



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 SIR 12.0066X issue No.:1

Status: **Current**

Date of Issue: **2014-12-19** Page 1 of 5

Certificate history:
Issue No. 1 (2014-12-19)
Issue No. 0 (2012-12-13)

Applicant: **General Monitors Inc**
26776 Simpatuca Circle
Lake Forest
California 92630
United States of America

Electrical Apparatus: **Model S4000CH, S4000TH and Model TS4000H Intelligent Gas Sensors**
Optional accessory:

Type of Protection: **Flameproof**

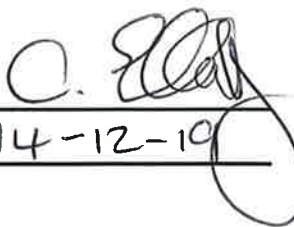
Marking:	Model S4000CH Ex d IIB+H ₂ T5 Gb (Ta -40°C to +70°C)	Model S4000TH Ex d IIB+H ₂ T5 Gb (Ta -40°C to +70°C)	Model TS4000H Ex d IIB+H ₂ T5 Gb (Ta -40°C to +70°C)
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Approved for issue on behalf of the IECEx Certification Body: C Ellaby

Position: Deputy Certification Manager

Signature:
(for printed version)

Date:


2014-12-19

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: **General Monitors Inc.**
26776 Simpatica Circle
Lake Forest
California 92630
United States of America

Additional Manufacturing location
(s):

**General Monitors Ireland
Limited**
Ballybrit Business Park
Galway
Ireland

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:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition: 6.0

IEC 60079-1 : 2007-04 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition: 6

*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/ExTR12.0256/00

GB/SIR/ExTR14.0300/00

Quality Assessment Report:

GB/SIR/QAR07.0014/03

US/UL/QAR10.0004/01



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Model S4000CH and S4000TH Intelligent Gas Sensor is intended to detect the presence of hydrocarbon or hydrogen sulphide gases in air. It comprises a two-part rectangular enclosure and a Universal Gas Sensor manufactured by General Monitors (IECEx SIR 07.0007U). The main enclosure is manufactured from cast aluminium alloy or stainless steel and consists of a base, with mounting lugs on its two longer sides, and a flanged cover, these may be powder coated. The main enclosure contains the equipment electronics and a seven-segment display. The cover is attached to the base by four M6 recessed socket head cap screws having a property class of 8.8 and contains a glass window to allow the display to be viewed. The base has four female 3/4" cable entry holes tapped into its side walls; the 3/4" containing the Universal Gas Sensor. All variants of the Model S4000 Intelligent Gas Sensor use the same main enclosure and have the following electrical parameters. U nom 24 V dc; Ui 36 V dc; Pi 7 W

The Universal Gas Sensor has two forms, the HC Head and the H2S Head. Both options use the same enclosure with only the internal arrangement differing. They are manufactured from stainless steel and are cylindrical in shape with a hexagonal shoulder in the middle. One end has a 250 µm sinter fused into the enclosure to allow gas penetration to be detected by the internal equipment, the other end contains a setting compound through which the equipment wiring passes. A 3/4" thread form allows it to be mounted into the main enclosure.

The equipment is fitted with O-rings for the prevention of water and dust ingress and have been independently tested according to the requirements of IEC 60529 to meet IP 66.

Refer to EQUIPMENT (continued) for Design Options and Conditions of Manufacture.

CONDITIONS OF CERTIFICATION: YES as shown below:

- 1 When alternative detector elements are utilised, they shall only be mounted remotely in a suitably certified enclosure in accordance with the requirements of their respective certificates and relevant local requirements. The associated cable shall be connected to the Intelligent Gas Sensors using a suitably certified, cable entry device with a 3/4" thread form.
- 2 The maximum constructional gap (ic) is less than that required by Table 1 of IEC 60079-1 and hence is as detailed below:

Description	Form	Maximum Gap (ic)	Minimum Length (L)
Between the main body and cover	Flange	0.1mm	11.30mm
Between the glass and the cover	Flange	0.1mm	13.49mm



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EQUIPMENT(continued):

Design options:

- Other certified detector elements may be used, but only at remote locations via a suitable cable entry device and when mounted in accordance with the requirements detailed in their respective certificates and local installation requirements.
- The cover may be manufactured without the viewing window.
- The alternative cable entry thread forms 3/4"-14 NPT are included.

The Toxic Gas Base Unit Model TS4000H comprises of a base unit fitted with an Intelligent Sensor Toxic Gas Interface Module Type TS4000(H) to Certificate No. IECEx SIR 10.0039U. The TS4000H is intended to detect the presence of toxic gases or the amount of oxygen present in the atmosphere. All TS4000H models have the following electrical parameters:

Um: 30 V dc; Pi: 3 W; Rated voltage: 24 V dc

The Intelligent Sensor Toxic Gas Interface Module Type TS4000(H) may be fitted with one of the following electro-chemical cells:

CO - 100 ppm	CO - 500 ppm	Cl2 - 10 ppm
Cl2 - 20 ppm	ClO2 - 3 ppm	HCl - 20 ppm
NO - 100 ppm	NO2 - 20 ppm	NH3 - 50 ppm
NH3 - 100 ppm	O3 - 1 ppm	O2 - 25% (limited to less than 21%)
SO2 - 20 ppm	H2S - 20 ppm	H2S - 50 ppm
H2S - 100 ppm	SO2 - 100 ppm	H2 - 500 ppm

Conditions of manufacture

The Manufacturer shall comply with the following:

1. The products 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 their products.
2. Any non-isometric entries shall be clearly marked with their thread form.
3. The input power to the component approved Intelligent Sensor Toxic Gas Interface Module Type TS4000H shall be limited to 1 W.
4. Powder coating, when applied, is not to be applied to joint surfaces.



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

Issue 1 – this Issue introduced the following changes:	
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1.	The prevention of water and dust ingress and have been independently tested according to the requirements of EN 60529 to meet IP 66, having been IP65 previously. The description was amended to show the new Ingress Protection rating.
2.	The recognition of minor drawing modifications; Additional colour configurations and notes; these amendments are administrative or involve changes to the design that do not affect the aspects of the product that are relevant to explosion safety.