

# MOLECULAR PROPERTY SPECTROMETER<sup>TM</sup> (MPS<sup>TM</sup>) HAZARDOUS LOCATIONS USER GUIDE



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## 1. Product Approval

| Certification Body    | IEĈEX   | (Ex)                                | C FM US APPROVED  |  |
|-----------------------|---|-------------------------------------|---|--|
| Test Standard         | IEC 60079-0:2017<br>IEC 60079-11:2011               | EN 60079-0:2018<br>EN 60079-11:2012 | FM 3600:2018<br>FM 3610:2018  | CSA 22.2 60079-0:19<br>CSA 22.2 60079-11:14  |
| Protection Categories | Ex ia IIC Ga<br>Ex ia IIIC Da<br>Ta = -40°C to 75°C |                                     | Class I, Division 1, Group<br>A,B,C,D<br>Class II and III, Division 1,<br>Group E,F,G<br>Class I, Zone 0 AEx ia IIC<br>Ga<br>Zone 20 AEx ia IIIC Da<br>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                       | FM19US0145U   | FM19CA0077U  |

## 2. Integration Guidelines

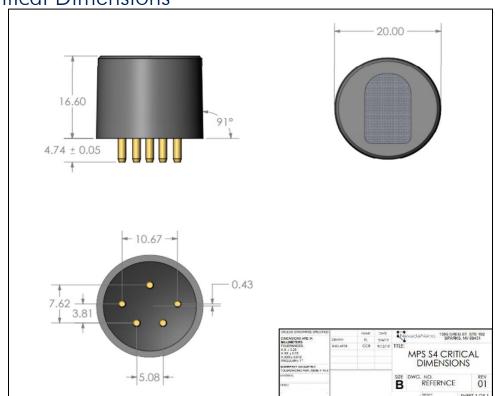
- 2.1. The Molecular Property Spectrometer<sup>TM</sup> (MPS<sup>TM</sup>) has been approved as component-type piece of equipment and therefore may not be used as a standalone unit in hazardous locations.
- 2.2. The sensor may be used with combustible gases with apparatus groups IIA, IIB and IIC and 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 T135C.
  - 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 $^{\text{TM}}$  has been assessed under mass-fault conditions with the resulting entity parameters:

Pi = 870 mW Ui = 5.25 V Ii = 1.8 A Ci = 19.5 
$$\mu$$
F Li = 0



- 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.
- 2.4. Installation and inspection of the MPS<sup>TM</sup> sensor unit should be carried out by personnel familiar with applicable codes pertaining to explosive atmospheres.
- 2.5. There are no serviceable parts in the MPS $^{TM}$ .
- 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





## 4. Schedule of Limitations

- 4.1. The function of the component shall be verified in accordance with IEC 60079-29-1 or an equivalent performance standard.
- 4.2. The MPS<sup>TM</sup> is approved for an installation with 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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