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 EPS 19.0093X**

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Certificate history:
Issue 1 (2020-02-25)
Issue 0 (2019-10-17)

Status: **Current**

Issue No: 2

Date of Issue: 2022-05-12

Applicant: **BEx-Solution GmbH**
Lange Straße 99
76199 Karlsruhe
Germany

Equipment: **BEx1-Remote IO - Type 142*****, 143*****, 152*****, 153*****

Optional accessory:

Type of Protection: **eb, ia, mb, tb**

Marking: Type 142***** :

Ex eb mb [ia Ga] IIC T4 Gb
[Ex ia Da] IIIC

Type 143***** :

Ex eb mb [ia Ga] IIC T4 Gb
Ex tb [ia Da] IIIC T110°C Db

Type 152*****:

Ex eb mb IIC T4 Gb

Type 153***** :

Ex eb mb IIC T4 Gb
Ex tb IIIC T110°C Db

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

Position: **Certification Manager**

Signature: (for printed version)

Date: (for printed version) 2022-05-12

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Certificate issued by:

Bureau Veritas Consumer Products Services Germany GmbH
Businesspark A96
86842 Türkheim
Germany

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Certificate No.: **IECEx EPS 19.0093X**

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Manufacturer: **BEx-Solution GmbH**
Lange Straße 99
76199 Karlsruhe
Germany

Manufacturing locations: **BEx-Solution GmbH**
Lange Straße 99
76199 Karlsruhe
Germany

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 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 60079-31:2013 Edition:2 — Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

IEC 60079-7:2017 Edition:5.1 — Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

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 Report:

DE/EPS/ExTR19.0092/02

Quality Assessment Report:

DE/EPS/QAR22.0005/01

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

Type 152*** and 153***** (Ex e)**
The equipment is a remote IO system with increased safe digital IO channels. The equipment are suitable to be located in zone 1 (EPL Gb) and the output circuits are suitable to be connected to increased safety circuits in zone 1 (EPL Gb). The remote IO system includes a variety of different modules, differing in the bus type to be connected.
Type 152*** (IP 20 Modul):** 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.

Type 142*** and 143***** (Ex i)**
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 zone 1 (EPL Gb) and the output circuits are suitable to be connected to other intrinsically safe circuits in zone 0 (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 zone 0 (EPL Ga). The remote IO system includes a variety of different modules, differing in the bus type to be connected.
Type 142*** (IP 20 Modul)**: 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.

The ambient temperature range is: -40 °C ≤ Ta ≤ 70 °C

SPECIFIC CONDITIONS OF USE: YES as shown below:

Type 142***, Type 152*****:**

The BEx1-Remote IO of the types 142***** and type 152***** 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.

The permitted range of the service temperature after installation inside the additional enclosure is -40 °C to +70 °C.

All types:

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).

Equipment (continued):

Electrical data:

Type 142*** and 143***** (Ex i):**

U_m = 30 V DC (Terminals X9 / X10)

Terminal block X1 to X8 (output parameters of each clamp, clamps are not allowed to be combined):

Clamp (26 V): U_o = 26 V d.c.

I_o = 82 mA

P_o = 533 mW

Group IIC				
L_o	3 mH	1 mH	0.5 mH	0 mH
C_o	42 nF	62 nF	78 nF	99 nF
Group IIB / III				
L_o	20 mH	2 mH	0.5 mH	0 mH
C_o	350 nF	350 nF	490 nF	770 nF

Clamp (9.6 V) U_o = 9.6 V d.c.

I_o = 31 mA

P_o = 75 mW

Group IIC				
L_o	49 mH	10 mH	1 mH	0 mH
C_o	310 nF	640 nF	1.1 µF	3.6 µF
Group IIB / III				
L_o	100 mH	10 mH	1 mH	0 mH
C_o	2 µF	3.6 µF	6.1 µF	26 µF

Clamp (GND): Galvanically separated from input GND

	Type: 14200*00	Type: 14200*01	Type: 14200*02
Clamp 1	U_o = 26 V d.c.	U_o = 26 V d.c.	U_o = 9.6 V d.c.
Clamp 2	GND	GND	GND
Clamp 3	U_o = 26 V d.c.	U_o = 9.6 V d.c.	U_o = 9.6 V d.c.
Clamp 4	GND	GND	GND
Clamp 5	U_o = 9.6 V d.c.	U_o = 9.6 V d.c.	U_o = 9.6 V d.c.
Clamp 6	GND	GND	GND
Clamp 7	U_o = 26 V d.c.	U_o = 26 V d.c.	U_o = 9.6 V d.c.
Clamp 8	GND	GND	GND

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Type 152*** and 153***** (Ex e):**

U_m = 30 V DC (Terminals X9 / X10)

Terminal block X1 to X8 (output parameters of each clamp, clamps are not allowed to be combined):

Clamp (24 V): U_{max} = 26 V d.c.

I_{max} = 0.5 A (clamp 3)

I_{max} = 2.0 A (clamp 5)

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Adding new types, minor technical changes.