



MOLECULAR PROPERTY SPECTROMETER™ (MPS™) HAZARDOUS LOCATIONS USER GUIDE

Notices

SM-UM-0003-C11

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1. Product Approval





1.1. The following Molecular Property Spectrometer™ (MPS™) gas sensors fall within the scope of the product approval table shown below:

MPSaaa-S403dd-Ef MPSaaa-S404dd-Ef MPSaaa-S405dd-Ef
 MPSaaa-S423dd-Ef MPSaaa-S424dd-Ef MPSaaa-S425dd-Ef
 MPSaaa-S434dd-Ef

where placeholders “aaa”, “dd”, and “f” can be any alphanumeric combination.

- 1.2. Additional certifications exist beyond those displayed in the product approval table shown below. Please consult NevadaNano for additional certifications.
- 1.3. System integrators are responsible to confirm the current status of certifications by visiting the appropriate certification body website and contacting NevadaNano where appropriate.

S4

Certification Body		 ATEX NB 2809 UKEX AB 1725		
Test Standard	IEC 60079-0:2017 IEC 60079-11:2011	EN 60079-0:2018 EN 60079-11:2012	FM 3600:2018 FM 3610:2018 ANSI/UL 913:2019	CSA 22.2 60079-0:2019 CSA 22.2 60079-11:2014
Protection Categories	Ex ia IIC Ga Ex ia IIIC Da Ta = -40°C to 75°C	 Ex II 1 G Ex ia IIC Ga Ex II 1 D Ex ia IIIC Da Ta = -40°C to 75°C	Class I, Division 1, Group A,B,C,D Class II and III, Division 1, Group E,F,G Class I, Zone 0 AEx ia IIC Ga Zone 20 AEx ia IIIC Da Ta = -40°C to 75°C	Class I, Division 1, Group A,B,C,D Class II and III, Division 1, Group E,F,G Class I, Zone 0 Ex ia IIC Ga Zone 20 Ex ia IIIC Da Ta = -40°C to 75°C
Certificate	IECEX FMG 19.0028U	FM19ATEX0184U FM21UKEX0159U	FM19US0145U	FM19CA0077U

2. Integration Guidelines

- 2.1. The MPS™ gas sensors have been approved as component-type pieces of equipment and therefore may not be used as a standalone unit in hazardous locations.
- 2.2. The sensor may be used with combustible gases with apparatus groups IIA, IIB and IIC and with temperature classifications T1, T2, T3, and T4. It may also be used in dust atmospheres IIIA, IIIB, and IIIC with temperature classifications greater than or equal to T135°C.
- 2.2.1. For all temperature classifications, this component is certified for use in ambient temperatures of -40°C to +75°C.
- 2.3. The MPS™ gas sensors within the scope of the product approval section have been assessed under mass-fault conditions with the resulting entity parameters:
- 2.3.1. These entity parameters are only valid for linear power sources.
- 2.3.2. The Ci and Li values indicated in the entity parameters must be included in the entity parameters of the overall system in which the sensors are installed.

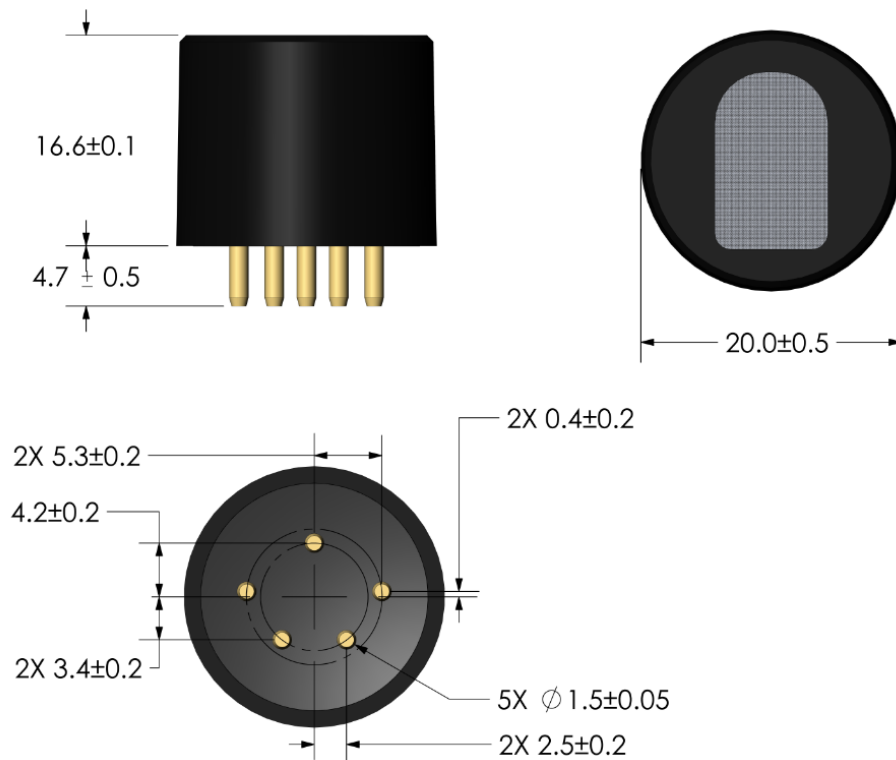
S4

MPS™ gas sensors	Pi	Ui	li	Ci	Li
MPSaaa-S403dd-Ef MPSaaa-S404dd-Ef MPSaaa-S405dd-Ef	870 mW	6 V	1.8 A	19.5 μF	0
MPSaaa-S423dd-Ef MPSaaa-S424dd-Ef MPSaaa-S425dd-Ef MPSaaa-S434dd-Ef	870 mW	6 V	1.8 A	8.3 μF	0

- 2.4. Installation and inspection of the MPS™ gas sensor should be carried out by personnel familiar with applicable codes pertaining to explosive atmospheres.
- 2.5. There are no serviceable parts in the MPS™ gas sensor.
- 2.6. Confirmation of baseline sensor performance shall be conducted in firmware using the built-in self-test protocol supplied by NevadaNano.
- 2.7. When standard operating procedures require sensor calibration, the end user may confirm adequate performance with a sensor validation test. Gases approved by NevadaNano shall only be used.

3. Critical Dimensions

3.1. **S4:** Dimensions are in millimeters (mm).



4. Schedule of Limitations

- 4.1. The functionality of the sensor shall be verified as necessary in accordance with the appropriate performance standard.
- 4.2. The MPS™ gas sensor is approved for installation with a minimum ingress protection rating of IP20. It is the responsibility of the system integrator to design the end-product for conditions that exceed the aforementioned enclosure rating.
- 4.3. The intrinsically safe parameters for the sensor shall be applied to the intrinsically safe device to which the sensor is connected.



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