodes T or F.
g = Detector size 6, 8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200, 250, or 300.
h = Input Voltage H (85 – 240Vac) or L (24Vdc)
i = Modbus M or blank.

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4000-RbcdMfghi. M-Series Magnetic Flowmeter Detector.

Markings:

Magnetic Flowmeter Detector
II 2 G Ex db eb ia IIC T3 Gb Ta = -20°C to +50°C

Description of Equipment:

4000-RbcdMfghi. M-Series Magnetic Flowmeter Detector.
b = Liner material R, T, P, H, or S.
c = Electrodes H, S, G, T, or R.
d = End flange D or S.
f = Number of electrodes T or F.
g = Detector size 6, 8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200, 250, or 300.
h = Input Voltage H (85 – 240Vac) or L (24Vdc)
i = Modbus M or blank.

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Blueprint Report

Badger Meter Inc (1000000081)

Class No 3610

Original Project I.D. 3015930

Certificate I.D. FM08ATEX0052X

Drawing No.	Revision Level	Drawing Title	Last Report
64835	**F**	**Fixation Stopper - Cover Latch**	**RR241863**
64840	E	M-Series Mag Meter Screws	3051329
64850	M	Master Assembly drawing	RR231859
64869	R	M4000 Data Plate-Printed	RR233281
64888	E	PCB DSP/Coil Driver	PR451587
64890	D	PCB Interconnect	RR233281
64891	D	PCB Assembly	RR219460
64903	L	Master Assembly Drawing	RR231859
64981	G	M4000 Series Meter Assembly	RR217796
65602 BOM (4 sheets)	4,5,4,5	M4000 BOM - ATEX	3051329
65602	K	M4000 Zone 1 Enclosure - ATEX	RR217796
65604 BOM (4 sheets)	4,4,4,4	M4000 BOM - ATEX	3051329
65604	J	M4000 Junction Box Assembly - ATEX	RR219460
65698 BOM	1-54,101-154(1)	M4000 Series Meter Assembly BOM	RR201766
65698	B	Detector Zone 1	RR201766
65748	G	24V PCB Power Supply	RR233281
65762	R	M4000 Series 24VDC Data Plate-Printed	RR233281
68997	J	PCBA, DSP/COIL DRIVER, MOD. MAG AMP W/ MODBUS	RR226790
69000 BOM	1	BOM M Series Mag Meter Modbus 001-054, 101-154	RR217944
69000	A	M4000 Series Modbus Meter Assy	RR217944
69008 BOM	1	BOM Mseries Mag Meter 001-054, 101-154	RR217944
69008	A	M4000 Series Modbus Meter Assy ATEX	RR217944
69016 BOM	1	BOM Mount Assy Modbus -001, -002, -005 and -006.	RR217944
69016	A	M4000 Series Amplifier Modbus FM	RR217944
69020 BOM	1	BOM M4000 Mount Assy Modbus -001, -002, -003 and -004	RR217944
69020	B	M4000 SERIES AMPLIFIER MODBUS ATEX	RR217796
69203	A	PCB_24V Power Supply	RR220226
B-64881	A	Ground Braid	3051329
C-64757	A	Back Plate	FM08ATEX0052
C-64874	A	Feed Thru	FM08ATEX0052
C-64884	B	PCB Assembly EFBIE	RR207683
C-64889	E	PCB Display	25-Oct-12
C-64932	D	Master Assembly Drawing	RR208816
C-64947	C	Display	25-Oct-12
C-64961	C	Master Assembly drawing	RR208816
C-64978	F	9155 Cable - Electrode	RR217796
C-65515	A	Marker Pin	FM08ATEX0052
MAG-DS-00558-EN	**16**	**Product Data Sheet**	**RR241863**
MAG-UM-03752-EN	**4**	**M4000 User Manual - ATEX**	**RR241863**
MS-300-1	B	M SERIES MAG METER RUBBER, LINER	RR208816
PS-325	A	Process Spec	3051329