



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: IECEx SIR 17.0071X

Issue No: 1

Certificate history:

Issue No. 1 (2019-01-02)

Issue No. 0 (2018-06-14)

Status: **Current**

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Date of Issue: **2019-01-02**

Applicant: **BEx Solutions GmbH**
Lange Straße 99
76199 Karlsruhe
Germany

Equipment: **The equipment name is BEx1-Remote IO, Type 14*****.**

Optional accessory:

Type of Protection: **Increased Safety, Encapsulation and Intrinsically Safe Dust**

Marking:

Ex eb mb [ia Ga] IIC T4 Gb

[Ex ia Da] IIIC

Ta = -40°C to +70°C (Permitted range of the internal service temperature inside the additional enclosure:)

*Approved for issue on behalf of the IECEx
Certification Body:*

C Ellaby

Position:

Deputy Certification Manager

*Signature:
(for printed version)*

Date:

2019-01-02

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

SIRA Certification Service
CSA Group
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
United Kingdom





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Manufacturer: **BEx Solutions GmbH**
Lange Straße 99
76199 Karlsruhe
Germany

Additional Manufacturing location(s):

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 apparatus 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 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-18 : 2017 Edition:4.1	Explosive atmospheres - Part 18: Protection by encapsulation "m"
IEC 60079-7 : 2017 Edition:5.1	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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 Report:

GB/SIR/ExTR18.0098/00 GB/SIR/ExTR18.0227/00

Quality Assessment Report:

DE/PTZ/QAR18.0002/00



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The equipment is a remote IO system which isolates the non-intrinsically safe input circuits and the supply circuits from the intrinsically safe output circuits. It provides a transfer of non-intrinsically safe input signals to intrinsically safe output signals. The input circuits are suitable to be located in EPL Gb and the output circuits are suitable to be connected to other intrinsically safe circuits in EPL Ga. The equipment is also suitable to be located outside a hazardous area and the output circuits to be connected to other intrinsically safe circuits in EPL Da. The remote IO system includes a variety of different modules, differing in the bus type to be connected. The equipment requires an enclosure which is fully certified and the installation of the IO modules must be acknowledged by the certification of the enclosure.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The BEx1-Remote IO of the types 14200100, 14200200, 14200300, 14200400, 14200500 and 14200600 shall be mounted in an enclosure which is fully certified according to the IECEx-Scheme. The installation of the IO modules of the types mentioned above shall be acknowledged by the certification of the enclosure.
2. The permitted range of the service temperature after installation inside the additional enclosure is -40°C to +70°C.
3. The non-intrinsically safe terminals of the equipment (terminals X9 and X10) shall be supplied by a source providing SELV output circuit or conforming to IEC 61010 or IEC 60950 (Um=30V DC).



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EQUIPMENT (continued):

Conditions of manufacture

The Manufacturer shall comply with the following:

1. In accordance with IEC 60079-11:2011 clause 11.2, each manufactured sample of the equipment shall be subjected to an electric strength test according to clause 10.3, using a test voltage of 1500 Vac applied between the input windings and the output windings of each transformer. There shall be no evidence of flashover or breakdown and the maximum current flowing shall not exceed 5 mA.
2. In accordance with IEC 60079-18:2014 clause 9.1, each manufactured item shall be subjected to a visual inspection. No damage shall be evident, such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion or softening.
3. All types of the BEx1-Remote IO incorporate previously certified terminal blocks for connecting the input and output wirings. It is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these terminal blocks. The manufacturer shall inform Sira of any modifications to the device that may impinge upon the explosion safety design of the BEx1-Remote IO.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1 - this issue recognises the following changes:

1. The change in value of a small number of IS critical resistors across all boards.
2. Addition of the Trafo Shield Board.
3. Addition of alternative component to FET Q2 on the IO board and alternative components for D12, D13, D15 on the Trafo board.
4. Replacement of various non IS critical resistors with 10nF capacitors on the Trafo PCB.
5. Minor update to equipment drawings.
6. Addition of a mechanical cover add-on for the Ex-e cage clamps.
7. Following appropriate assessment to demonstrate compliance with the latest technical knowledge, the documents previously listed; IEC 60079-0:2011 Ed. 6, IEC 60079-7:2015 Ed. 5.0, and IEC 60079-18:2014 Ed. 3 were replaced by IEC 60079-0:2017 Ed. 7, IEC 60079-7:2017 Ed 5.1, and IEC 60079-18:2017 Ed. 4.1 respectively.