



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 SGS 23.0058X** Page 1 of 4 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2024-09-17

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

Equipment: **IR Plus Gas Detector with Display**

Optional accessory:

Type of Protection: **Flameproof, Intrinsically Safe and Dust Protection by Enclosure**

Marking: Ex db ia IIC T4 Gb (-40°C to +70°C)
or
Ex db ia IIC T4 Gb (-40°C to +70°C)
Ex tb ia IIIC T135°C Db (-40°C to +40°C)

Approved for issue on behalf of the IECEx
Certification Body:

M Powney

Position:

Certification Manager

Signature:
(for printed version)

Date:
(for printed version)

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.
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Certificate issued by:

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





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Manufacturing locations: **Crowcon Detection Instruments Limited**
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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](#) 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

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:

[GB/SGS/ExTR23.0070/00](#)

Quality Assessment Report:

[GB/BAS/QAR06.0070/10](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The IR Plus Gas Detector comprises a stainless-steel enclosure incorporating a main optical housing and a front mirror housing connected by an internal cable way. A detector window constructed from Quartz or Sapphire is clamped within the main optical housing. A glass mirror is retained inside the front mirror housing, and both housings may be fitted with anti-condensation heaters. The front of the enclosure is protected by a plastic weather cover, which may be fitted with an optional gassing cover. Alternatively, a plastic flow adaptor moulding may replace the weather cover.

The main housing contains optics and a stacked PCB assembly. At the opposite end to the detector 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 with Display circuits are rated up to a maximum of 32V and 5.6W, 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 $23\mu\text{H}/\Omega$.

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 $23\mu\text{H}/\Omega$ 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 to +70°C)
IR Gas Detector with Remote or Handheld Display	Ex db ia IIC T4 Gb (-40°C to +70°C) Ex tb ia IIIC T135°C Db (-40°C to +40°C)

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The equipment must be earthed using the cable gland and steel armoured cable.
2. The flamepaths are not to be repaired.
3. The Gas Detector can only be mounted Horizontal +/- 15°.
4. When located in an explosive dust atmosphere, the display must only be mounted in the non-hazardous area.



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Equipment (continued):

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

The mirror housing is sealed with a M56 threaded stainless-steel endplate, secured using M3 socket set screws.

Two cable entry holes are provided for the accommodation of flameproof cable entry devices, with or without the interposition of a flameproof thread adapter. The cable entries may be Metric (M20 or M25) or NPT ($\frac{1}{2}$ " or $\frac{3}{4}$ "). The cable entry thread form and size for each cable entry is identified on the body of the IR Gas Detector by etched markings.

The cable entry devices shall be suitable for the equipment, the cable and the conditions of use and shall be certified as Equipment (not a Component).

Any unused cable entry holes must be fitted with a suitable flameproof stopping plug certified as Equipment (not a Component).

When used in a dust atmosphere, the IP6X rating must be maintained by the use of suitably rated cable entry devices.

For the Ex i part (IS Interface & Display):

The L/R ratio of the interconnecting cable for the Remote & Handheld Display must not exceed $23\mu\text{H}/\Omega$.

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 $U_o = 5.9\text{V}$, $I_o = 19\text{mA}$, $P_o = 28\text{mW}$, $C_i = 0$ 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.