

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 **Baseefa14ATEX0012X – Issue 7**
Number:

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **XgardIQ Fixed Gas Detector**

5 Manufacturer: **Crowcon Detection Instruments Limited**

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

7 This re-issued certificate extends EU Type Examination Certificate No. Baseefa14ATEX0012X to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, 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. **See Certificate History**

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

EN 60079-0: 2012 + A11: 2013 EN 60079-1: 2014 EN 60079-11: 2012

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 2G Ex db ia IIC T4 Gb – See Certificate Schedule for ambient temperature range**

SGS Baseefa Customer Reference No. **0249**

Project File No. **17/0380**

This document is issued by the Company subject to its General Conditions for Certification Services accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and the Supplementary Terms and Conditions accessible at <http://www.sgs.com/SGSBaseefa/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. It does not necessarily indicate that the equipment may be used in particular industries or circumstances. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, schedule included, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Baseefa Limited

Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ

Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601

e-mail baseefa@sgs.com web site www.sgs.co.uk/baseefa

Registered in England No. 4305578.

Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN



R S SINCLAIR
TECHNICAL MANAGER

On behalf of SGS Baseefa Limited

13

Schedule

14

Certificate Number Baseefa14ATEX0012X – Issue 7

15

Description of Product

The **XgardIQ Fixed Gas Detector** comprises a stainless steel or painted aluminium housing, which is divided into a cylindrical flameproof enclosure and a crescent shaped I.S. enclosure. An Ex d certified bushing is used to provide cable access between the two compartments.

Three cable entry holes are provided in the main flameproof enclosure as specified on the certified drawings for the accommodation of flameproof cable entry devices, with or without the interposition of flameproof thread adapters. Any unused cable entry holes must be fitted with a suitable flameproof stopping plug certified as Equipment (not a Component) under an EC-Type Examination Certificate to Directive 2014/34/EU, or a stopping plug provided by the manufacturer. The cable entries may be M20 or ½” NPT, and are identified on the body of the XgardIQ by markings cast into the enclosure.

The enclosure also features an M115 threaded painted aluminium or stainless steel lid. An M3 grub screw is used to secure the lid against unintentional removal.

The flameproof enclosure houses a stacked PCB sub assembly comprises a main board and terminal board that provides the intrinsic safe connections to the display sub assembly and sensor housed in the I.S. compartment. In addition to these boards, the stacked assembly can be fitted with an optional Relay Board providing three 230V, 5A rated volt-free contacts for the switching of external alarm devices, and / or a Fieldbus Module providing Foundation Fieldbus communications. The model number of the equipment indicates the fitting of the optional boards and whether HART communications is enabled.

The intrinsically safe display sub assembly comprises an OLED display with three push buttons on the front of the compartment used to interrogate and monitor the XgardIQ in service. Two contacts are additionally provided on the front of the display for the connection of a suitably certified HART Communicator, such as the Emerson Type 375 Communicator. The contacts on the front of the display are exposed and the possible output has a FOS of at least 375 so does not pose a hazard.

The I.S. compartment of the enclosure features a cylindrical entry machined to house one of four plastic XgardIQ sensor assemblies. The ambient temperature range of the equipment is dependent on the sensor assembly fitted. The Sensor Type and associated ambient temperature range are listed below:

Sensor Type	Ambient Temperature Range
Oxygen	$-40^{\circ}\text{C} \leq T_a \leq +75^{\circ}\text{C}$
Toxic	$-40^{\circ}\text{C} \leq T_a \leq +75^{\circ}\text{C}$
Pellistor	$-40^{\circ}\text{C} \leq T_a \leq +75^{\circ}\text{C}$
Infra-red (IR)	$-20^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$

The model number of the equipment indicates the Gas Sensor fitted to the sensor assembly. The various types are listed in the User Manual provided by the manufacturer. The equipment is not designed for use in oxygen enriched atmospheres.

Alternatively the entire sensor assembly may be replaced with a remote sensor assembly comprising a metallic remote sensor housing to which one of the above mentioned XgardIQ Sensor assemblies can be fitted. This is connected to the main unit via a cable to up to 15 metres in length.

The XgardIQ has a range of available accessories, which includes:

- Splash guard assembly
- Calibration cap
- Flow adaptor
- Dust filter
- Pipe mounting kit
- Sun shade

The calibration cap and flow adaptor are intended to be used for maintenance purposes, whilst the remainder are optional and dependent on the conditions which the equipment is intended to be used in.

The main enclosure is fully labelled with the requisite marking and warnings, whilst the sensors and remote sensor housing are labelled as 'Part Of' the equipment.

Output Parameters

HART communicator contacts

$$\begin{aligned} U_o &= 5V & C_i &= 1.1nF \\ I_o &= 13.3mA & L_i &= 0 \\ P_o &= 17mW \end{aligned}$$

16 Report Number

See Certificate History

17 Specific Conditions of Use

1. Variants of the equipment housed in a painted aluminium enclosure constitute a potential electro-static charging hazard and must not be rubbed with a dry cloth or cleaned with solvents.
2. Cable entry holes are provided as specified on the certified drawings for the accommodation of flameproof cable entry devices, with or without the interposition of a flameproof thread adapter. Unused entries are to be fitted with suitable certified flameproof stopping plugs. The cable entry devices, thread adapters and stopping plugs shall be suitable for the equipment, the cable and the conditions of use and shall be certified as Ex Equipment, and not an Ex Component, under an EC-Type Examination Certificate to Directive 2014/34/EU.
3. No part of this equipment or its accessories covered by this certificate shall be used outside the pressure range 80kPa to 110kPa, as defined by EN 60079-0.
4. The ambient temperature range of the equipment is dependent on the Sensor Type fitted. Refer to the Certificate Schedule for the relevant ambient temperature ranges.

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.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
MCAD-002015	1 of 1	02	12/07/2017	Pellistor Sensor Sub-Assembly
MCAD-002638	1 of 1	02	04/07/2017	Sun Shade Assembly
ECAD-000081-CD-CERT	1 of 1	10	12/06/2017	Xgard IQ Pellistor Sensor
ECAD-000081-PL-CERT	1 of 1	10	12/06/2017	Xgard IQ Pellistor Sensor

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 14.0001X Iss. 7

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
MCAD-001956	1 of 1	01	22/10/2014	Sensor Housing Front Half
MCAD-001957	1 of 1	01	02/10/2014	Xgard IQ Sensor Technologies
MCAD-001958	1 of 1	01	16/10/2014	Sensor Housing Rear Half
MCAD-001964	1 of 1	01	22/09/2014	Splash Guard Assembly
MCAD-002334	1 of 1	01	22/10/2014	Overmould Display Moulding
MCAD-002338	1 to 2	01	03/03/2015	Display Sub Assembly – ATEX / IECEx Gas
MCAD-002371	1 of 1	01	22/09/2014	Calibration Cap Assembly
MCAD-002372	1 of 1	01	22/09/2014	Flow Adaptor Assembly
MCAD-002380	1 of 1	01	17/02/2015	Hot Swap Pellistor Sensor
MCAD-002382	1 of 1	01	02/10/2014	Hot Swap Toxic Sensor
MCAD-002388	1 of 1	05	22/12/2016	Remote Sensor Housing Assembly – Certification GA
MCAD-002390	1 of 1	01	18/03/2014	Gas Type Sensor Label
MCAD-002391	1 of 1	06	02/11/2016	XgardIQ Cert Label – ATEX / IECEx Gas
MCAD-002392	1 of 1	01	01/04/2014	Warning Label
MCAD-002394	1 of 1	01	17/01/2014	Cable Retaining Cap
MCAD-002395	1 of 1	02	29/06/2016	Remote Sensor Cable Assembly – Certification GA
MCAD-002396	1 of 1	01	16/01/2015	Remote Sensor Housing Front
MCAD-002408	1 of 1	01	18/03/2014	M20 Blanking Plug
MCAD-002409	1 of 1	01	18/03/2014	1/2"NPT Blanking Plug
MCAD-002411	1 of 1	01	02/10/2014	Hot Swap Oxygen Sensor
MCAD-002415	1 of 1	03	01/07/2016	Hot Swap CERT Label
MCAD-002430	1 of 1	01	16/10/2014	Exd PCB Assembly
MCAD-002433	1 of 1	02	17/10/2014	Remote Sensor Cert Label
MCAD-002459	1 of 1	01	16/10/2014	Dummy Sensor
MCAD-002474	1 of 1	03	16/02/2017	XgardIQ Exd
MCAD-002502	1 of 1	01	18/03/2014	Sensor PCB Insulator Ring
MCAD-002566	1 of 1	01	02/10/2014	Exd Can
MCAD-002613	1 of 1	01	08/04/2015	Pipe Mounting Kit XgardIQ
MCAD-002631	1 of 1	01	05/11/2015	Product Code Label
MCAD-003398	1 of 1	01	23/06/2016	Hot Swap IR Sensor Assembly
ECAD-000060-CD-CERT	1 of 1	8	27/01/2015	Xgard IQ OLED Module
ECAD-000060-PCB-CERT	1 to 4	8	02/02/2015	Xgard IQ OLED Module
ECAD-000060-PL-CERT	1 of 1	9	23/04/2015	Xgard IQ OLED Module
ECAD-000064-CD-CERT	1 of 1	4	23/09/2014	Xgard IQ iModule Oxygen
ECAD-000064-PCB-CERT	1 to 10	4	23/09/2014	Xgard IQ iModule Oxygen
ECAD-000064-PL-CERT	1 of 1	4	23/09/2014	Xgard IQ iModule Oxygen
ECAD-000076-CD-CERT	1 & 2	8	07/10/2016	Xgard IQ Toxic Sensor Board
ECAD-000076-PCB-CERT	1 to 10	6	24/09/2014	Xgard IQ Toxic Sensor Board
ECAD-000076-PL-CERT	1 of 1	9	06/10/2016	Xgard IQ Toxic Sensor Board
ECAD-000077-CD-CERT	1 of 1	3	26/04/2016	XgardIQ IR Micro PCB
ECAD-000077-PCB-CERT	1 to 10	3	26/04/2016	XgardIQ IR Micro PCB

Number	Sheet	Issue	Date	Description
ECAD-000077-PL-CERT	1 of 1	3	26/04/2016	XgardIQ IR Micro PCB
ECAD-000081-PCB-CERT	1 to 6	6	24/11/2014	Xgard IQ Pellistor Sensor
ECAD-000082-CD-CERT	1 of 1	10	25/08/2015	Xgard IQ Pellistor Sensor
ECAD-000082-PCB-CERT	1 to 10	8	08/05/2015	Xgard IQ Pellistor Sensor
ECAD-000082-PCB-CERT	1 to 10	10	25/08/2015	Xgard IQ Pellistor Sensor
ECAD-000082-PL-CERT	1 of 1	10	25/08/2015	Xgard IQ Pellistor Sensor
ECAD-000093-CD-CERT	1 & 2	18	22/06/2016	Xgard IQ Terminal Board With Galvanic Isolation
ECAD-000093-PCB-CERT	1 to 11	12	06/02/2015	Xgard IQ Terminal Board With Galvanic Isolation
ECAD-000093-PCB-CERT	1 to 11	18	20/06/2016	Xgard IQ Terminal Board With Galvanic Isolation
ECAD-000093-PL-CERT	1 of 1	18	22/06/2016	Xgard IQ Terminal Board With Galvanic Isolation
ECAD-000094-CD-CERT	1 of 1	3	08/10/2014	IQ Sensor Internal Connect Board
ECAD-000094-PCB-CERT	1 to 8	3	10/10/2014	IQ Sensor Internal Connect Board
ECAD-000094-PL-CERT	1 of 1	3	08/10/2014	IQ Sensor Internal Connect Board
ECAD-000096	1 of 1	01	23/02/2015	Terminal PCB to Display PCB Cable
ECAD-000098-CD-CERT	1 & 2	10	26/02/2015	Xgard IQ Display Board
ECAD-000098-PCB-CERT	1 to 10	9	11/11/2014	Xgard IQ Display Board
ECAD-000098-PL-CERT	1 of 1	10	01/07/2016	Xgard IQ Display Board
ECAD-000101-CD-CERT	1 of 1	2	01/07/2016	XgardIQ IR Amp PCB
ECAD-000101-PCB-CERT	1 to 10	3	26/07/2016	XgardIQ IR Amp PCB
ECAD-000101-PL-CERT	1 of 1	4	01/07/2016	XgardIQ IR Amp PCB
ECAD-000104-CD-CERT	1 of 1	3	09/10/2014	Xgar IQ Sensor Internal Connect Board
ECAD-000104-PCB-CERT	1 to 8	3	10/10/2014	Xgar IQ Sensor Internal Connect Board
ECAD-000104-PL-CERT	1 of 1	3	09/10/2014	Xgar IQ Sensor Internal Connect Board
ECAD-000110	1 of 1	01	22/09/2014	Display to Sensor Cable
ECAD-000155-CD-CERT	1 of 1	4	26/02/2015	Xgard IQ Remote Sensor Pod Board
ECAD-000155-PCB-CERT	1 to 7	3	11/11/2014	Xgard IQ Remote Sensor Pod Board
ECAD-000155-PL-CERT	1 of 1	4	26/02/2015	Xgard IQ Remote Sensor Pod Board
ECAD-000176-CD-CERT	1 of 1	1	19/02/2016	Xgar IQ IR Sensor Internal Connect Board
ECAD-000176-PCB-CERT	1 to 8	1	19/02/2016	Xgar IQ IR Sensor Internal Connect Board
ECAD-000176-PL-CERT	1 of 1	1	19/02/2016	Xgar IQ IR Sensor Internal Connect Board
ENG-000749	1 to 4	3	2016-07-07	XgardIQ Pellistor Micro Board Modification
ENG-000864	1 to 12	5	2016-8-11	XgardIQ Terminal Board Modifications
ENG-000933	1 to 3	2	06/10/2016	Toxic Board Updates for EMC

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 14.0001X

20 Certificate History

Certificate No.	Date	Comments
Baseefa14ATEX0012X	20 May 2015	The release of the prime certificate. The associated test and assessment is documented in Certification Report No's GB/BAS/ExTR14.0009/00 and GB/BAS/ExTR15.0080/00, Project File No's 11/0678 & 11/0679.

Certificate No.	Date	Comments
Baseefa14ATEX0012X Issue 1	28 July 2015	To permit: - i) Minor circuit changes to the XgardIQ Pellistor Sensor not affecting the original assessment. ii) Minor Label changes not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR15.0193/00, Project File No. 15/0430.
Baseefa14ATEX0012X Issue 2	22 September 2015	To permit: - i) The fitting of vents in the I.S. compartment of the main enclosure and the optional remote sensor housing not affecting the original assessment. ii) Minor circuit and PCB layout changes to one of the boards fitted in the XgardIQ Pellistor Sensor not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR15.0242/00, Project File No. 15/0576.
Baseefa14ATEX0012X Issue 3	28 October 2015	To permit minor circuit and PCB layout changes to the XgardIQ Terminal Board not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR15.0292/00, Project File No. 15/0699.
Baseefa14ATEX0012X Issue 4	14 July 2016	This issue of the certificate permits: - i) The fitting of an alternative Infra-red (IR) sensor to the equipment. The sensor comprises a component certified flameproof IR gas sensor mounted on amplifier board. This together with a microcontroller board is mounted inside the same plastic enclosure as the other XgardIQ sensors. Due to the ambient temperature range of the component certified IR gas sensor, when fitted with this sensor the XgardIQ ambient temperature range is reduced to -20°C to +55°C. As a result of this, the XgardIQ certification label has been revised to indicate the ambient temperature range is dependent on the sensor fitted. The Certificate Schedule and Specific Conditions of Use have been revised to list the relevant ambient temperature ranges against each of the four sensor types and specify to the end user the ambient temperature range is dependent on the sensor fitted. ii) Minor circuit and PCB changes to the XgardIQ Terminal Board not affecting the original assessment. iii) Minor circuit changes to the XgardIQ Toxic Sensor board to permit the fitting of alternative 2-terminal Toxic sensor modules to the existing PCB. The circuit changes to the board and the addition of the alternative sensor modules do not affect the original assessment. iv) Minor circuit changes to the HART interface circuitry on the XgardIQ Display Board. As a result of the changes, the HART communicator contacts output parameters have been revised in the Certificate Schedule to $U_o = 5V$, $I_o = 13.3mA$, $P_o = 17mW$, $C_i = 1.1nF$ & $Li = 0$. These changes do not affect the original assessment of the contacts. v) Minor drawing changes not affecting the original assessment. vi) To confirm the current design of the XgardIQ have been reviewed against the requirements of EN 60079-1: 2014 in respect of the differences from EN 60079-1: 2007, and with exception of the

Certificate No.	Date	Comments
		<p>markings, the changes do not affect the original assessment.</p> <p>In accordance with the marking requirements of EN 60079-1: 2014, the equipment is now marked:</p> <p>⊕ II 2G Ex db ia IIC T4 Gb</p> <p>The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR16.0177/00, Project File No. 16/0158.</p>
Baseefa14ATEX0012X Issue 5	2 November 2016	<p>This issue of the certificate permits: -</p> <ul style="list-style-type: none"> i) Minor circuit changes to the XgardIQ Toxic Sensor board not affecting the original assessment. ii) Minor changes to the conformal coating of the amplifier board fitted in the Infra-red (IR) sensor not affecting the original assessment. iii) Minor mechanical changes to the modified XgardIQ Terminal Board not affecting the original assessment. iv) Minor change to the main certification label not affecting the original assessment. <p>The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR16.0296/00, Project File No. 16/0715.</p>
Baseefa14ATEX0012X Issue 6	1 March 2017	<p>To permit a minor mechanical change to the remote sensor housing and the fitting of an optional gasket on the display compartment of the main enclosure not affecting the original assessment.</p> <p>The associated assessment is documented in Certification Report No. GB/BAS/ExTR17.0027/00, Project File No. 17/0062.</p>
Baseefa14ATEX0012X Issue 7	24 July 2017	<p>This issue of the certificate permits: -</p> <ul style="list-style-type: none"> i) Minor circuit and mechanical changes to the XgardIQ Pellistor Sensor not affecting the original assessment. ii) To permit minor changes to the Sun Shade accessory not affecting the original assessment. <p>The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR17.0206/00, Project File No. 17/0380.</p>
For drawings applicable to each issue, see original of that issue.		