



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEX Scheme visit www.iecex.com

Certificate No.: **IECEX IBE 20.0015X** Page 1 of 4 [Certificate history:](#)
Status: **Current** Issue No: 1 [Issue 0 \(2021-05-21\)](#)
Date of Issue: 2023-01-30
Applicant: **FLEXIM Flexible Industriemesstechnik GmbH**
Boxberger Straße 4
12681 Berlin
Germany
Equipment: **Ultrasonic Flowmeter 831-xyz**
Optional accessory:
Type of Protection: **db eb ia tb**
Marking: Types 831-ANN and 831-SNN: Ex db eb IIC T6 Gb Ex tb IIIC T100 °C Db
Types 831-AAN, 831-AAF, 831-SAN and 831-SAF: Ex db eb ia IIC T6 Gb Ex tb ia IIIC T100°C Db
Types 831-ABF, 831-ABN, 831-SBF and 831-SBN: Ex db eb ia [ia Ga] IIC T6 Gb Ex tb ia [ia Da] IIIC T100°C Db
Types 831-AEN and 831-SEN: Ex db eb [ia Ga] IIC T6 Gb Ex tb [ia Da] IIIC T100°C Db

Approved for issue on behalf of the IECEX
Certification Body:

Dr.-Ing. Peter Cimalla

Position:

Deputy Head of department Certification Body

Signature:
(for printed version)

Date:
(for printed version)

2023-01-30

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IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7
09599 Freiberg
Germany





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Manufacturer: **FLEXIM Flexible Industriemesstechnik GmbH**
Boxberger Straße 4
12681 Berlin
Germany

Manufacturing
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-1:2014-06](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[IEC 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[DE/IBE/ExTR20.0023/00](#)

[DE/IBE/ExTR20.0023/01](#)

Quality Assessment Report:

[DE/IBE/QAR11.0003/08](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

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.

The nomenclature is designed in the following way: 831-xyz

x	Enclosure type:	A = aluminium S = stainless steel
y	Type of protection signals:	N = not Ex i A = Ex ia outputs B = Ex ia outputs and inputs E = Ex ia inputs
z	Ex i, Fieldbus:	N = not Ex i F = Ex ia Fieldbus

Technical data:

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

More details see Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The Ultrasonic Flowmeter can be used in an extended 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 IEC 60079-1.
- The Ultrasonic Flowmeter type 831-Syz may only be used horizontally or with the display downwards.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

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

Annex:

[Annex IECExIBE20_0015X_01.pdf](#)



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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 $L_o = 57\text{ mH}$



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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 $L_i = 10\ \mu\text{H}$
 - o $C_i = \text{negligibly low}$

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

or

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- 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