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 BAS 09.0104X

Issue No: 7

Status: **Current**

Date of Issue: **2018-10-03**

Certificate history:
Issue No. 7 (2018-10-03)
Issue No. 6 (2014-08-06)
Issue No. 5 (2013-04-26)
Issue No. 4 (2012-05-03)
Issue No. 3 (2012-01-10)
Issue No. 2 (2011-09-30)
Issue No. 1 (2010-10-27)
Issue No. 0 (2010-04-29)

Applicant: **Crowcon Detection Instruments Limited**
172 Brook Drive
Milton Park
Abingdon
Oxfordshire
OX14 4SD
United Kingdom

Equipment: **IR Gas Detector with Display**

Optional accessory:

Type of Protection: **Flameproof & Intrinsic Safety**

Marking:

Ex db ia IIC T4 Gb (-40°C ≤ Ta ≤ +75°C) - All variants
Ex tb ia IIIC T135°C Db (-40°C ≤ Ta ≤ +40°C) – Remote & Handheld Display Models only

Approved for issue on behalf of the IECEx Certification Body: R.S. Sinclair

Position: Technical Manager

Signature:
(for printed version)

Date: 3-10-18

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.

Certificate issued by:

SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton, Derbyshire, SK17 9RZ
United Kingdom

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Manufacturer: **Crowcon Detection Instruments Limited**
172 Brook Drive
Milton Park
Abingdon
Oxfordshire
OX14 4SD
United Kingdom

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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*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/BAS/ExTR09.0146/00
GB/BAS/ExTR09.0155/00
GB/BAS/ExTR10.0231/00
GB/BAS/ExTR10.0243/00
GB/BAS/ExTR11.0210/00
GB/BAS/ExTR11.0309/00
GB/BAS/ExTR12.0063/00
GB/BAS/ExTR13.0064/00
GB/BAS/ExTR17.0131/00

Quality Assessment Report:

GB/BAS/QAR06.0070/07

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The IR Gas Detector with Display comprises a stainless steel housing with a transparent sapphire detector window fitted to the end and clamped in place. A protective weatherproof cover manufactured in an antistatic plastic material is fitted over the sapphire window. The housing contains optics and a stacked PCB assembly. At the opposite end to the window is an IS Interface assembly. The IS Interface, on two encapsulated PCB's, provides an intrinsically safe output to power the display which contains one more PCB. The display may be directly mounted on the gas detector or remotely mounted using up to 30 metres of cable which is fitted with connectors at each end. The connection arrangement and the enclosures protect the intrinsically safe circuits to at least IP20. The interface assembly is secured against unintentional removal from the main gas detector by a securing plate fixed in position by cap screws with an internal hexagon head.

The internal circuits of the IR Gas Detector are rated up to a maximum of 32V and 5W, of which less than 0.7W is present at the display.

A Handheld Display is also available and is designed for connection to the IR Gas Detector only while the equipment is being calibrated. Once calibration is complete the Handheld Display is removed. The display is fitted with a 1.5 metre cable with a L/R ratio not exceeding 23µH/Ω.

In cases where the IR Gas Detector is installed in a location where it is difficult to connect the handheld display to it, a Remote Calibration Box can be connected to the detector. The Remote Calibration Box comprises a black polyester enclosure fitted with two inter-connected polarised connectors permitting connection to the Gas Detector via a cable of up to 28.5 metres and a L/R ratio not exceeding 23µH/Ω and the Handheld Display.

All variants of the IR Gas Detector with Display are suitable for installation in an explosive gas atmosphere, but the Remote and Handheld Display variants of the equipment can be additionally installed in an explosive dust atmosphere with the Gas Detector and I.S interface, and where applicable the Remote Calibration Box, mounted in the hazardous area and the remote or Handheld Display mounted in the non-hazardous area. Based on this, the following variants of the IR Gas Detector with Display are marked as follows:-

IR Gas Detector with Fixed Display	Ex db ia IIC T4 Gb (-40°C ≤ T_a ≤ +75°C)
IR Gas Detector with Remote or Handheld Display	Ex db ia IIC T4 Gb (-40°C ≤ T_a ≤ +75°C) Ex tb ia IIIC T135°C Db (-40°C ≤ T_a ≤ +40°C)

For the Ex db / Ex tb part (Main Gas Detector)

Two cable entry holes are provided as specified on the certified drawings for the accommodation of a flameproof cable entry device, with or without the interposition of a flameproof thread adapter. One cable entry is of thread form M20, and the other is of thread form ½" NPT. The cable entry thread form for each cable entry is identified on the body of the IR Gas Detector by etched markings.

The cable entry device and thread adapter shall be suitable for the equipment, the cable and the conditions of use and shall be certified as Equipment (not a component) under an EU Type Examination Certificate to Directive 2014/34/EU.

Any unused cable entry holes must be fitted with a suitable flameproof stopping plug certified as Equipment (not a component) under an EU Type Examination Certificate to Directive 2014/34/EU.

When the Remote and Handheld variants are mounted in an explosive dust atmosphere, cable entry device and thread adapter shall be suitable for the equipment, the cable and the conditions of use and shall be certified as Equipment (not a component) under an EU Type Examination Certificate to Directive 2014/34/EU with a minimum ingress protection of at least IP6x.

For the Ex i part (IS Interface & Display

The L/R ratio of the interconnecting cable for the Remote & Handheld Display must not exceed 23µH/Ω.

Two contacts on the front of the display are intended for connection to a HART communicator, Emerson Type 375 Communicator to Certificate BVS 03 ATEX E 347 & IECEx BVS 08.0044 or equivalent. The output parameters for these contacts are U_o = 5.9V, I_o = 19mA, P_o = 28mW, C_i = 0 and L_i = 0.

The contacts on the front of the display are not protected to IP20, however the possible output has a FOS of at least 250 so does not pose a hazard.

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SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The equipment must be earthed using the cable gland and steel armoured cable
2. **IR Gas Detectors with Remote & Hand Held Displays Only:** When located in an explosive dust atmosphere, the display must only be mounted in the non-hazardous area.

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

Variation 7.1

To confirm the current designs of the IR Gas Detector with Display have been reviewed against the requirements of IEC 60079-0: 2011 Ed. 6, IEC 60079-1: 2014 Ed. 7 & IEC 60079-11: 2011 Ed. 6 in respect of the differences from IEC 60079-0: 2007 Ed. 5, IEC 60079-1: 2007 Ed. 6 & IEC 60079-11: 2006 Ed. 5 and, with exception of the markings, none of the differences affect the equipment. In accordance with the marking requirements of the new editions of the standards, all variants of the equipment are now marked: -

Ex db ia IIC T4 Gb (-40°C ≤ Ta ≤ +75°C)

Variation 7.2

To permit the assessment of the remote display variants of the IR Gas Detector fitted with the IS Barrier against the dust requirements of IEC 60079-0: 2011 IEC 60079-11: 2011 and IEC 60079-31: 2013 permitting the mounting of this assembly in the explosive dust atmosphere with the remote display only mounted in the non-hazardous area. This variants of equipment is additionally marked with the following dust Certification Code: -

Ex tb ia IIIC T135°C Db (-40°C ≤ Ta ≤ +40°C)

The certificate schedule was revised to detail the dust certification and a Specific Condition of Use was added to the certificate specifying the display must only be mounted in the non-hazardous area.

Variation 7.3

To permit minor drawing changes not affecting the original assessment.

ExTR: **GB/BAS/ExTR17.0131/00**	File Reference: **15/0089**