

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION COMPONENT PER US REQUIREMENTS**

- 2. **Certificate No:** FM19US0145U
- 3. **Component:** MPS S4 Combustible Gas Sensors
(Type Reference and Name)
- 4. **Name of Listing Company:** Nevada Nanotech Systems Inc.
- 5. **Address of Listing Company:** 1395 Greg St Suite 102
Sparks, NV 89431
United States

6. The examination and test results are recorded in confidential report number:
PR452569 dated 25th November 2019

7. FM Approvals LLC, certifies that the component described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3610:2018, ANSI/UL 60079-0:2019, ANSI/UL 60079-11:2014,
ANSI/UL 913:2019

8. 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. This certificate is issued to the manufacturer also intended to be the holder of the equipment certificate which includes this component.

9. This certificate relates to the design, examination and testing of the component specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the component as examined, tested and Approved.

10. **Component Ratings:**

Intrinsically Safe for Class I, Zone 0, Group IIC; Zone 20, Group IIIC; Class I, II, & III, Division 1, Groups A, B, C, D, E, F, and G hazardous (classified) locations with an ambient temperature rating of -40°C to +75°C.

Certificate issued by:



J.E. Marquedant
VP. Manager - Electrical Svstems

25 October 2021

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
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11. The marking of the component shall include:

Class I, II, III, Division 1, Groups A, B, C, D, E, F, G

Class I, Zone 0, AEx ia, Group IIC

Zone 20, AEx ia Group IIIC

Ta = -40°C to +75°C

12. **Description of Equipment:**

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:

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

Hardware Configuration: 23, 24, or 25:

Ui = 6V; Ii = 1.8A; Ci = 8.3 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, 05, 23, 24, or 25

dd = Software Configuration: Any 2 alphanumeric combination

e = Certification: E

f = Production Classification: Any alphanumeric combination

13. **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.

14. **Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. **Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

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16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
25 th November 2019	Original Issue.
26 th February 2020	<u>Supplement 1:</u> Report Reference: – RR222046 dated 26 th February 2020. Description of the Change: Update to schedule of limitations.
11 th 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.
5 th February 2021	<u>Supplement 3:</u> Report Reference: – RR226673 dated 5 th February 2021. Description of the Change: Correct typo in removing option Series S7.
14 th June 2021	<u>Supplement 4:</u> Report Reference: – RR228122 dated 14 th June 2021. Description of the Change: 1) Update to Section 13 – Schedule of Limitations 2) ANSI/UL 913:2019 added to standards list
27 th 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.
25 th 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.

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