

SensorsX SX-GNOFSA Series

Electrochemical Nitric Oxide (NO) Gas Sensor

Four-Electrode | Low Power Consumption | Anti-Interference | High Accuracy



■ PRODUCT OVERVIEW

The SX-GNOFSA Series is a potentiostatic four-electrode electrochemical nitric oxide sensor. Nitric oxide and oxygen undergo oxidation–reduction reactions at the working electrode and counter electrode, respectively, generating an electrical current. The output current is proportional to the NO concentration, allowing NO concentration to be determined from the measured current. An auxiliary electrode is used to compensate the baseline current, and a compensation algorithm improves measurement accuracy at low concentrations.



■ KEY FEATURES

◆ Four Electrodes, Low Detection Limit, High Accuracy	◆ Fast Response, Fast Return-to-Zero
◆ Low Power Consumption, High Sensitivity	◆ Strong Interference Resistance
◆ High Repeatability and Stability	

■ TYPICAL APPLICATIONS

- Nitric oxide detection instruments
- Industrial on-site nitric oxide gas detection
- Environmental nitric oxide detection
- Smart municipal nitric oxide detection

■ PERFORMANCE SPECIFICATIONS

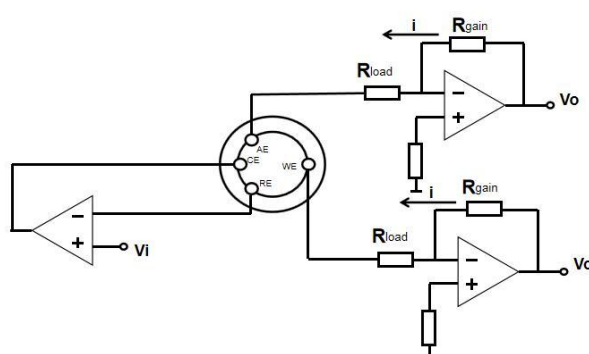
Model	SX-GNOFSA-600
Detection Principle	Electrochemical, four-electrode

Target Gas	NO (Nitric Oxide)
Detection Range	0 – 10 ppm
Maximum Overload Concentration	30 ppm
Sensitivity (at 20°C / 68°F)	1000 ± 400 nA/ppm
Resolution	15 ppb
Response Time	≤ 30 s
Repeatability	5% of output signal
Long-Term Stability	< ±2% signal value / month
Linearity	Linear
Shelf Life	12 months after delivery
Operating Life	2 years

■ ELECTRICAL SPECIFICATIONS

Bias Voltage	+300 mV
Load Resistance	10 Ω

Basic Measurement Circuit

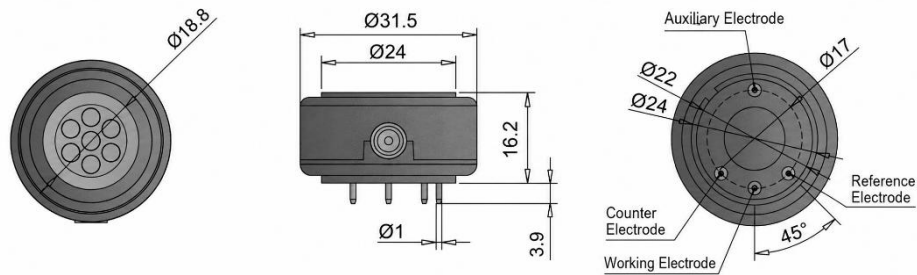


Basic test circuit for the SX-GNOFSA nitric oxide sensor

■ ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	–30 to +50°C (–22 to +122°F)
Operating Humidity	15 – 90% RH, non-condensing
Operating Pressure	90 – 110 kPa (13.1 – 16.0 psi)

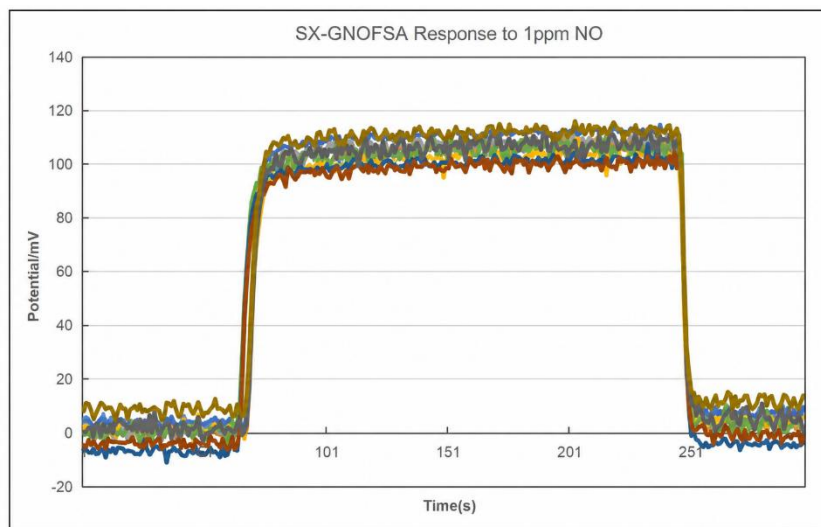
■ MECHANICAL DIMENSIONS



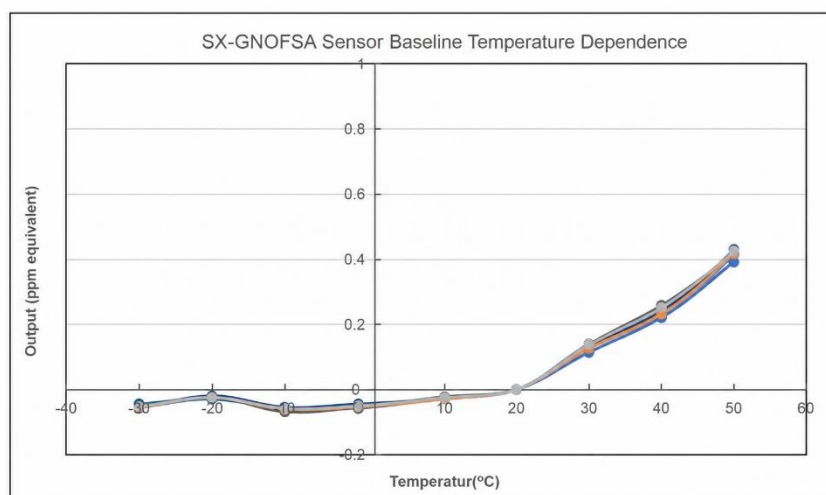
SX-GNOFSA sensor outline dimensions

Note: All dimensions in mm, unless otherwise specified. All tolerances are ± 0.2 mm (± 0.008 in).

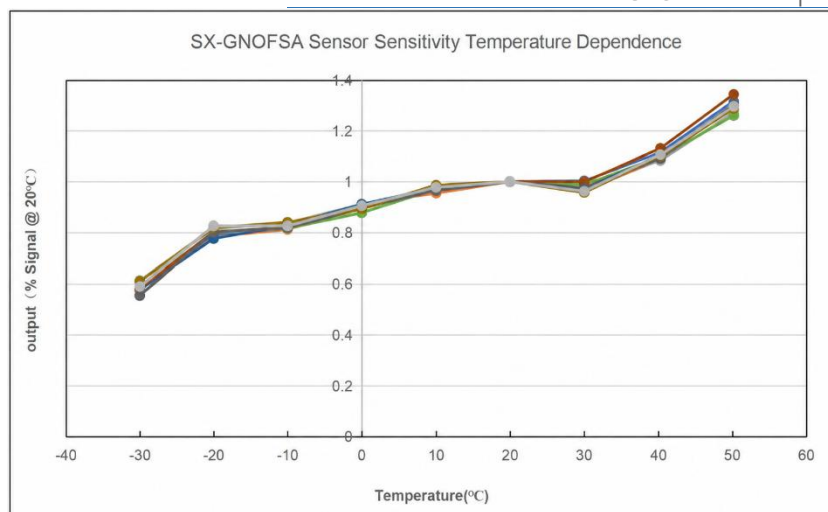
■ SENSOR CHARACTERISTICS



Response / recovery curve at 1 ppm NO



Baseline temperature dependence



Sensitivity temperature dependence

■ CROSS-INTERFERENCE

The SX-GNOFSA sensor also responds to gases other than the target gas. The table below lists typical responses to several common interferent gases at the given concentrations, for reference only.

Interferent Gas	Concentration Used (ppm)	Displayed Reading (ppb NO)
N ₂	100% (by volume)	0
CO ₂	300,000	10
H ₂ S	5	40
CO	50	5
SO ₂	5	6
NH ₃	20	9

■ NOTES / PRECAUTIONS

1. Sensor pins must be connected via a PCB socket; soldering will damage the sensor. Do not bend the pins.
2. The sensor must be allowed to warm up for at least 24 hours on first use.
3. Avoid exposing the sensor to organic solvents, alcohol, paints, oils, and high-concentration gases, including silicone and other adhesives.
4. Electrochemical sensors with positive output current (e.g., CO, H₂S, SO₂, NH₃) require oxygen to participate in the reaction. Calibrate and test using a standard gas with air as the background gas, otherwise sensor performance will be degraded.
5. The sensor must not be used for extended periods in environments containing corrosive gases, as corrosive gases will damage the sensor.
6. If the circuit board malfunctions — e.g., due to circuit design issues, faulty op-amps or other components, short/open circuits, poor pin contact, moisture, corrosion, leakage, power-supply noise, noise feedback, or electromagnetic interference — the alarm may fail to respond, drift, or show unstable readings, and may even cause the sensor to undergo electrolytic reactions and become damaged.
7. When calibrating or testing the sensor, do so in clean air while maintaining a steady, gentle gas flow to simulate natural gas diffusion. Blowing directly and forcefully at the sensor, or an unstable gas flow, will not produce satisfactory calibration or reproducible test results.
8. Calibration with the target gas is recommended. Cross-sensitivity can vary by $\pm 30\%$; calibrating with a cross-sensitive gas does not guarantee calibration or measurement accuracy.

9. Non-standard test methods are not recommended — e.g., placing the sensor directly over concentrated ammonia solution, spraying smoke at the sensor, holding a lit lighter near the sensor, breathing on the sensor, or placing the sensor near alcohol — because the local concentration from evaporating liquid ammonia or alcohol can reach tens of thousands of ppm, and human breath can contain CO₂ concentrations as high as 40,000 ppm, either of which will damage the sensor. The correct test method uses the target gas with air as the background gas.

* Violating the above conditions will degrade sensor performance.

■ ORDERING INFORMATION

Complete model number example: **SX-GNOFSA-600**

Gas Detection Range	
6	0 – 10 ppm
Zero Drift	
0	Standard
Sensitivity	
0	1000 ± 400 nA/ppm
Customized	
D	Customized — specify requirements when ordering