



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 13ATEX2390X** Issue: **1**

4 Equipment: **PGM-2500, PGM-2560, PGM-2500D and PGM-2560D multi-sensor gas detector**

5 Applicant: **Rae Systems Inc.**

6 Address: **3775 North First Street
San Jose
California 95134
United States of America**

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 60079-0:2012

EN 60079-11:2012

EN 60079-26:2007

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 1G

Ex ia IIC T4 Ga

Ta = -20°C ≤ Tamb ≤ +50°C

Project Number 70009414

A C Smith
Certification Manager

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE

Sira 13ATEX2390X
Issue 1

13 DESCRIPTION OF EQUIPMENT

The Model PGM-25xxx is a multi-sensor gas detector designed to provide continuous exposure monitoring of gases such as CO, H2S, O2, LEL gases for workers in hazardous environments. The first and second "x" can be any number from 0 to 9 reflecting the combination of sensors used. The third "x" is either blank (for pump model) or a "D" (for diffusion model).

The gas detector gives real time gas measurements and provides an audible and visual alarm when gas levels exceed the preset limits. The visual alarm comprises a Red LED bar visual from the top. Additionally, an imbalanced motor produces a vibration alert when in alarm mode. Two push buttons facilitates the access to measured levels or alarms, and the mode button allows changing preset limits. A wireless modem is provided as an option.

The physical dimensions are 152 mm x 83 mm x 43.5 mm (PGM-25xx) and 141 mm x 83 mm x 38.5 mm (PGM-25xxD). The weight is about 414 g (PGM-25xx) and 365 g (PGM-25xxD).

There are no external connectors except for the charging and PC communication contacts. The unit is powered by a 3.7 V Li-Ion Battery Pack. The Battery Pack is replaced by removing a cover that is retained by fasteners.

Variation 1 - This variation introduced the following changes:

- i. The nomenclature for model PGM-25xx has been replaced with PGM-2500 or PGM-2560, and PGM-25xxD with PGM-2500D or PGM-2560D; the conditions were amended to reflect this change.
- ii. The inclusion of an alternative analogue board QRAE3 PGM-2560 Rev B 1444 (M02-1100-000) was endorsed. This board is used in models PGM-2560 and PGM-2560D.
- iii. The power supply to two potentiometers (U2, U3) has been amended.
- iv. Schematic designators for socket 2 (sensor channel 2) and socket 3 (sensor channel 3) were corrected on schematic M02-1011-SCH.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	12 February 2014	R32498A/00	The release of the prime certificate.
1	12 May 2015	R70009414A	The introduction of Variation 1.

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

- 15.1 The PGM-2500/PGM-2500D, PGM-2560/PGM-2560D shall only be fitted with RAE Systems Battery Pack type G02-3004-000.
- 15.2 The PGM-25xxx shall only be charged outside the hazardous area.
- 15.3 The PGM-25xxx shall only be charged with a RAE Barrier (p/n M02-3011-000) that limits Uo to 20 V.

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Sira Certification Service

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE

Sira 13ATEX2390X
Issue 1

- 15.4 No precautions against electrostatic discharge are necessary for portable equipment that has an enclosure made of plastic, metal or a combination of the two, except where a significant static generating mechanism has been identified. Activities such as placing the item in a pocket or on a belt, operating a keypad or cleaning with a damp cloth, do not present a significant electrostatic risk. However, where a static-generating mechanism is identified, such as repeated brushing against clothing, then suitable precautions shall be taken, e.g. the use of anti-static footwear.
- 15.5 This equipment has not been assessed in accordance with the requirements in respect of safety-related devices that are defined in EHSR 1.5 of directive 94/9/EC; in consequence, it shall not be used for an application where it is intended to contribute to or is required for the safe functioning of equipment or protective systems with respect to the risk of explosions.
- 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.

Certificate Annexe

Certificate Number: Sira 13ATEX2390X
Equipment: PGM-25xx and PGM-25xxD multi-sensor gas detector
Applicant: Rae Systems Inc.



Issue 0

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
904-E300-016.02	1 of 1	1	11 Feb 14	PGM-25xx Hardware Equivalent Circuit
904-E300-016.03	1 of 1	1	11 Feb 14	PGM-25xx Function Block Diagram
904-E300-016.20	1 of 1	1	11 Feb 14	PGM-25xx/2500D General Description
A01-1015-SCH	1 of 1	1	11 Feb 14	900 MHz wireless modem (RAE)
A01-1016-SCH	1 of 1	1	11 Feb 14	2.4 GHz wireless modem (RAE)
G02-1002-000	1 to 11	A	11 Feb 14	Li-ion Battery Board, layout
G02-1012-BOM-CSA	1 of 1	2	11 Feb 14	Li-ion Battery Board, BOM
G02-1012-SCH-CSA	1 of 1	2	11 Feb 14	Li-ion Battery Board, Schematic
G02-3004-ASY	1 of 1	3	11 Feb 14	Li-ion Battery Pack
M02-0901-ASY	1 of 2	04	11 Feb 14	PGM-25xx Pump Unit, Assy
M02-0902-ASY	1 of 2	04	11 Feb 14	PGM-25xxD Diffusion Unit, Assy
M02-1000-000	1 to 13	F	11 Feb 14	Main Board, layout
M02-1001-000	1 to 13	E	11 Feb 14	Analog Board, Trace layout
M02-1010-BOM	1 to 3	5	11 Feb 14	Main PCB, BOM
M02-1010-SCH	1 to 7	8	11 Feb 14	Main PCB, Schematic
M02-1011-BOM	1 to 2	4	11 Feb 14	Analog Board, BOM
M02-1011-SCH	1 to 4	8	11 Feb 14	Analog Board, Schematic
M02-1015-SCH	1 of 1	3	11 Feb 14	Antenna Board and C/L limits
M02-1016-BOM	1 of 1	3	11 Feb 14	Charger Barrier, Schematic
M02-1016-SCH	1 to 2	2	11 Feb 14	Charger Barrier, BOM
M02-4001-CTL	1 to 13	B	11 Feb 14	User Manual, Controlled part
M02-4007-LBL-1	1 to 2	3	11 Feb 14	PGM-25xx/25xxD Product Label
M02-CFML-000	1 of 1	2	11 Feb 14	Conformal coating, PGM25xx/25xxD
M02-LCDM-000	1 of 1	1	11 Feb 14	LCD Module
M02-MODM-001	1 of 1	2	11 Feb 14	Wireless Modem
M02-MODM-ATX1	1 of 1	2	11 Feb 14	Permitted Modems – view with case removed
M02-NOME-000	1 of 1	1	11 Feb 14	Nomenclature of PGM-25xx/PGM-25xxD
M02-SEN1-000	1 to 2	2	11 Feb 14	PGM-25xx/25xxD Sensor List

Issue 1

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
M02-1011-SCH	1 to 4	10	01 April 15	Schematic, PGM-2500x Analogue Board
M02-1110-BOM	1 to 3	1	01 April 15	BOM, PGM-2560x Analogue Board
M02-1100-000	1 to 13	B	01 April 15	PCB Layout, PGM-2560x Analogue Board
M02-1110-SCH	1 to 4	2	01 April 15	Schematic, PGM-2560x Analogue Board

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