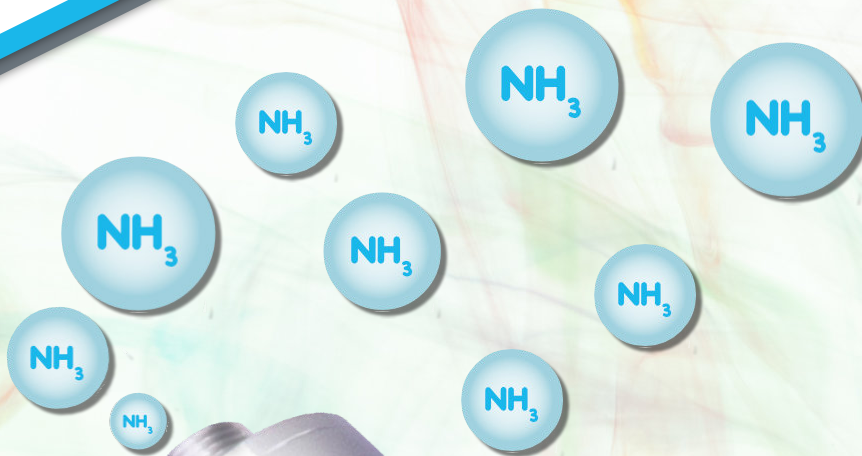




SGX

SENSORTECH

An Amphenol Company



Ammonia Gas Sensor Probe Datasheet

NH3-500-Probe

Innovation with Solid Polymer Gas Sensing Technology

Product Overview

The Ammonia Gas Sensor Probe, in combination with the principle of coulometry, delivers a high-precision gas detection technology. The ammonia concentration in the livestock industry has various negative effects on the animals and our environment. In a high ammonia concentrated-environment the livestock has a higher risk of contracting a disease. The air surrounding the farm, both inside and outside, is polluted and has a pungent smell. NH3-500-Probe big advantage, while continuously working with a high ammonia concentration, is its long lifetime. A pump easily transports the gas to the sensor without the need to calibrate. The sensor can be used for livestock farms, ammonia leakage detection and cooling storages. The output signal, RS485 (Modbus), will effortlessly connect with a gas detector, DCS, PLC or wireless systems.



Over 90% of ammonia emissions come from agriculture. Livestock farming and the use of artificial fertilisers are the main contributors to its emissions.

Features

- Smart measuring system
- Operates with continuous background Ammonia levels
- Combined with our intelligent algorithms, the probe adapts easily to the environment
- High accuracy and stable zero point
- Integrated pump, no calibration with NH₃ gas needed
- No EMC interference
- No Temperature and Humidity impact
- 5 – 12VDC Power supply, RS485 Output signal
- Stainless steel housing, water and dust proof, anti-corrosion
- The NH₃ detection range is automatically adjusted to the environment concentration, from ppb to ppm levels
- Sensor automatic fault check

Application

- Animal farming
- Industrial NH₃ Leak detection
- High Concentration NH₃ monitoring
- Refrigeration rooms

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Principle

The NH3-500-Probe contains our Solid Polymer Electrolyte NH3 gas sensor, featuring long lifetime, robustness and selectivity. Based on the Electrochemical reaction and in combination with a sample pump, the probe measures Ammonia (NH₃) concentration in a wide range.

The gas reaches the working electrode of the sensor by a certain pump volume, which is always constant. All NH₃ in the offered gas volume will be consumed by the sensor. It creates a signal peak, which is proportional to the Ammonia concentration in the measuring gas. No calibration is necessary due to the coulometric measuring principle.

The sampling system is good for different densities, the speed of diffusion and convection is usually slow or depends on the environment, and temperature and different concentration influenced the speed of molecular motion. Sampling System let gas easy going to sensor.

Cross Sensitivity

Gas	Formula	Test Concentration	Sensor Reading
Carbon Dioxide	CO ₂	1000ppm	0ppm
Carbon Monoxide	CO	50ppm	0ppm
Chlorine	CL ₂	10ppm	0ppm
Hydrocarbons (unsaturated)	/	/	n.a
Hydrogen Cyanide	HCN	10ppm	0ppm
Hydrogen Sulfide	H ₂ S	50ppm	20ppm
Hydrogen	H ₂	100ppm	0ppm
Isopropanol	C ₃ H ₇ OH	1000ppm	n.a
Nitric Oxide	NO	25ppm	0ppm
Nitrogen Dioxide	NO ₂	10ppm	0ppm
Sulphur Dioxide	SO ₂	50ppm	0ppm

Note:

- 1) The above interference factors may differ from sensor to sensor and service life, please refer to the actual test results.
- 2) This table is not complete for all gases, and the sensor may be sensitive to other gases.

Order Informations

Product name	Part number	Range	Resolution
Ammonia Gas Sensor Probe	NH3-500-Probe	0-500ppm	0.1ppm

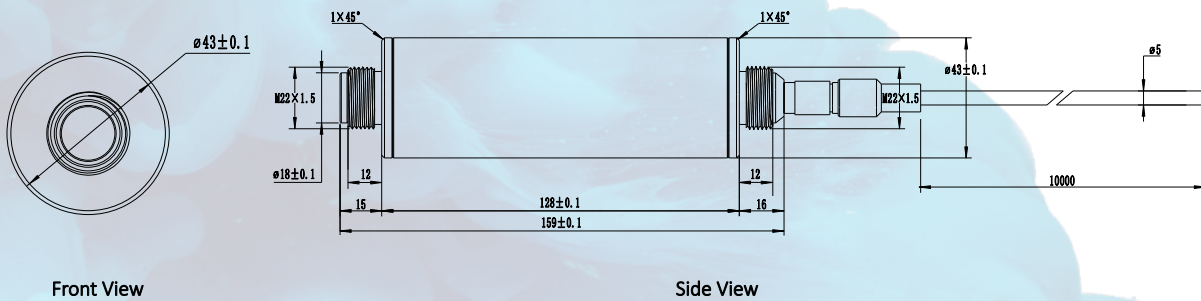
Specification

Principle	Coulometric Solid Polymer Electrochemical Detection Technology	
Detection of gas	Ammonia	
Detection Range	0-500ppm; Resolution: 0.1ppm Lowest Detection Limit: 1ppm	
Full-scale accuracy error	±5% F.S	
Repeatability	≤2%	
Settling time	Note: Exposure to harsh chemicals, high concentrations of alcohol, acetone, and ethanol gas during storage may lead to extended warm-up time	
Response time	Dependent on the selected measuring period, between 1 to 10min	
Calibration Gas	The gas distribution standard uses clean air as the background gas, the humidity is 50%, and the normal temperature environment	
Sensor expected life time	≥2 years Note: Temperature (0-25) °C, humidity (30-50)% RH, the measured gas concentration is within the range, there is no gas environment that affects the warm-up time mentioned above	
Long-Term Drift	< 1% /month	
Output	RS485(Modbus protocol), Baud rate: 9600 4Pin Lemo Cable with 10m(Other length by request)	
Get data command	See NH3-500-Probe communication protocol	
Working Voltage	5- 12V DC	
Maximum Current Consumption	1A	
Maximum Power Consumption	5W	
Working temperature	-20 ~ +55°C	
Optimal working temperature	25°C	
Working humidity	15-95% RH. Non-condensing	
Optimum working humidity	50% RH.	
Working pressure	Atm ± 10% Keep Stable Pressure	
Size	159 x 43 (mm)	
Weight	NH3-500-Probe: 450g, Lemo cable (10m) + connector: 400g	
Temperature and humidity sensor data	Temperature Range: -40 ~ +85°C Humidity measurement range: 10- 95% RH. non-condensing	Relative error: ± 0.2 °C Relative error: ± 2%
Warranty	12 months	

NH3-500-Probe

Innovation with Solid Polymer Gas Sensing Technology

Mechanical Drawing (unit: mm)



Disclaimer

SGX Europe Sp. z o.o. reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. SGX Europe Sp. z o.o. accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

SGX Europe Sp. z o.o. sensors are designed to operate in a wide range of harsh environments and conditions. However, it is important that exposure to high concentrations of solvent vapours is to be avoided, both during storage, fitting into instruments and operation. When using sensors on printed circuit boards (PCBs), degreasing agents should be used prior to the sensor being fitted. SGX Europe Sp. z o.o. makes every effort to ensure the reliability of its products. Where life safety is a performance requirement of the product, we recommend that all sensors and instruments using these sensors are checked for response to gas before use.



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