

CERTIFICATE OF CONFORMITY



Member of the FM Global Group

1. HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS

2. **Certificate No:** FM22US0032
3. **Equipment:** *831**-F1N**-AN*-.**.*.***.*.***.*.*** Ultrasonic
(Type Reference and Name) Flowmeter
4. **Name of Listing Company:** FLEXIM GmbH
5. **Address of Listing Company:** Boxberger Str. 4,
Berlin, 12681, Germany

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

PR457727 dated 4th September 2022

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM 3600:2022, FM 3611:2021, FM 3615:2022, FM 3616:2022, FM 3810:2021, NEMA 250:1991,
ANSI/IEC 60529:2004, ANSI/UL 61010-1:2019, ANSI/UL 121201:2019

8. 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.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. **Equipment Ratings:**

Explosionproof for Class I, Division 1, Groups A, B, C and D; T6 Ta = -40°C to +60°C; indoor and outdoor Type 4X, IP66

Dust-ignitionproof for Class II, Division 1, Groups E, F and G; Class III, Division 1; T6 Ta = -40°C to +60°C; indoor and outdoor Type 4X, IP66

Nonincendive for Class I, II, III Division 2, Groups A, B, C, D, F and G T4A Ta = -40°C to +60°C; indoors and outdoors Type 4X, IP66

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

14 May 2024

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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

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F 347 (Apr 21)



SCHEDULE

US Certificate Of Conformity No: FM22US0032



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11. The marking of the equipment shall include:

Class I Division 1, Groups A, B, C, D; T6 Ta = -40°C to +60°C; Type 4X, IP66

Class II, Division 1, Groups E, F, G, Class III, Division 1; T6 Ta = -40°C to +60°C; Type 4X, IP66

NI, Class I, II, III, Div. 2, GP A, B, C, D, F, G T4A Ta = -40°C to +60°C, Type 4X, IP66

12. **Description of Equipment:**

General - The ***831**-F1N**-*AN*-**.***.***.***.***** Ultrasonic Flowmeter is used to measure the flow velocity of a gas or liquid flowing in a pipe. The complete measurement system consists of a transmitter and ultrasonic transducers mounted to the outside of the pipe. Ultrasonic signals are sent through the medium and received by the transducers. The transmitter controls the measuring cycle, eliminates the disturbance signals and analyses the useful signals. The measured values can be displayed, used for calculations and transmitted. This Approval only covers the flowmeter transmitter and does not include Approval of the transducers. The maximum operating ambient temperature is 60°C.

Construction - The ***831**-F1N**-*AN*-**.***.***.***.***** Ultrasonic Flowmeter consists of a main explosionproof two-compartments enclosure as the electronics and power/signal terminal block housing built together with another explosionproof enclosure as the transducer terminal block housing.

Both enclosures are made of aluminum, and they are linked by an M24 threaded multicore bushing with hexagon nipple, which holds them together secured with glue and provides electrical connections between the two housings. Inside the main explosionproof enclosure and between the two separate compartments, there are three D22 plugged line bushings that provide electrical connections between power/signal terminal block and main electronics with a display.

The ***831**-F1N**-*AN*-**.***.***.***.***** Ultrasonic Flowmeter main two compartments explosionproof enclosure comes with four ¾ inch NPT thread external cable entries and the explosionproof transducer terminal block housing comes with two ½ inch NPT threads external cable entries.

Ratings - The Model ***831**-F1N**-*AN*-**.***.***.***.***** Ultrasonic Flowmeter is powered at 11-16Vdc, 20-32Vdc, 11-32Vdc and 90-265Vac 50/60 Hz at a maximum ambient temperature of Ta= +60°C

a831bb-F1Ncc-dANe-ff.ggg.hhh.iii.jjj

a = F, G, H, S, R (Fluid class)

bb = any two combination AA, AB, ...ZZ

cc = any two combination AA, AB, ...ZZ

d = 1, 2 (two ultrasonic measurement channels)

e = 1, 2, 3, 4 (power supply 90-265Vac, 20-32Vdc, 11-16Vdc, 11-32Vdc)

ff = NN, BM, FF, HS, MR, PA, RS

ggg = NNN, CS1, CS2, MN1, MN2, MN3, TT1, IS1, IS2

hhh = NNN, CS1, CS2, MN1, MN2, MN3, TT1, IS1, IS2

iii = NNN, CS1, CS2, MN1, MN2, MN3, TT1, IS1, IS2

jjj = NNN, CS1, CS2, MN1, MN2, MN3, TT1, IS1, IS2

To verify the availability of the Approved product, please refer to www.approvalguide.com

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F 347 (Apr 21)



Page 2 of 3

SCHEDULE

US Certificate Of Conformity No: FM22US0032



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13. Specific Conditions of Use:

None

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
4 September 2022	Original Issue.
26 January 2023	<u>Supplement 1:</u> Report Reference: RR235626, dated 26 th January 2023. Description of the Change: Certificate and Approval Guide changes to reflect the updated model code structure changes accepted through request RR234794.
14 May 2024	<u>Supplement 2:</u> Report Reference: RR239382 dated 14 May 2024. Description of the Change(s): Minor change to electronics. Revise marked/specified input voltage range to reflect possible power grid dips and peaks.

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