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: (Type Reference and Name)** **MPS S4 Combustible Gas Sensors**

5 **Name of Applicant:** **Nevada Nanotech Systems Inc.**

6 **Address of Applicant:** **1395 Greg St Suite 102**
Sparks, NV 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 the 26th February, 2014, certifies that this component 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 and 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

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

Martin Crowe
Certification Manager, FM Approvals Europe Ltd.

Issue date: 27th July 2021

FM Approvals Europe Limited, One Georges Quay Plaza, Dublin. Ireland. D02 E440
T: +353 (0) 1761 4200 E-mail: atex@fmapprovals.com www.fmapprovals.com

SCHEDULE

to EU-Type Examination Certificate No. FM19ATEX0184U

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 detects 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:
Ui = 6V; Ii = 1.8A; Ci = 19.5 µF; Li = 0; Pi = 870mW.

MPSaaa-bbccdd-ef Combustible Gas Sensor.
aaa = Product Family: Any 3 alphanumeric combination
bb = Form/Size: S4
cc = Hardware Configuration: 03, 04, or 05
dd = Software Configuration: Any 2 alphanumeric combination
e = Certification: E
f = Production Classification: Any alphanumeric

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, FM Approvals Ltd accepts no responsibility for the compliance of the component against all applicable Directives in all applications.

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

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:

SCHEDULE

to EU-Type Examination Certificate No. FM19ATEX0184U

Date	Description
27th November 2019	Original Issue.
27th February 2020	Supplement 1: Report Reference: – RR222046 dated 26th February 2020. Description of the Change: Updated the schedule of limitations.
13th January 2021	Supplement 2: Report Reference: – RR226373 dated 11th 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.
10th February 2021	Supplement 3: Report Reference: – RR226673 dated 05th February 2021. Description of the Change: Correct typo in removing reference to option Series S7.
15th June 2021	Supplement 4: Report Reference: – RR228122 dated 14th June 2021. Description of the Change: Update to Section 14 – Schedule of Limitations
27th July 2021	Supplement 5: Report Reference: – RR228746 dated 27th July 2021. Description of the Change: Ui is changed from 5.25V to 6V. Editorial changes to drawings.

Blueprint Report

Nevada Nanotech Systems Inc. (255107)

Class No 3610

Original Project I.D. 452569

Certificate I.D. FM19ATEX0184U

Drawing No.	Revision Level	Drawing Title	Last Report
10-000005-DWG	C03	MPS Product Schema	RR226373
10-000006-DWG	C04	S4 General Assembly Drawing	RR228746
26-000011-DWG	C06	S4 Label Drawing	RR228746
30-000013-DWG	C01.2	S4 CPU PCB Fabrication Drawing	RR226373
30-000013-TRC	C01.2	S4 CPU PCB Trace Drawing	RR226373
30-000014-DWG	C01.2	S4 Sensor PCB Fabrication Drawing	RR226373
30-000014-TRC	C01.2	S4 Sensor PCB Trace Drawing	RR226373
30-000015-DWG	C01.2	S4 Interface PCB Fabrication Drawing	RR226373
30-000015-TRC	C01.2	S4 Interface PCB Trace Drawing	RR226373
51-000022-BOM	C01.4	S4 CPU PCBA BOM	RR228746
51-000022-DWG	C01.2	S4 CPU PCBA Schematic Drawing	RR226373
51-000022-SCH	C01.2	S4 CPU PCBA Schematic Drawing	RR226373
51-000023-BOM	C01.4	S4 Sensor PCBA BOM	RR228746
51-000023-DWG	C01.2	S4 Sensor PCBA Assembly Drawing	RR226373
51-000023-SCH	C01.2	S4 Sensor PCBA Schematic Drawing	RR226373
51-000024-BOM	C01.2	S4 Interface PCBA BOM	RR226373
51-000024-DWG	C01.2	S4 Interface PCBA Assembly Drawing	RR226373
51-000024-SCH	C01.2	S4 Interface PCBA Schematic Drawing	RR226373
51-000025-BOM	C01.4	S4 Sensor PCBA BOM	RR228746
51-000036-DWG	C01.2	S4 Stack Assembly Drawing	RR226373
SM-UM-0003	C06	MPS Hazardous Locations User Guide	RR228746