SGS

1 # EU - TYPE EXAMINATION CERTIFICATE

2 ## Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **SGS23ATEX0115X**

4 Product: **IR Plus Gas Detector with Display**

5 Manufacturer: **Crowcon Detection Instruments Limited**

6 Address: **172 Brook Drive, Milton Park, Abingdon, Oxfordshire, OX14 4SD United Kingdom**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR23.0070/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0: 2018   EN 60079-1: 2014   EN 60079-11: 2012   EN 60079-31: 2014

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following :

◇ **II 2 G Ex db ia IIC T4 Gb (-40°C to +70°C) or**

◇ **II 2 GD Ex db ia IIC T4 Gb (-40°C to +70°C)**
    Ex tb ia IIIC T135°C Db (-40°C to +40°C)

SGS Fimko Oy Customer Reference No. **0249**   Project File No. **21/0702**

13   **Schedule**

14   **Certificate Number SGS23ATEX0115X**

15   **Description of Product**

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 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⟩ II 2G	Ex db ia IIC T4 Gb (-40°C to +70°C)
IR Gas Detector with Remote or Handheld Display	⟨Ex⟩ II 2GD	Ex db ia IIC T4 Gb (-40°C to +70°C) Ex tb ia IIIC T135°C Db (-40°C to +40°C)

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 (½" or ¾"). 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 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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17   Specific Conditions of Use

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.

18   Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	LVD type requirements
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

The performance of the gas sensor has not been assessed. The gas sensor must not be used in a safety system without further assessment.

19   Drawings and Documents

Number	Sheet	Issue	Date	Description
MCAD-004103	1 to 2	1	2024-06-11	* IR PLUS IIC Certification GA – Metric
MCAD-004108	1 to 2	1	2024-06-11	* IR PLUS IIC Certification GA – ¾" NPT
MCAD-004247	1 to 2	1	2024-06-11	* IR PLUS IIC Certification GA – ½" NPT
MCAD-004331	1 of 1	1	2024-03-28	* IR PLUS optics body
MCAD-004332	1 of 1	1	2024-03-28	* IR PLUS End Cover Plate
MCAD-004333	1 of 1	1	2024-03-28	* IR PLUS Mirror retainer plate
MCAD-004334	1 of 1	1	2024-03-28	* IR PLUS cast body – M20
MCAD-004335	1 of 1	1	2024-03-28	* IR PLUS Cast Body – ¾" NPT
MCAD-004336	1 of 1	1	2024-03-28	* IR PLUS Cast Body – ½" NPT
MCAD-004336	1 of 1	1	2024-03-28	* IR PLUS Cast Body – ½" NPT
5957	1 of 1	04	07/10/2010	* Window Clamp
5988	1 of 1	05	19/07/2024	* Coated Detector Window
6034-CERT	1 of 1	3	Oct-09	^ IRMAX IS Transformer
6610-CD-CERT	1 of 1	3	13.07.09	^ IREX Display Circuit Diagram
6610-PCB-CERT	1 of 1	3	26.08.09	^ IREX Display PCB details
6610-PL-CERT	1 of 1	3	13.07.09	^ IREX Display Parts List
6663-CD-CERT	1 of 1	9	09.12.09	^ IRMAX Display Barrier Ex ia Circuit Diagram
6663-PCB-CERT	1 of 1	9	11/12/09	^ IRMAX Display Barrier Ex ia PCB Detail
6663-PL-CERT	1 of 1			^ IRMAX Display Barrier Ex ia Parts List
6713-CD-CERT	1 of 1	8	9/12/09	^ IRMAX Display Barrier Encapsulated Ex ia Circuit Diagram (UL Version)

Number	Sheet	Issue	Date	Description
6713-PCB-CERT	1 of 1	8	10/12/09	^ IRMAX Display Barrier Encapsulated Ex ia PCB Detail (UL Versions)
6713-PL-CERT	1 of 1	8	9/12/09	^ IRMAX Display Barrier Encapsulated Ex ia Parts List (UL Version)
MCAD-004129	1 of 1	02	07/10/2010	^ IR DETECTOR WITH DISPLAY CERT LABEL EU
MCAD-004132	1 of 1	02	2024-06-05	^ IR Detector with Remote Display Cert Label CE
MCAD-004170	1 of 1	1	2024-06-20	^ IR PLUS Configurations
MCAD-004171	1 of 1	1	2024-06-20	^ IR PLUS with Fixed Display M20
MCAD-004172	1 of 1	1	2024-06-21	^ IR PLUS Remote Display Configuration
MCAD-004173	1 of 1	1	2024-06-20	^ IR PLUS Handheld Remote Display M20
MCAD-004174	1 of 1	1	2024-06-20	^ Calibration Configuration M20
MCAD-004200	1 of 1	1	2024-06-24	^ Serial Number Label – IR PLUS
MCAD-004243	1 of 1	1	2024-06-20	^ IR PLUS Fixed Display ¾" NPT
MCAD-004244	1 of 1	1	2024-06-20	^ IR PLUS Handheld Remote Display ¾" NPT
MCAD-004245	1 of 1	1	2024-06-20	^ Calibration Configuration ¾" NPT
MCAD-004248	1 of 1	1	2024-06-20	^ Calibration Configuration ½" NPT
MCAD-004249	1 of 1	1	2024-06-20	^ IR PLUS with Fixed Display ½" NPT
MCAD-004250	1 of 1	1	2024-06-20	^ IR PLUS Handheld Remote Display ½" NPT
MCAD-004266	1 of 1	02	2024-06-05	^ IR Detector with Display Cert Label EU (SIL)
MCAD-004267	1 of 1	02	2024-06-05	^ IR Detector with Remote Display Cert Label EU (SIL)
MCAD-004376	1 of 1	1	19/07/2024	^ Fixed Display Certification GA
MCAD-004378	1 of 1	1	19/07/2024	^ IR PLUS I.S. barrier Assembly

* These drawings are common to IECEx SGS 23.0057X and SGS23ATEX0114X (Standard version), and IECEx SGS 23.0058X and SGS23ATEX0115X (display version)

^ These drawings are common to IECEx SGS 23.0058X and SGS23ATEX0115X (Display version)