

SENSOR FEATURES:

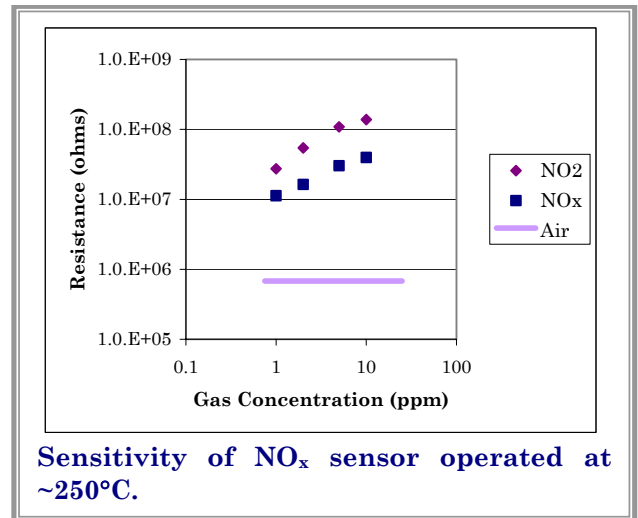
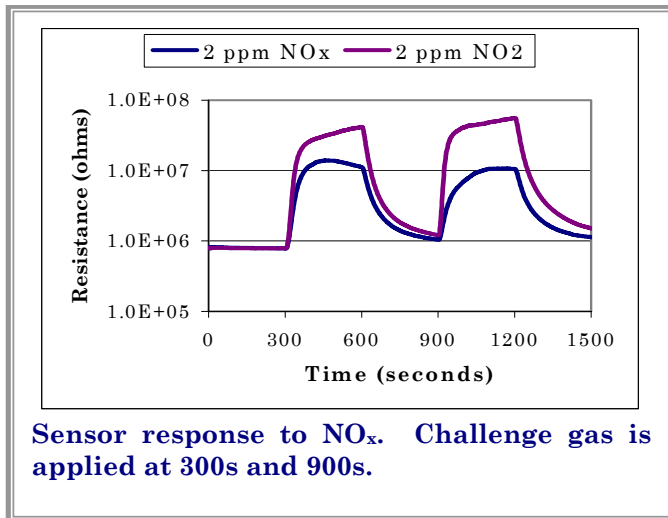
- Sensor detects very low NO_x concentrations (<0.5 ppm to 10 ppm)
- Larger dynamic range available (5 ppm to 100 ppm, may require larger power input to heater)
- Environmental temperature range of –20 to 50°C
- Environmental humidity range of 0 to 90% RH, non-condensing
- Low dependence on flow rate

Typical NO_x Sensor Selectivity

Challenge Gas	Concentration	R _g /R _a or –R _a /R _g
NO ₂	10 ppm	200
NO _x	10 ppm	45
H ₂	100 ppm	-2.2
NH ₃	25 ppm	-1.1
CO ₂	5%	No response
SO ₂	5 ppm	No response
CH ₄	1%	No response

Sensor Response Characteristics

The figures below show typical response data for sensors operated in clean, dry gas.



Electrical Characteristics

The electrical properties below are typical for the Low Level NO_x Sensor prototypes. If the actual values differ the customer will be notified with the shipment. Circuits are available that will be preset to the correct values.

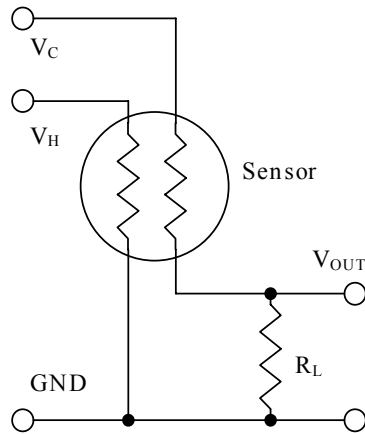
Property	Symbol	Value	Remarks
Heater Power Consumption	P _{HL}	~ 500 mW	At V _H = 4.7
Heater Voltage	V _{HL}	4.7 VDC	T _{sensor} ~200°C
Heater Resistance	R _H	32Ω ± 2 Ω	At room temperature
Sensing Voltage	V _C	5.0 VDC	Recommended

Circuitry

A transducer is available from Synkera to operate the sensor. This circuit, packaged on a 2" x 1.5" printed circuit board, is powered with 9 – 24 VDC. The transducer provides a 0 – 5 VDC output which can be adjusted for sensor offset and gain. The heater voltage is also adjustable. The circuit is set to the recommended values at the factory.

Basic Measuring Circuit

The sensor can be operated using a simple voltage divider. This requires two voltage supplies: heater voltage (V_H) and circuit voltage (V_C). V_H is applied to the heater in order to maintain a constant, elevated temperature, for optimum sensing. V_C is applied to allow a measurement of the output voltage (V_{out}) across a load resistor (R_L).



Pins 1 and 3 on the TO-39 header are attached to the heater. Apply V_H across these pins.

Pins 2 and 4 on the TO-39 header are attached to the resistive sensor element. Connect these pins in the measuring circuit.

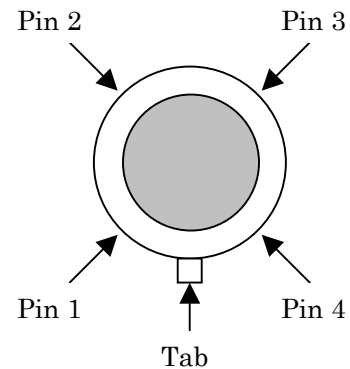
Sensor Resistance Calculation

Sensor Resistance (R_s) is calculated using the following formula:

$$R_s = \frac{V_C - V_{out}}{V_{out}} * R_L$$

Sensor Pin Out

Top view of sensor



Synkera Technologies strives to be customer oriented. If you have a special application you would like to discuss, or questions you would like answered please contact us at info@synkera.com.