

[1] **EU-TYPE EXAMINATION CERTIFICATE - TRANSLATION**



[2] Equipment and protective systems intended for use in potentially explosive atmospheres, directive 2014/34/EU

[3] EU-Type Examination Certificate Number **IBExU20ATEX1103 X** | Issue 1

[4] Equipment: **Ultrasonic Flowmeter**
Type: 831-xyz

[5] Manufacturer: **FLEXIM Flexible Industriemesstechnik GmbH**

[6] Address: **Boxberger Straße 4**
12681 Berlin
GERMANY

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-22-3-0077.

[9] Compliance with the essential health and safety requirements has been assured by compliance with:
EN IEC 60079-0:2018 EN 60079-1:2014 EN IEC 60079-7:2015+A1:2018 EN 60079-11:2012
EN 60079-31:2014

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 EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

[12] The marking of the product shall include the following:

Types 831-ANN and 831-SNN:

II 2G Ex db eb IIC T6 Gb

II 2D Ex tb IIIC T100 °C Db

Types 831-AAN, 831-AAF, 831-SAN and 831-SAF:

II 2G Ex db eb ia IIC T6 Gb

II 2D Ex tb ia IIIC T100 °C Db

Types 831-ABF, 831-ABN, 831-SBF and 831-SBN:

II (1)2G Ex db eb ia [ia Ga] IIC T6 Gb

II (1)2D Ex tb ia [ia Da] IIIC T100 °C Db

Types 831-AEN and 831-SEN:

II (1)2G Ex db eb [ia Ga] IIC T6 Gb

II (1)2D Ex tb [ia Da] IIIC T100 °C Db

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Certificates without seal and signature are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2023-01-30

[13] **Schedule**

[14] **Certificate Number IBExU20ATEX1103 X | Issue 1**

[15] **Description of product**

[16] The Ultrasonic Flowmeter type 831-xyz is designed to measure the flow velocity of mediums (gases or liquids) in pipes. It consists of a flameproof enclosure of aluminium (type 831-Ayz) or stainless steel (type 831-Syz) with an electronic assembly and Ex-e connection compartment for connecting power supply and signals as well as for connecting the separately certified ultrasonic sensors (separate Ex-e connection housing for type 831-Ayz).

For types 831-xAz, 831-xBz und 831-xEz, several signal inputs and signal outputs are designed in the type of protection Ex ia.

For group IIIC, protection is provided by the type of protection Ex tb.

Technical data:

- Ambient temperature range: -40 °C up to +60 °C (type 831-AyN)
-40 °C up to +50 °C (type 831-AyF)
-20 °C up to +60 °C (type 831-SyN)
-20 °C up to +50 °C (type 831-SyF)
- Nominal voltage (type 831-xNN): 100...230 V AC, 11...32 V DC
- Nominal voltage (all other types): 11...32 V DC
- Power input: max. 15 W

Signal outputs type of protection Ex eb (type 831-xNN):

- Current active and passive
- Frequency
- Pulse
- Binary

Signal inputs type of protection Ex eb (type 831-xNN):

- Current active and passive
- Temperature

Communication interfaces type of protection Ex eb (type 831-xNN):

- BACnet MS/TP
- Modbus RTU
- HART
- RS485
- Profibus PA
- Foundation Fieldbus
- M-Bus
- USB (only for use outside explosive atmospheres)

Signal outputs type of protection Ex ia (types 831-xAz and 831-xBz):

- Current passive
- Pulse
- Binary
- Frequency, all:
 - o $U_m = 120\text{ V}$
 - o $L_i = 50\text{ nH}$
 - o $C_i = 1\text{ nF}$

		or	or	or
U_i	27 V	28 V	29 V	30 V
I_i	115 mA	107 mA	100 mA	93 mA
P_i	776 mW	749 mW	725 mW	698 mW

Signal inputs type of protection Ex ia (types 831-xBz and 831-xEN):

- Current
 - o $U_m = 120\text{ V}$
 - o $U_o = 29.2\text{ V}$
 - o $I_o = 88\text{ mA}$
 - o $P_o = 640\text{ mW}$
 - o $C_o = 73\text{ nF}$
 - o $L_o = 4.1\text{ mH}$

- Temperature
 - o $U_m = 120\text{ V}$
 - o $U_o = 9.2\text{ V}$
 - o $I_o = 25\text{ mA}$
 - o $P_o = 57\text{ mW}$
 - o $C_o = 4283\text{ nF}$
 - o $L_o = 57\text{ mH}$

Signal communication interfaces type of protection Ex ia (types 831-xAF and 831-xBF):

- Foundation Fieldbus
- Profibus PA, all:
 - o $U_m = 120\text{ V}$
 - o $L_i = 10\text{ }\mu\text{H}$
 - o $C_i = \text{negligible low}$

Group	IIC	IIB
U_i	24 V	17.5 V
I_i	174 mA	380 mA
P_i	1044 mW	1663 mW

or FISCO

- HART:
 - o $U_m = 120\text{ V}$
 - o $L_i = 50\text{ nH}$
 - o $C_i = 1\text{ nF}$

		or	or	or
U_i	27 V	28 V	29 V	30 V
I_i	115 mA	107 mA	100 mA	93 mA
P_i	776 mW	749 mW	725 mW	698 mW

Variations compared to Issue 0 of this certificate:

- Type 831-Syz with stainless steel housing was added.
- Type code has been changed.
- Alternative electronic components can be used.

[17] Test report

The test results are recorded in the confidential test report IB-22-3-0077 of 2023-01-17. The test documents are part of the test report and they are listed there.

Summary of the test results

The Ultrasonic Flowmeter type 831-xNN fulfils the requirements of explosion protection for equipment of Group II, Category 2G, type of protection flameproof enclosure "db" and Increased safety "eb" and Category 2D, type of protection dust ignition protection by enclosure "tb".

The Ultrasonic Flowmeter type 831-xAz, 831-xBz and 831-xEN fulfils the requirements of explosion protection for equipment of Group II, Category 2G, type of protection flameproof enclosure "db" and increased safety "eb" in combination with intrinsic safety "ia" and Category 2D, type of protection dust ignition protection by enclosure "tb" in combination with intrinsic safety "ia".

[18] Special conditions for use

- The Ultrasonic Flowmeter can be used in an increased ambient temperature range.
- Repairs of the flameproof joints must be made in compliance with the constructive specifications provided by the manufacturer. Repairs must not be made on the basis of values specified in tables 2 and 3 of EN 60079-1.
- The Ultrasonic Flowmeter type 831-Syz may only be used horizontally or with the display downwards.

[19] 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 test report:

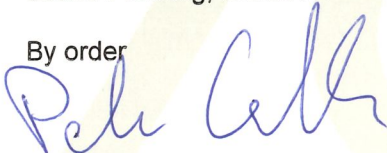
- not applicable -

[20] Drawings and documents

The documents are listed in the test report.

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Freiberg, 2023-01-30