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:** **FM22ATEX0027X**

4. **Equipment or protective system: (Type Reference and Name)** **3000 M-Series Magnetic Flowmeter Amplifier**

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 60079-11:2012, EN 60079-15:2010, 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.

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

    II 3(2)G Ex nA [ia Gb] IIC T3 Gc Ta = -20°C to +50°C

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

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

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

The model 3000 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 3000 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 3000 M-series flowmeters are designed as Category 3 apparatus with intrinsically safe electrodes. The operating ambient temperature range is -20ºC to +50°C.

The enclosures have an ingress protection rating of IP66/IP67.

The flow-tube detectors are available in sizes from ¼" (DN6) to 24" (DN600). 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.

3000-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, 300, 350, 400, 450, 500, or 600.
h = Input Voltage H (85 – 240Vac) or L (24Vdc)
i = Modbus M or blank.

14. **Specific Conditions of Use:**

1. For the option when the Input voltage option h = L, provision shall be made external to the apparatus, to provide a transient protection device the set at a level not exceeding 140 % of the rated voltage at the power supply terminals of the apparatus.

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.

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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**

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**
24 October 2022	Original Issue - reference RR233281
4 April 2023	Supplement 1: Report Reference: RR235877 dated 31 March 2023. Description of the Change(s): Minor drawing changes not affecting compliance.
28 March 2024	Supplement 2: Report Reference: RR240420 dated 3 March 2024. Description of the Change(s): Update to user manual.
25 June 2024	Supplement 3: Report Reference: RR241863 dated 18 June 2024. Description of the Change(s): Minor documentation updates.

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Blueprint Report

Badger Meter Inc (1000000081)

Class No 3610

Original Project I.D. 3015930

Certificate I.D. FM22ATEX0027X

Drawing No.	Revision Level	Drawing Title	Last Report
64835	**F**	**Fixation Stopper - Cover Latch**	**RR241863**
64840	E	M-Series Mag Meter Screws	RR233281
64877	K	Master Assembly drawing	RR233281
64888	E	PCB DSP/Coil Driver	RR233281
64890	D	PCB Interconnect	RR233281
64891	D	PCB Assembly	RR233281
64905	L	Master Assembly Drawing	RR233281
64982	H	M3000 SERIES METER ASSEMBLY	RR233281
64986	Q	M3000 Data Plate-Printed	RR233281
65603 BOM	3,4,3,3	M3000 BOM - ATEX	RR233281
65603	K	M3000 Zone 1 Enclosure - ATEX	RR233281
65605 BOM	3,3,3,3	M3000 BOM - ATEX	RR233281
65605	H	M3000 Series Junction Box Assembly-ATEX	RR233281
65699 BOM	1-72,101-172(1)	M3000 Series Meter Assembly BOM	RR233281
65699	C	Detector Zone 2	RR233281
65748	G	24 V PCB Power Supply	RR233281
65763	P	M3000 Series 24VDC Data Plate-Printed	RR233281
68997	J	PCBA, DSP/COIL DRIVER, MOD. MAG AMP W/ MODBUS	RR233281
69001 BOM	1	BOM M Series Mag Meter Modbus 001-072, 101-172	RR233281
69001	A	M3000 Series Modbus Meter Assy	RR233281
69009 BOM	1	BOM M Series Mag Meter -001 to -072 and -101 to -172	RR233281
69009	A	M3000 Series Modbus Meter Assy ATEX	RR233281
69017 BOM	1	BOM Mount Assy Modbus -001, -002, -005 and -006.	RR233281
69017	A	M3000 Series Amplifier Modbus FM	RR233281
69021 BOM	1	BOM M3000 Mount Assy Modbus -001, -002, -003 and -004	RR233281
69021	D	M3000 SERIES AMPLIFIER MODBUS ATEX	RR233281
69203	A	PCB_24V Power Supply	RR233281
B-64881	A	Ground Braid	RR233281
C-64757	A	Back Plate	RR233281
C-64874	A	Feed Thru	RR233281
C-64884	B	PCB Assembly EFBIE	RR233281
C-64885	C	PCB Assembly	RR233281
C-64886	D	PCB Analog Board EFB 6&7	RR233281
C-64887	F	PCB Amplifier Board	RR233281
C-64945	G	PCB Power Supply	RR233281
C-64947	C	Display	RR233281
C-64961	C	Master Assembly drawing	RR233281
C-64977	G	8770 Cable - Coil	RR233281
C-64978	F	9155 Cable - Electrode	RR233281
C-65515	A	Marker Pin	RR233281
MAG-DS-00493-EN	**14**	**Product Data Sheet**	**RR241863**
MAG-UM-03748-EN	3	M3000 User Manual - ATEX	RR233281
MS-300-1	B	M SERIES MAG METER RUBBER, LINER	RR233281
PS-325	A	Process Spec	RR233281