



MPS™ Refrigerant Gas Sensors

Industry-Leading Performance

NevadaNano's Molecular Property Spectrometer™ (MPS™) Refrigerant Gas Sensors provide accurate and reliable detection of refrigerants in existing and emerging applications. Whether you are converting refrigeration systems to mildly flammable lower Global Warming Potential A2L's, highly flammable A3's, or even proactively managing your A1 leaks, the MPS has best-in-class performance. With no calibration required for the entire 15+ year lifetime, MPS sensors provide the perfect solution for high customer satisfaction in HVAC-R products.



Mini

The MPS employs smart sensor technology to ensure consistent high performance and reliability, and extremely fast response times. The MPS™ Refrigerant Gas Sensors have a wide environmental operating range and built-in environmental compensation to ensure reliable operation in tough HVAC-R environments. The sensor is immune to poisoning and includes built-in self-test functions for assurance that the sensor is operating correctly and within specifications. The MPS A2L Refrigerant Gas Sensor and the MPS R290 Sensor are compliant to the applicable sensor component sections of the latest version of UL/IEC 60335-2-40 (2022) *. The MPS is available in two packaging options. The S4 has been certified (Mini pending) as intrinsically safe for ATEX/UKEX/IECEx for use in commercial, industrial, and comfort cooling applications. The cost-effective Mini targets residential applications. Both packages meet the same high performance standards.



S4

Contact us if you do not see a refrigerant of interest listed, or for more information.

Features

- Meets UL/IEC 60335-2-40 * and ASHRAE 15 requirements
- Wide environmental operating range with near-zero cross-sensitivity to rapid temperature and humidity changes
- Near-zero false positives
- 2-year warranty
- Supports 15+ year lifetimes
- Extremely fast response time
- Built-in self-test for fail-safe operation
- Immune to poisoning
- Industrial and residential packaging options
- Third-party tested
- Available now for integration



Operating Principle

The Molecular Property Spectrometer (MPS) Refrigerant Gas Sensor's transducer is a micro-machined membrane with an embedded Joule heater and resistance thermometer. The MEMS transducer is mounted onto a PCB and open to ambient air. The presence of a refrigerant gas causes changes in the thermodynamic properties of the air/gas mixture that are measured by the transducer. Sensor data are processed by patented algorithms to report an accurate concentration.

MPS Refrigerant Gas Sensor Product Family

Sensors are calibrated for a specific refrigerant

Classifications	MPS A2L Sensors	MPS A1 Sensors	MPS A3 Sensors
Current Products	R-32 R-454B R-454C	R-410A	R-290 (propane)
Applications	Residential HVAC Heat Pumps	Comfort Cooling Residential HVAC	Commercial Refrigeration Residential HVAC Heat Pumps
Range	R-32: 5-100 %LFL R-454B: 9-100 %LFL R-454C: 8-100 %LFL	Static Conditions: 1,700-130,000 ppm Dynamic Conditions: 5,100-130,000 ppm	5-100 %LEL
Resolution	0.1 %LFL	130 ppm	0.1 %LEL
Certifications	UL60335-2-40 (2022) Compliant * ATEX/UKEX/IECEX Certified (S4 Only)	N/A	UL60079-29-1 (2020), UL/IEC60335-2-40 (2022) Compliant * ATEX/UKEX/IECEX Certified (S4 Only)
Response Time (T90)	< 15 Seconds	< 20 Seconds	< 30 Seconds
Temp Operating Range	-40°C to 75°C	-40°C to 75°C	-40°C to 75°C
Humidity Operating Range	0 to 100 %RH	0 to 100 %RH	0 to 100 %RH
Pressure Operating Range	80 to 120 kPa	80 to 120 kPa	80 to 120 kPa
Lifetime	15 + Years	15 + Years	15+ Years
Output Options	Analog Out and/or UART	Analog Out and/or UART	Analog Out and/or UART
Operating Voltage	3.3 - 5.0 ± 5% VDC	3.3 - 5.0 ± 5% VDC	3.0 - 5.0 ± 5% VDC
Current Consumption	8.9 mA Typical	8.9 mA Typical	8.9 mA Typical

* Mini pending, contact NevadaNano for more information