



# 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](http://www.iecex.com)

Certificate No.: **IECEX UL 18.0030X** Page 1 of 4 [Certificate history:](#)  
Status: **Current** Issue No: 2 [Issue 1 \(2019-01-28\)](#)  
[Issue 0 \(2018-09-28\)](#)  
Date of Issue: 2019-12-19  
Applicant: **ExRobotics B.V.**  
Effenseweg 1  
Breda, 4838 BA  
Netherlands  
Equipment: **ExR-1 Robot Operator and ExR-1 Robot Operator Revision 2**  
Optional accessory:  
Type of Protection: **Flameproof "db", Increased safety "eb", Intrinsic safety "ib", Encapsulation "mb", Powder filling "qb"**  
Marking: Ex db eb ib mb qb IIB T4 Gb  
-20°C ≤ Ta ≤ +50°C

Approved for issue on behalf of the IECEx  
Certification Body:

**Katy A Holdredge**

Position:

**Senior Staff Engineer**

Signature:  
(for printed version)

Date:

2019-12-19

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2. This certificate is not transferable and remains the property of the issuing body.
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**UL LLC**  
333 Pfingsten Road  
Northbrook IL 60062-2096  
United States of America





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Manufacturer: **ExRobotics B.V.**  
Effenseweg 1  
Breda, 4838 BA  
**Netherlands**

Additional manufacturing locations: **ExRobotics B.V.**  
Elektronicaweg 29  
Delft 2628 XG  
**Netherlands**

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 60079-0:2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0

**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 60079-18:2014** Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"  
Edition:4.0

**IEC 60079-5:2015** Explosive atmospheres –Part 5: Equipment protection by powder filling "q"  
Edition:4.0

**IEC 60079-7:2015** Explosive atmospheres – Part 7: Equipment protection by increased safety "e"  
Edition:5.0

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:

[US/UL/ExTR18.0036/02](#)

Quality Assessment Report:

[DK/ULD/QAR18.0002/02](#)



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## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The ExR-1 Robot Operator and ExR-1 Robot Operator Revision 2 are remotely operated robotic vehicles that are used to inspect oil and gas facilities. The ExR-1 Robot Operator and ExR-1 Robot Operator Revision 2 are constructed of certified components including cameras, lights, motors, and various sensors. The various components are interconnected with certified cable glands and suitable cables.

**Please see Annex for additional information.**

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

- Do not repair the flameproof joints of the robot or any of the accessories.
- The flameproof joint of the R Stahl FX15 series beacon will only be secured using fasteners supplied by R Stahl. Where fasteners are used to secure other flameproof joints they have a yield stress  $\geq 450 \text{ Nmm}^2$ .



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

Issue 1: Updates to the Electronics Box and the addition of new sensor options.

Issue 2: Minor drawing updates, the addition of Model ExR-1 Robot Operator Revision 2, a Battery Management System, and the addition of the Infrared Leak Detection Module..

**Annex:**

[Annex to IECEX 18.0030X Issue 2.pdf](#)



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## PARAMETERS RELATING TO THE SAFETY

Maximum Wattage 1300W

Um = 240VAC

## MARKING

Marking has to be readable and indelible; it has to include the following indications:



ExRobotics B.V.  
Effenseweg 1  
4838 DA Breda  
The Netherlands

CE 0539	Year of manufacture	2019	
ExR-1 Robot Operator Revision 2			
EXR-SW-030001			
IECEx UL 18.0030X		DEMKO 18 ATEX 1932X	
Ⓔ II 2G Ex db eb ib mb qb IIB T4 Gb			
-20°C ≤ Ta ≤ +50°C		See Instructions	
⚡ Total power housed < 1300 W · U <sub>n</sub> = 240V · Operating < 45V DC			
<b>WARNING</b> THIS PRODUCT IS ONLY TO BE SERVICED BY EXROBOTICS	<b>WARNING</b> DO NOT REMOVE ANY PARTS	<b>WARNING</b> DO NOT OPEN IN AN EXPLOSIVE ATMOSPHERE	<b>WARNING</b> DO NOT CHARGE IN A HAZARDOUS AREA



ExRobotics B.V.  
Effenseweg 1  
4838 BA Breda  
The Netherlands

CE 0539	Year of manufacture	2019	
ExR-1 Robot Operator			
EXR-SW-000002	01		
IECEx UL 18.0030X		DEMKO 18 ATEX 1932X	
Ⓔ II 2G Ex db eb ib mb qb IIB T4 Gb			
-20°C ≤ Ta ≤ +50°C		See Instructions	
⚡ Total power housed < 1300 W · U <sub>n</sub> = 240V · Operating < 45V DC			
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## ROUTINE EXAMINATIONS AND TESTS

Each piece of equipment defined above has to have successfully passed; before delivery:

- Routine Surface Resistance test in accordance with Clause 4.2.3 of IEC 60079-32-2 shall be conducted on each Thistle Track Centipede. Reference Drawing 20180716IP1 for further details.
- Routine Dielectric Strength Test in accordance with Clause 5.2.2 of IEC 60079-5 shall be performed on each lot of Swarco glass beads. Reference Drawing 20180720RS1 for further details.
- Routine Pressure Test in accordance with Clause 5.2.1 of IEC 60079-5 shall be performed on each Electronics Box at a pressure of 50kPa for a duration of not less than 10 seconds. No permanent deformation of the enclosure is to exceed 0.5mm in any dimension. Reference Drawing 20180710IP1 for further details.

The following clauses from IEC 60079-14 Ed. 5 were verified as part of the Ex equipment assembly: 4.1, 4.4.1.1, 4.4.1.2, 4.4.2, 5.12, 5.14.2, 6.1, 6.2, 6.5.1, 6.5.2, 6.7.1, 6.7.2, 7, 8.1, 8.2, 8.3, 9.1, 9.3.1, 9.3.2, 9.3.8, 9.5, 9.6.2, 10.1, 10.2, 10.3, 10.5, 10.6.1, 10.6.2, 11.1, 14.1, 15.1, 16.1, 16.2.1, 16.2.2.1, 16.2.2.2, 16.2.2.5.1, 16.2.2.5.2, 16.2.2.6, 16.2.3, 16.4, 20, and 21.

The following clauses from IEC 60079-14, Ed. 5, were considered not applicable: 4.4.3, 5.4.3, 5.4.5, 5.6.3, 5.8, 5.10.3, 5.11.4, 5.11.5, 5.13.1, 5.13.2, 5.13.3, 5.15, 5.16, 6.3, 6.4, 6.5.3, 6.8, 9.2, 9.3.3, 9.3.4, 9.3.5, 9.3.9, 9.4, 9.6.1, 9.6.3, 9.6.4, 9.6.5, 10.4, 10.7, 10.8, 11.2.1, 11.2.2, 11.3, 11.4, 11.5, 11.6, 12, 13, 14.2, 14.4, 15.2, 15.3, 15.4, 16.2.2.3, 16.2.2.4, 16.2.2.5.3, 16.2.2.7, 16.2.2.8, 16.2.4, 16.3, 16.5, 16.6, 17, 18, 19, 22, 23, and Annex H.

The following clauses from IEC 60079-14, Ed. 5, need to be verified on site: 4.2, 4.3, 4.5, 5.1, 5.2, 5.3, 5.4.1, 5.4.2, 5.4.3, 5.4.4, 5.5, 5.6.1, 5.6.2, 5.7, 5.9, 5.10.1, 5.10.2, 5.11.1, 5.11.2, 5.11.3, 5.14.1, 6.6, 6.9, 9.3.6, 9.3.7, 9.6.6, 14.3, Annex A, Annex C, Annex G, and Annex K.



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## LIST OF CERTIFIED COMPONENTS

The following additional previous editions of Standards noted under the "Standards" section of this Certificate were applied to integral Components as itemized below. There are no significant safety related changes between these previous editions and the editions noted under the "Standards" section.

<b>Product</b>	<b>Certificate Number</b>	<b>Standards</b>
CMP Ex "d" barrier gland 20S16PX2KREX1RA4 and 20SPX2KREX1RA4	IECEX SIR 13.0027X	IEC 60079-1 Edition 2007
R. Stahl Switches 8003/121-015 and 8003/131-726-2r	IECEX PTB 06.0065X	IEC 60079-0 Edition 2004 IEC 60079-1 Edition 2001 IEC 60079-7 Edition 2001
Multibox Terminal Boxes MBA 202311 and MBA 332311	IECEX IBE 14.0020U	IEC 60079-7 Edition 2006
Raxton Breather Drain CTE1300YU	IECEX ITS 13.0018X	IEC 60079-1 Edition 2007
Ion Science Ltd Gas Detector Falco 1.1	IECEX FTZU 16.0011X	IEC 60079-1 Edition 2007
R. Stahl FX15 Beacon	IECEX BAS 13.0003	IEC 60079-1 Edition 2007
Crowcon Detection Instruments Limited Gas Detector IR Gas Detector	IECEX BAS 09.0109X	IEC 60079-0 Edition 2007 IEC 60079-1 Edition 2007