Low Level NO_x Data Sheet (P/N 706)

Synkera Technologies, Inc.
2605 Trade Centre Ave., Ste. C
Longmont, CO 80503

SENSOR FEATURES:

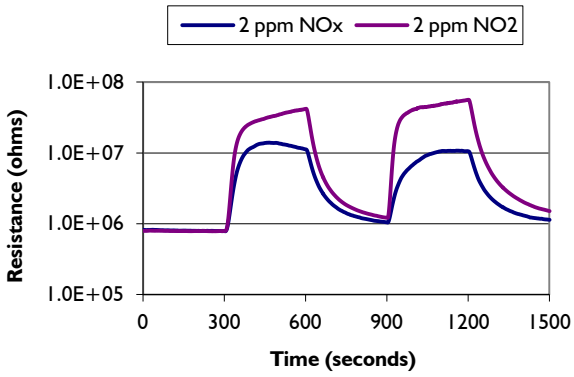
- Sensor detects very low NO_x concentrations (<0.5 ppm to 10 ppm)
- Larger dynamic range available (5 ppm to 100 ppm, may require larger power input to heater)
- Environmental temperature range of –20 to 50°C
- Environmental humidity range of 0 to 90% RH, non-condensing
- Low dependence on flow rate

TYPICAL NO_X SENSOR SELECTIVITY

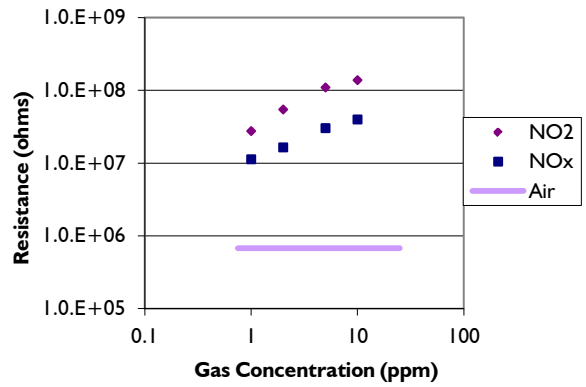
CHALLENGE GAS	CONCENTRATION	RG/RA OR –RA/RG
NO_2	10 ppm	200
NO_x	10 ppm	45
H_2	100 ppm	-2.2
NH_3	25 ppm	-1.1
CO_2	5%	No response
SO_2	5 ppm	No response
CH_4	1%	No response

SENSOR RESPONSE CHARACTERISTICS

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



Sensor response to NO_x. Challenge gas is applied at 300s and 900s.



Sensitivity of NO_x sensor operated at ~250°C.

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	30Ω ± 2 Ω	At room temperature
Sensing Voltage	V_C	5.0 VDC	Recommended
Resistance in Air	R_a	20 kΩ/20 MΩ	Min/Max
Resistance in 10 ppm NO_2	R_{10}	2 MΩ/10,000 MΩ	Min/Max
Sensitivity	R_{10}/R_a	100	Min

**Note that all measurements were made in dry as, at room temperature*

720-494-8401 e-mail: info@synkera.com www.synkera.com 720-494-8402 (fax)

- For information on warranty, please refer to Synkera Technologies, Inc. Standard Terms and Conditions.
- Information on this data sheet represents typical values from a number of Synkera sensors. Actual values from sensor to sensor can vary slightly.

January 2012

Operation of Synkera MOS Sensors

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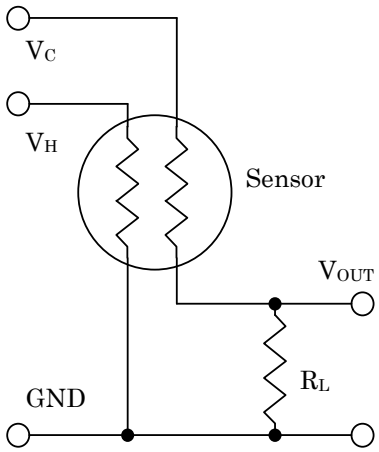
BASIC MEASUREMENT CIRCUIT:

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.

Synkera supplies basic measurement circuitry for many of our sensors. Please inquire or refer to our website for information regarding circuitry for your application

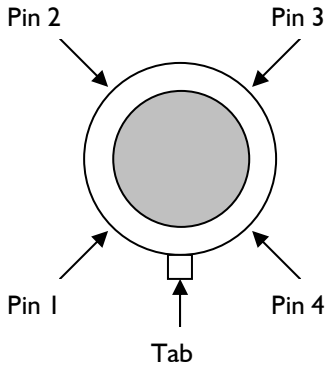
SENSOR RESISTANCE CALCULATION:

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

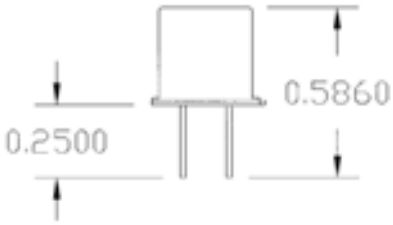
$$R_s = \frac{V_C - V_{out}}{V_{out}} * R_L$$

SENSOR PIN OUT:

Top view of sensor



SENSOR DIMENSIONS:



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.

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