1. UNITED KINGDOM CONFORMITY ASSESSMENT
UK-TYPE EXAMINATION CERTIFICATE

2. **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1**

3. **UK-Type Examination Certificate No:** **FM21UKEX0006X**

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 Ltd, Approved Body number 1725, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

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

   3015930revRR227058 dated 12th October 2021

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 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 UK-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance with the Regulations. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

Certificate issued by:

27 June 2024

Victor Aluko-Oginni
Certification Manager, FM Approvals Ltd.

Date

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

UKAS PRODUCT CERTIFICATION 0259

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 an 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.

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 UK-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 UKCA Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Regulations in all applications.

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

17. **Schedule Drawings**

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

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

18. **Certificate History**

Details of the supplements to this certificate are described below:

Date	**Description**
19 October 2021	Original Issue.
4 April 2022	Supplement 1: Report Reference: RR231859 dated 23rd March 2022. Description of the Change: Minor editorial drawing revisions only: corrected manufacturer address, changed color of logo.
2 November 2022	Supplement 2: Report Reference: RR233281 dated 21st October 2022. Description of the Change: Minor design change not affecting compliance. Minor drawing changes not affecting compliance.
20 April 2023	Supplement 3: Report Reference: RR235877 dated 31st March 2023 Description of the Change: Minor drawing changes not affecting compliance.
29 March 2024	Supplement 4: Report Reference: RR240420 dated 3 March 2024. Description of the Change(s): Updated to Instruction Manual. Certificate Annex added
27 June 2024	Supplement 5: Report Reference: RR241863 dated 18 June 2024. Description of the Change(s): Minor documentation updates.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

ANNEX

4000-MbcdMfghi. M-Series Magnetic Flowmeter

Markings:

II 2 G Ex db eb ia IIC T3 Gb Ta = 50°C; IP66

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:

II 2(2) G Ex db [ia Gb] IIC T4 Gb Ta = 50°C – IAB-183; IP66

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
i = Modbus M or blank.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

4000-RbcdMfghi. M-Series Magnetic Flowmeter Detector.

Markings:

II 2 G Ex db eb ia IIC T3 Gb Ta = 50°C; IP66

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.

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals Ltd. Voyager Place, Maidenhead, Berkshire, SL6 2PJ. United Kingdom
T: +44 (0) 1753 750 000 F: +44 (0) 1753 868 700 E-mail: atex@fmapprovals.com www.fmapprovals.com

Blueprint Report

Badger Meter Inc (1000000081)

Class No 3610

Original Project I.D. 3015930

Certificate I.D. FM21UKEX0006X

Drawing No.	Revision Level	Drawing Title	Last Report	Electronic Drawing
64835	**F**	**Fixation Stopper - Cover Latch**	**RR241863**	**Yes (pdf)**
64840	E	M-Series Mag Meter Screws	RR227058	Yes (pdf)
64850	M	Master Assembly drawing	RR231859	Yes (pdf)
64869	R	M4000 Data Plate-Printed	RR233281	Yes (pdf)
64888	E	PCB DSP/Coil Driver	RR227058	Yes (pdf)
64890	D	PCB Interconnect	RR233281	Yes (pdf)
64891	D	PCB Assembly	RR227058	Yes (pdf)
64903	L	Master Assembly Drawing	RR231859	Yes (pdf)
64981	G	M4000 Series Meter Assembly	RR227058	Yes (pdf)
65602 BOM (4 sheets)	4,5,4,5	M4000 BOM - ATEX	RR227058	Yes (pdf)
65602	K	M4000 Zone 1 Enclosure - ATEX	RR227058	Yes (pdf)
65604 BOM (4 sheets)	4,4,4,4	M4000 BOM - ATEX	RR227058	Yes (pdf)
65604	J	M4000 Junction Box Assembly - ATEX	RR227058	Yes (pdf)
65698 BOM	1-54,101-154(1)	M4000 Series Meter Assembly BOM	RR227058	Yes (excel)
65698	B	Detector Zone 1	RR227058	Yes (pdf)
65748	G	24V PCB Power Supply	RR233281	Yes (pdf)
65762	R	M4000 Series 24VDC Data Plate-Printed	RR233281	Yes (pdf)
68997	J	PCBA, DSP/COIL DRIVER, MOD. MAG AMP W/ MODBUS	RR227058	Yes (pdf)
69000 BOM	1	BOM M Series Mag Meter Modbus 001-054, 101-154	RR227058	Yes (pdf)
69000	A	M4000 Series Modbus Meter Assy	RR227058	Yes (pdf)
69008 BOM	1	BOM Mseries Mag Meter 001-054, 101-154	RR227058	Yes (pdf)
69008	A	M4000 Series Modbus Meter Assy ATEX	RR227058	Yes (pdf)
69016 BOM	1	BOM Mount Assy Modbus -001, -002, -005 and -006.	RR227058	Yes (pdf)
69016	A	M4000 Series Amplifier Modbus FM	RR227058	Yes (pdf)
69020 BOM	1	BOM M4000 Mount Assy Modbus -001, -002, -003 and -004	RR227058	Yes (pdf)
69020	B	M4000 SERIES AMPLIFIER MODBUS ATEX	RR227058	Yes (pdf)
69203	A	PCB_24V Power Supply	RR227058	Yes (pdf)
B-64881	A	Ground Braid	RR227058	Yes (pdf)
C-64757	A	Back Plate	RR227058	Yes (pdf)
C-64874	A	Feed Thru	RR227058	Yes (pdf)
C-64884	B	PCB Assembly EFBIE	RR227058	Yes (pdf)
C-64889	E	PCB Display	RR227058	Yes (pdf)
C-64932	D	Master Assembly Drawing	RR227058	Yes (pdf)
C-64947	C	Display	RR227058	Yes (pdf)
C-64961	C	Master Assembly drawing	RR227058	Yes (pdf)
C-64978	F	9155 Cable - Electrode	RR227058	Yes (pdf)
C-65515	A	Marker Pin	RR227058	Yes (pdf)
MAG-DS-00558-EN	**16**	**Product Data Sheet**	**RR241863**	**Yes (pdf)**
MAG-UM-03752-EN	**4**	**M4000 User Manual - ATEX**	**RR241863**	**Yes (pdf)**
MS-300-1	B	M SERIES MAG METER RUBBER, LINER	RR227058	Yes (pdf)
PS-325	A	Process Spec	RR227058	Yes (pdf)