



1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 11ATEX2041** Issue: **5**

4 Equipment: **Personal Surveyor 2xx / PS2xx Gas Detector**

5 Applicant: **Gas Measurement Instruments**

6 Address: **Inchinnan Business Park
Renfrew
Scotland PA4 9RG
UK**

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2006 EN 60079-1:2004 EN 60079-11:2007 EN 60079-26:2007
EN 60079-0:2009 (used for guidance in respect of marking)

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2G
Ex ia d IIC T* Gb
(Ta = -20°C ≤ Ta ≤ +50°C)
* T4 or T3 depending on battery type



II 1G
Ex ia IIC T* Ga
(Ta = -20°C ≤ Ta ≤ +50°C)
* T4 or T3 depending on battery type

Project Number 70009198

C Ellaby
Deputy Certification Manager

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13 DESCRIPTION OF EQUIPMENT

The Personal Surveyor 2xx / PS2xx Gas Detector is a portable, hand held, gas sensing instrument that is designed for confined space monitoring, e.g. in sewers, underground piping or within tanks and other personal monitoring applications. The instrument consists of three PCB parts, these being the Display, Sensor and Power, that are all connected via flexible connections. In addition to the three PCB parts, the instrument contains a single pump assembly.

The Display PCB is fitted with a single liquid crystal display unit (LCD), two micro switches, a vibration motor and various electronic components including a number of LEDs for visual warning indication. The Sensor PCB is fitted with three, different types of gas sensor (LEL, CO/H₂S, and O₂) and an audible alarm with various electronic components. The Power PCB is a semi-potted assembly that houses a single lithium polymer battery with the associated charger circuit. All parts are housed in a plastic enclosure held together by six, individual screws. Two push buttons are mounted on the front of the enclosure; these operate the instrument and interrogate the measurements displayed on the LCD.

Replacement or charging of the equipment (lithium polymer batteries) is only permitted in a non-hazardous area.

The Personal Surveyor 2xx / PS2xx has three sensor positions that are designated either 'PELL1', TOX1' or 'CELL1', each of which is fitted with one of the sensors listed below:

Sensor Position: PELL1 ('Ex d', flameproof sensors)

Manufacturer	Part no.	Certificate nos.
Alphasense Ltd	Type A	Sira 07ATEX1088X Issue 1
City Technology Ltd	4P-75, 4P-75C, 4P-75C(T4), 4P-75M, 4P-75M(T4)	Sira 01ATEX1205X Issue 9
E2V Technologies (UK) Ltd	VQ548ZD/W, VQ500 series	SIRA 01ATEX1073U Issue 4
GMI Ltd	As determined by GMI Ltd	Not applicable, fully assessed as part of this certificate, refer to drawing 67018A SIRA V2 revision 1 originally listed on Sira report no. R51A14936A.

Sensor Position: TOX1 (Simple apparatus)

Manufacturer	Part no.
Alphasense Ltd	COAF, COAX, COAE, D2 +D2 (adaptor) H2SA1, H2SAH, H2SAE SO2AE, SO2AF, NO-A1, NO-AE, NO2-A1,NO2-AE, CL2-A1
City Technology Ltd	COSH, 4CO, 4CF, 4CF+, CO3E300, CO3E500S 4HS, 4HS+, 4HS/LM, H2S3E100, H2S3E100S, 4H, 4H/LM, H2S3E30 4S, 4HYT, H23E1%, H23E4%, 4HN, HCN3E30F
E2V Technologies (UK) Ltd	EC4-500-CO, EC4-2000-CO EC4-100-H2S, EC4-1000-H2S EC4-20-SO2, EC4-2000-SO2, EC4-250-NO, EC4-2000-NO, EC4-20-NO2
DD Scientific Ltd	GS+4DT, GS+4CO, GS+4H2S

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Sira Certification Service

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Sensor Position: CELL1 (Simple apparatus)

Manufacturer	Part no.
Alphasense Ltd	O2A2, O2A1, O2A3
City Technology Ltd	4OX2, 4OX1, 4OXV
E2V Technologies (UK) Ltd	EC410
DD Scientific Ltd	S+4OX

Variation 1 - This variation introduced the following changes:

- i. An alternative battery type/option, GEB102649, manufactured by General Electronics Battery Co. Ltd. When fitted with this alternative battery, the Personal Surveyor 2xx / PS2xx Gas Detector maybe marked with a temperature class of T4.
- ii. PCB modifications.
- iii. An additional CELL 1 position sensor type/option (City Technology Ltd type 4OXV Oxygen Sensor).

Variation 2 - This variation introduced the following changes:

- i. A reduction of the maximum charger voltage from Um: 30 V to Um: 6 V; safety components rated on this maximum voltage were approved.
- ii. Following successful completion of a non-metallic enclosure static test– measurement of capacitance, the Special Condition for Safe Use was removed and the 'X' suffix removed from the certificate number.

Variation 3 - This variation introduced the following changes:

- i. Two of the above tables were modified to recognise that the part numbers and supplier of the following sensors have been altered, this is an administrative change only and the replacement sensors are technically equivalent to those previously used:

Sensor Position: TOX1 (Simple apparatus)

Previous sensor details	
Manufacturer	Part no.
MRB Scientific Ltd.	S+4DT, S+4CO, S+4H2S

Replacement sensor details	
Manufacturer	Part no.
DD Scientific Ltd.	GS+4DT, GS+4CO, GS+4H2S

Sensor Position: CELL1 (Simple apparatus)

Previous sensor details	
Manufacturer	Part no.
MRB Scientific Ltd.	S+4OX

Replacement sensor details	
Manufacturer	Part no.
DD Scientific Ltd.	S+4OX

- ii. The casting compound was changed.

Variation 4 - This variation introduced the following changes:

- i. The recognition of a distributor's label.

Variation 5 - This variation introduced the following changes:

- i. A new model option was introduced into the range of Personal Surveyor 2XX / PS2XX Gas Detectors, this option uses an intrinsically safe sensor as detailed below:

Sensor Position: PELL1, intrinsically safe sensor:

Manufacturer	Part no.	Certificate no.
SGX Sensortech	VQ548MP	DEMKO 14 ATEX 1266U

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The following marking is applicable to this option:



II 1G
Ex ia IIC T* Ga
(Ta = -20°C ≤ Ta ≤ +50°C)
* T4 or T3 depending on battery type

As a result of this change, EN 60079-26:2007 was added to the list of certifying standards.

- ii. The label material was previously, specifically defined but the specification has now been changed to allow an equivalent material to be used.
- iii. The manufacturer of the sensors has changed name from "E2V" to "SGX Sensortech".

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	4 February 2011	R22719A/00	The release of prime certificate.
1	13 June 2011	R24740A/00	The introduction of variation 1.
2	07 December 2011	R25517A/00	The introduction of variation 2; as a result of change ii, the 'X' suffix in the certificate number was removed.
3	06 July 2012	R28210A/00	The introduction of variation 3.
4	19 March 2014	R33538A/00	The introduction of variation 4.
5	28 November 2014	R25517A/01 R70009198A	This Issue covers the following changes: <ul style="list-style-type: none">• Report R25517A/01 replaced R25517A/00.• The introduction of variation 5.

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

None.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 CONDITIONS OF CERTIFICATION

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 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.

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- 17.4 The Personal Surveyor 2xx / PS2xx Gas Detector shall only be marked with a temperature class of 'T4' when fitted with the type GEB102649 (manufactured by General Electronics Battery Co. Ltd.) single Lithium Polymer battery. All other battery types require the apparatus to be marked T3.

Certificate Annexe

Certificate Number: Sira 11ATEX2041
Equipment: Personal Surveyor 2xx / PS2xx Gas Detector
Applicant: Gas Measurement Instruments



Issue 0

Number	Sheet	Rev.	Date (Sira stamp)	Description
64250A-SIRA-CERT	1 to 3	A	02 Feb 11	PS200 Basic Instrument Assembly Certification
64258A-SIRA-CERT	1 of 1	A	02 Feb 11	Pump Assy. Certification
64290A-SIRA-CERT	1 to 3	A	02 Feb 11	P.C.B. Assembly Certification
64290ibSCP	1 of 1	B	02 Feb 11	PS200 PCB Assy – Safety Critical Parts
64320cert	1 of 3	B	02 Feb 11	PS200 – Display
64320cert	2 of 3	B	02 Feb 11	PS200 – Sensor
64320cert	3 of 3	B	02 Feb 11	PS200 – Power PCB
64320-GERB	1 to 7	A+	02 Feb 11	PS200 PCB Gerbers
64317-SIRA-CERT	1 of 1	A	02 Feb 11	Sira Certification Label PS200
64321-SIRA-CERT	1 of 1	A	02 Feb 11	Battery PS200 Sira Certification
67018A SIRA V2	1 of 1	1	11 Jan 07	SR Flammable Sensor Assembly
67271 SIRA	1 of 1	1	11 Jan 07	Sensor Body
66463 SIRA	1 of 1	1	11 Jan 07	Sintered Disc
66072 SIRA	1 of 1	1	11 Jan 07	Sensor Contact Pin
66473	1 of 1	1	11 Jan 07	Insert Moulding 1
66474	1 of 1	1	11 Jan 07	Insert Moulding 2
66465A	1 of 1	1	11 Jan 07	Filter Assembly
66040 SIRA	1 of 1	1	11 Jan 07	Sensor Label
64290A-SIRA-CERT-F4-MOD	1 to 2	A	21 Feb 11	P.C.B. Assembly Sira Certification F4 Modification

Issue 1

Number	Sheet	Rev.	Date (Sira stamp)	Description
64290A-SIRA-CERT	1 to 3	B	10 Jun 11	P.C.B. Assembly Certification
64290i1SCP	1 of 1	1	10 Jun 11	PS200 PCB Assy – Safety Critical Parts
64320-GERB	1 to 7	1	10 Jun 11	PS200 PCB Gerber's
64321-SIRA-CERT	1 of 1	B	10 Jun 11	Battery PS200 Sira Certification
64317-SIRA-CERT	1 of 1	B	10 Jun 11	Sira Certification Label PS200

Issue 2

Number	Sheet	Rev.	Date (Sira Stamp)	Title
64290i2SCP	1 of 1	2	23 Nov 11	PS200 PCB Assy – Safety Critical Parts
64320cert	1 of 3	2	23 Nov 11	PS200 – Display
64320cert	2 of 3	2	23 Nov 11	PS200 – Sensor
64320cert	3 of 3	2	23 Nov 11	PS200 – Power PCB
64317-SIRA-CERT	1 of 1	C	02 Dec 11	Sira Certification Label PS200
64321-SIRA-CERT	1 of 1	B	23 Nov 11	Battery PS200 Sira Certification

Issue 3

Drawing no.	Sheets	Rev.	Date (Sira stamp)	Title
64290A-SIRA-CERT	1 to 3	C	05 Jul 12	P.C.B. Assembly Certification

Issue 4

Drawing	Sheets	Rev.	Date (Sira stamp)	Description
64317M Sira Cert	1 of 1	B	19 Mar 14	Certification Label Marine 4

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Certificate Annexe

Certificate Number: Sira 11ATEX2041
Equipment: Personal Surveyor 2xx / PS2xx Gas Detector
Applicant: Gas Measurement Instruments



Issue 5

Drawing	Sheets	Rev.	Date (Sira stamp)	Description
64317_SIRA_CERT	1 of 1	E	12 Nov 14	Sira Certification Label PS200
64317M_SIRA_CERT	1 of 1	D	12 Nov 14	Sira certification Label

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