

SensorsX SX-GNOTMA Series

Electrochemical Nitric Oxide (NO) Gas Sensor

Compact Size | Low Power Consumption | Long Service Life | Cost-effective Design | High Accuracy



0–100 ppm Detection Range	350±100 nA/ppm Sensitivity	<30 s Response Time
-30 to +50°C Operating Temperature	15–90 %RH Humidity Range	2 years Service Life

Nitric Oxide Detection | Electrochemical Sensing | Industrial Process | Environmental | Smart Municipal

■ PRODUCT OVERVIEW

The SX-GNOTMA Series is a potentiostatic 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 nitric oxide concentration, allowing NO concentration to be determined from the measured current.



■ KEY FEATURES

◆ High Accuracy, Long Life	Precise detection with extended operating life
◆ Fast Response, Fast Return-to-Zero	Quick response with rapid baseline recovery
◆ Compact Size, Low Power, High Sensitivity	Compact package with low power consumption
◆ Wide Linear Range, Strong Anti-Interference	Robust performance across the measurement range
◆ High Repeatability and Stability	Consistent long-term performance

■ TYPICAL APPLICATIONS

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

■ PERFORMANCE SPECIFICATIONS

General	
Model	SX-GNOTMA-320
Detection Principle	Electrochemical, three-electrode
Target Gas	Nitric Oxide (NO)
Detection Range	0 – 100 ppm
Maximum Overload Concentration	200 ppm
Accuracy & Response	
Sensitivity	350 ± 100 nA/ppm
Zero Drift	± 2 ppm
Resolution	0.5 ppm
Response Time	< 30 s
Repeatability	< ± 2%
Long-Term Stability	< 5% signal / year
Linearity	Linear

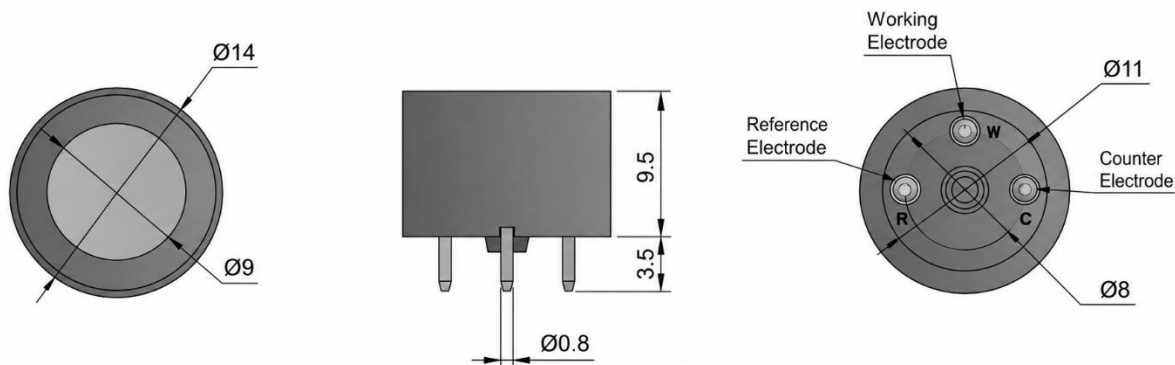
■ ELECTRICAL SPECIFICATIONS

Bias & Load	
Bias Voltage	+300 mV
Load Resistance	5 – 30 Ω

■ ENVIRONMENTAL SPECIFICATIONS

Temperature & Humidity	
Operating Temperature	-30 to +50°C (-22 to +122°F)
Operating Humidity	15 – 90% RH (non-condensing)
Other	
Operating Pressure	90 – 110 kPa
Shelf Life	12 months from delivery
Service Life	2 years

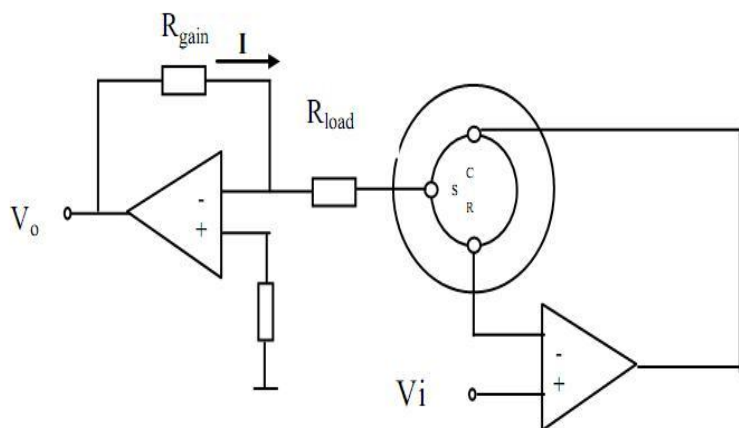
■ MECHANICAL DIMENSIONS



SX-GNOTMA Sensor Dimensions

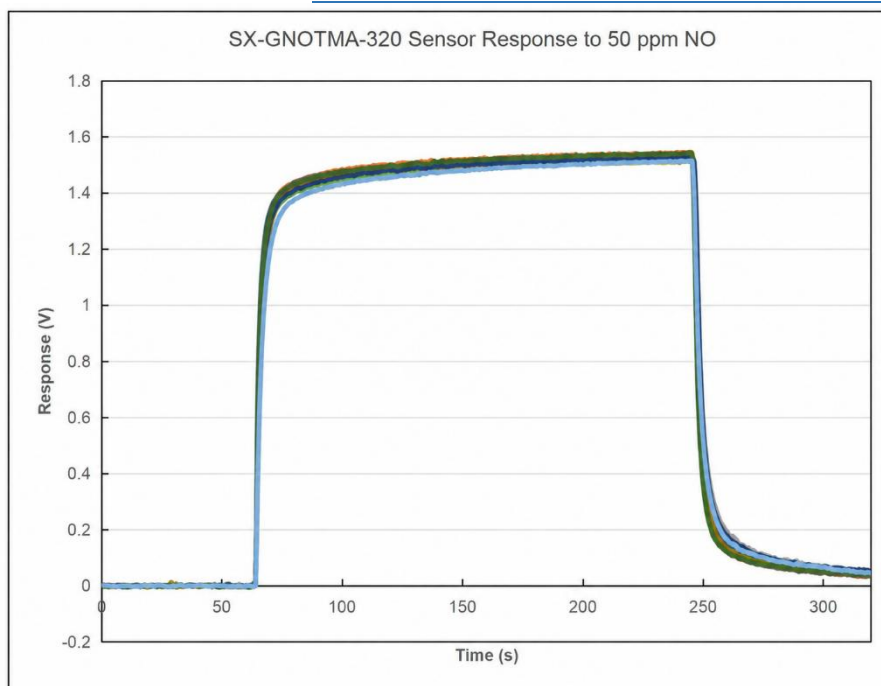
Note: All dimensions in mm, unless otherwise specified. All tolerances are ± 0.2 mm (± 0.008 in).

■ WIRING DIAGRAM

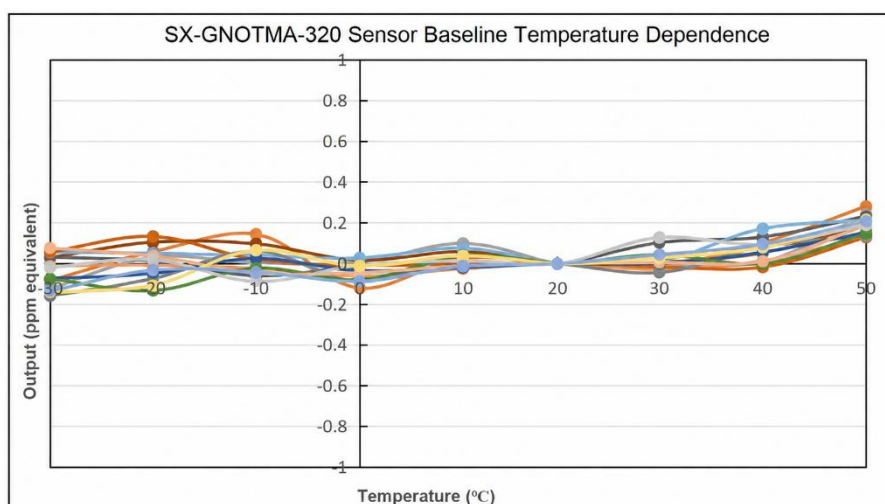


Basic Test Circuit for the SX-GNOTMA Series Sensor

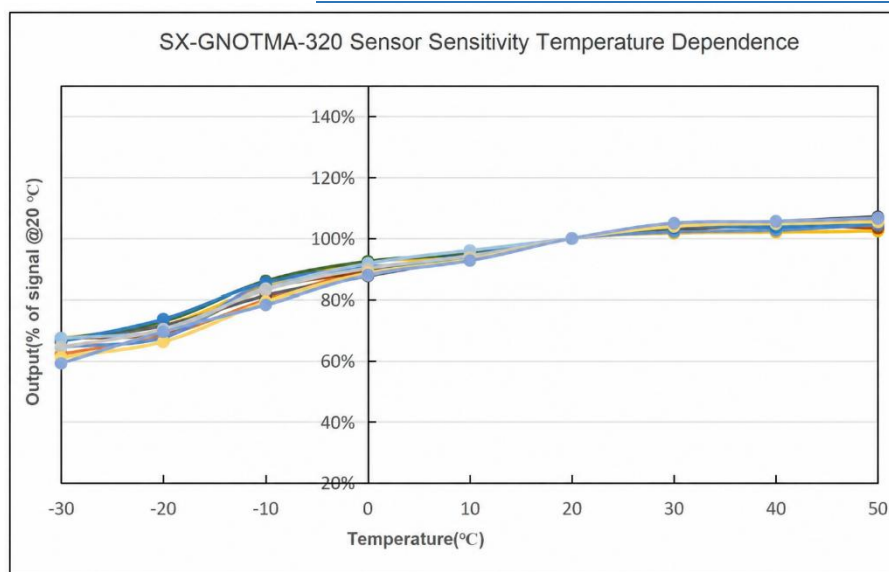
■ SENSOR CHARACTERISTICS



SX-GNOTMA Sensor Response to 50 ppm NO



SX-GNOTMA Sensor Baseline Temperature Dependence



SX-GNOTMA Sensor Sensitivity Temperature Dependence

■ CROSS-INTERFERENCE

The SX-GNOTMA Series sensor also responds to gases other than the target gas. The table below lists the sensor's typical response to several common interfering gases at the given concentrations, for reference.

Interfering Gas	Test Concentration (ppm)	Reading (ppm NO)
NH ₃	50	0
H ₂ S	25	8
CO	100	-0.6
H ₂	1000	-5
NO ₂	10	1
SO ₂	20	0.5

■ NOTES / PRECAUTIONS

- Sensor pins must be connected via a PCB socket; soldering will damage the sensor. Do not bend the pins.
- When stored, the working electrode and reference electrode should be kept short-circuited.
- Avoid exposing the sensor to organic solvents, alcohol, paints, oils, and high-concentration gases, including silicone and other adhesives.
- 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.
- The sensor must not be used for extended periods in environments containing corrosive gases, as corrosive gases will damage the sensor.
- 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.
- When calibrating or testing the sensor, use clean air and maintain a steady, gentle gas flow to simulate natural diffusion. Blowing directly and forcefully at the sensor, or an unstable flow rate, will not give satisfactory calibration or measurement accuracy and repeatability.
- Calibration with the target gas is recommended. Cross-sensitivity can vary by +30%; calibrating with a cross-sensitive gas does not guarantee calibration or measurement accuracy.
- Non-standard test methods are not recommended — e.g., placing the sensor directly over concentrated ammonia solution, spraying cigarette smoke at the sensor, bringing a lit lighter near the sensor, breathing on the sensor, or bringing the sensor close to alcohol — because the local concentration from evaporating ammonia solution or alcohol can reach tens

of thousands of ppm, and human breath contains CO₂ at concentrations up to 40,000 ppm, both of which can damage the sensor. The correct test method is to use the target gas with air as the background gas.

***Violation of the above conditions of use will degrade sensor performance.**

■ ORDERING INFORMATION

Complete model number example: SX-GNOTMA-320

Gas Detection Range Code	
3	0 – 100 ppm
Zero Drift	
2	± 2 ppm
Sensitivity Code	
0	350 ± 100 nA/ppm
Customized	
D	Customized — specify requirements when ordering