



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

Certificate No.: IECEx SIR 10.0003X issue No.:1

Status: Current

Certificate history:  
Issue No. 1 (2011-11-16)  
Issue No. 0 (2010-5-25)

Date of Issue: 2011-11-16 Page 1 of 5

Applicant: **Spectrex Inc.**  
218 Little Falls Road  
Cedar Grove  
NJ 07009  
United States of America

Electrical Apparatus: **SafEye 700 Series Open Path Gas Detectors & Flash Source Units**  
*Optional accessory:*

Type of Protection: **Flameproof, Increased Safety and Intrinsically Safe**


Marking: **Ex d e ia [Ia Ga] IIC T5 Gb**  
(Ta = -40°C to +55°C)

Approved for issue on behalf of the IECEx  
Certification Body: C Ellaby

Position: Deputy Certification Manager

Signature:  
(for printed version)

Date:

  
\_\_\_\_\_  
2011-11-16  
\_\_\_\_\_

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

Certificate issued by:

**SIRA Certification Service**  
Rake Lane  
Eccleston  
Chester  
CH4 9JN  
United Kingdom

**sira**  
CERTIFICATION



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Manufacturer: **Spectrex Inc.**  
218 Little Falls Road  
Cedar Grove  
NJ 07009  
**United States of America**

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 electrical 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:

- |  |   |
|--|---|
| <b>IEC 60079-0 : 2007-10</b><br>Edition: 5 | Explosive atmospheres - Part 0: Equipment - General requirements                    |
| <b>IEC 60079-1 : 2007-04</b><br>Edition: 6 | Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"   |
| <b>IEC 60079-11 : 2006</b><br>Edition: 5   | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"       |
| <b>IEC 60079-26 : 2006</b><br>Edition: 2   | Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga |
| <b>IEC 60079-7 : 2006-07</b><br>Edition: 4 | Explosive atmospheres - Part 7: Equipment protection by increased safety "e"        |

*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/SIR/ExTR10.0109/00

GB/SIR/ExTR11.0103/00

##### Quality Assessment Report:

GB/SIR/QAR08.0002/02

GB/SIR/QAR08.0002/03



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The Series 700 Open Path Gas Detectors & Flash Source Units include the following models: Gas Detector Model XDS-C-XXXXX, Gas Detector SIL-2 Model XDSS-C-XXXXX and Flash Source Model XSS-C-XXX. They comprise two enclosures, a Detector Unit and a Flash Source Unit, which are manufactured from 316 stainless steel and provide an ingress protection rating of IP66/X7. The enclosures have a two-part construction and a basic cylindrical shape. They consist of a flameproof main housing on top of an increased safety terminal enclosure; these are secured together by four ¼" 20-UNC-2Ax1 socket head cap screws. The interface between the main housing and the terminal enclosure is provided by a certified Type 07-9102-E152 flameproof line bushing manufactured by Bartec GmbH.

The main housing incorporates:

- \* The sensors and the various associated electronics that differentiate between the model variant.
- \* A sapphire window cemented into place and protected by a permanently fixed guard
- \* A window heater, supplied via a certified Type 07-9102-E010 flameproof line bushing manufactured by Bartec GmbH
- \* Intrinsically safe circuitry for providing power to the heater and data to a hand-held P.C.

### CONDITIONS OF CERTIFICATION: YES as shown below:

1. Non-standard flamepath is used between the main housing and the terminal compartment; thus, the following flamepath dimensions shall apply.

| Flamepath   | Minimum Width (mm) | Maximum Gap (mm) |
|---|--------------------|------------------|
| Cylindrical Joint Main Housing/Terminal Compartment | 15.5               | 0.14             |



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## EQUIPMENT(continued):

The increased safety terminal compartment has up to two M25 x 1.5 or ¾" - 14 NPT cable entry ports on the side wall and its cover is secured by four, captive, M4, socket head screws (Yield strength of stainless steel cap head screws used during testing specified as 240 N/mm<sup>2</sup>). The terminal compartment contains component certified Type 07-9702-0320/1 increased safety terminals manufactured by Bartec GmbH for connection to external circuits and a plug with the following output parameters that enable the Series 700 Open Path Gas Detectors & Flash Source Units to link up to a hand-held P.C.

| Entity Parameter | Value              |
|------------------|--------------------|
| Uo               | 6.51 V             |
| Io               | 258 mA, transient  |
| Io               | 170 mA, continuous |
| Po               | 0.42 W             |
| Ci               | 0                  |
| Li               | 0                  |
| Co               | 22 µF              |
| Lo               | 534 µH             |

The Manufacturer shall comply with the following condition of manufacture:

1. The SafEye Series 700 Open Path Gas Detectors & Flash Source Units covered by this certificate incorporate previously certified devices, it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer shall inform Sira of any modifications of the devices that may impinge upon the explosion safety design of the SafEye Series 700 Open Path Gas Detectors & Flash Source Units.
2. All products shall be marked with name SafEye 700.



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

| Issue 1 – this Issue introduced the following changes: |   |
|--|---|
| 1  | Insertion of a surface mount capacitor into the I/O PCB.  |
| 2  | Insertion of a surface mount capacitor into the CPU PCB.  |
| 3  | Insertion of an additional surface mount resistor R146 into the CPU PCB.  |
| 4  | The inclusion of IEC 60079-26: 2006 Edition: 2  |
| 5  | Drawing number 799531 was updated to correct a typographical error and reflect the manufacturing requirement against the certificate issue level.     |
| 6  | The Applicant & Manufacturer names were amended to correct a typographical error.   |
| 7  | Due to performance limitations the temperature range in the marking section was corrected from Ta = -40°C to +55°C or -40°C to +70°C C to that shown. |