



1. EU-TYPE EXAMINATION CERTIFICATE

2. Component intended for use in Potentially Explosive Atmospheres - Directive 2014/34/EU

3. EU-Type Examination Certificate No: FM19ATEX0184U

4. Component: MPS S4 Combustible Gas Sensors
(Type Reference and Name)

5. Name of Applicant: Nevada Nanotech Systems Inc.

6. Address of Applicant 1395 Greg St Suite 102, Sparks, Nevada 89431, United States of America

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

8. FM Approvals Europe Ltd, notified body number 2809 in accordance with Article 17 of Directive 2014/34/EU of 26 February 2014, 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 confidential report number:

PR452569 dated 25th November 2019

9. Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN IEC 60079-0:2018, EN 60079-11:2012

10. The sign 'U' placed after the certificate number indicates that this certificate must not be mistaken for a certificate for equipment or a protective system. This certificate may only be used as the basis for the certification of equipment or a protective system.

11. This EU-Type Examination certificate relates only to the design, examination and tests of the specified component in accordance to the directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this component. These are not covered by this certificate.

12. The marking of the component shall include:



II 1 G Ex ia IIC Ga Ta = -40°C to +75°C

II 1 D Ex ia IIIC Da Ta = -40°C to +75°C

Certificate issued by:

 Richard
Zammit
Dublin,
Ireland
2024.3.0

Certification Manager, FM Approvals Europe Ltd.

Date 14 October 2024

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SCHEDULE

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13. Description of Component:

General - The MPS S4 Combustible Gas Sensors are 3, 4, or 5 pin components for use in gas detection. The sensors are designed to detect multiple gases and gas mixtures. The sensors are components installed in a gas detection system.

Ratings - The ambient operating temperature range is -40°C to +75°C.

The MPS S4 Gas Sensors have the following Energy Limiting Parameters:

Hardware Configuration: 03, 04, or 05:

$U_i = 6V$; $I_i = 1.8A$; $C_i = 19.5 \mu F$; $L_i = 0$; $P_i = 870mW$.

Hardware Configuration: 23, 24, 25, or 34:

$U_i = 6V$; $I_i = 1.8A$; $C_i = 8.3 \mu F$; $L_i = 0$; $P_i = 870mW$.

MPSaaa-bbccdd-ef Combustible Gas Sensor.

aaa = Product Family: Any 3 alphanumeric combination

bb = Form/Size: S4

cc = Hardware Configuration: 03, 04, 05, 23, 24, 25, or 34

dd = Software Configuration: Any 2 alphanumeric combination

e = Certification: E

f = Production Classification: Any alphanumeric combination

14. Schedule of Limitations:

1. The functionality of the sensor shall be verified as necessary in accordance with the appropriate performance standard.
2. The sensor shall be installed within an enclosure with a minimum ingress protection rating of IP20.
3. The intrinsically safe parameters for the sensor shall be applied to the intrinsically safe device to which the sensor is connected.

15. Essential Health and Safety Requirements:

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16. Test and Assessment Procedure and Conditions:

This EU-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Europe Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Europe Ltd's ATEX Certification Scheme.

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17. Schedule Drawings

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

18. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
27 November 2019	Original Issue.
27 February 2020	<u>Supplement 1:</u> Report Reference: – RR222046 dated 26 th February 2020. Description of the Change: Updated the schedule of limitations.
13 January 2021	<u>Supplement 2:</u> Report Reference: – RR226373 dated 11 th January 2021. Description of the Change: Remove option Series S7. Various minor editorial changes to improve documentation related to the S4 form factor. Reformat model code.
10 February 2021	<u>Supplement 3:</u> Report Reference: – RR226673 dated 05 th February 2021. Description of the Change: Correct typo in removing reference to option Series S7.
15 June 2021	<u>Supplement 4:</u> Report Reference: – RR228122 dated 14 th June 2021. Description of the Change: Update to Section 14 – Schedule of Limitations
27 July 2021	<u>Supplement 5:</u> Report Reference: – RR228746 dated 27 th July 2021. Description of the Change: Ui is changed from 5.25V to 6V. Editorial changes to drawings.
27 October 2021	<u>Supplement 6:</u> Report Reference: – RR229254 dated 25 th October 2021. Description of the Change: Hardware configuration options added for Version 2 design. New configurations have separate entity parameters with reduced capacitance. Documents update. Correction of marking to “II 1 D” in Section 12.
17 June 2022	<u>Supplement 7:</u> Report Reference: – RR232855 dated 17 th June 2022. Description of the Change: Minor documentation updates and additions related to alternate component bills of material.
14 October 2024	<u>Supplement 8:</u> Report Reference: PR469537 dated 14 October 2024. Description of the Changes: Minor revisions to printed circuit assembly of MPS S4 V1. Addition of MPS S4 V3 version, identified in model numbering scheme as

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Date	Description
	Hardware Configuration 34.



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