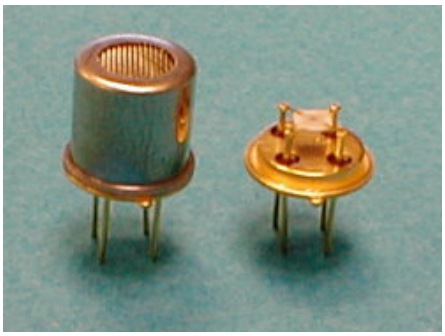
Trace Hydrogen Sensor (P/N 701)

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

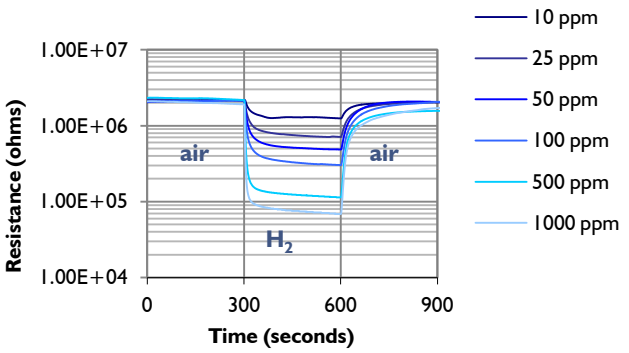
SENSOR FEATURES:

- High sensitivity to low hydrogen concentrations (10 – 1000 ppm)
- Fast response time (15 seconds at 100 ppm)
- Environmental temperature range of –20 to 50°C
- Environmental humidity range of 0 to 90% RH, non-condensing
- Low dependence on flow rate

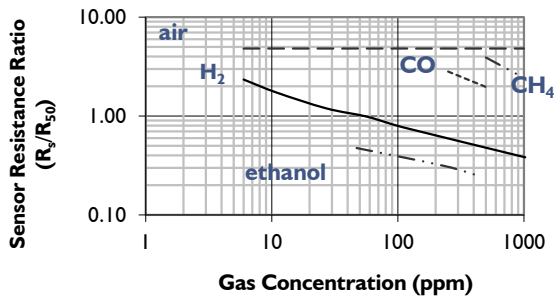


SENSOR RESPONSE CHARACTERISTICS

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



Typical H_2 Response. Air applied for 300 seconds, then H_2 in air for 300 seconds, followed by air.



Sensitivity characteristics. R_s = resistance in displayed gas. R_{50} = resistance in 50 ppm H_2.

ELECTRICAL CHARACTERISTICS

The electrical properties below are typical for Trace Hydrogen Sensors. 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_H	~ 600 mW	At V_H = 5.4
Heater Voltage	V_H	5.4 VDC	T_{sensor} ~240°C
Heater Resistance	R_H	30Ω ± 2 Ω	At room temperature
Sensing Voltage	V_C	5.0 VDC	Recommended
Resistance in Air	R_a	2.0 MΩ / 500 MΩ	Min / Max
Resistance in 500 ppm H_2	R_{500}	5 kΩ / 500 kΩ	Min / Max
Sensitivity	R_a / R_{500}	> 25	Min

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

Operation of Synkera MOS Sensors

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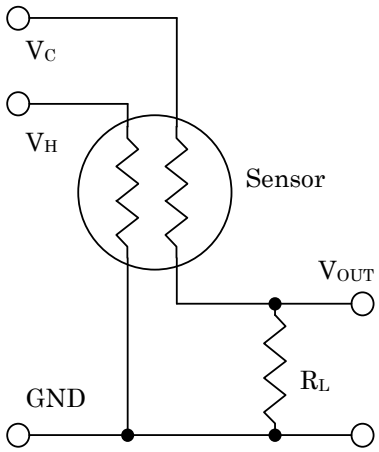
BASIC MEASUREMENT CIRCUIT:

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

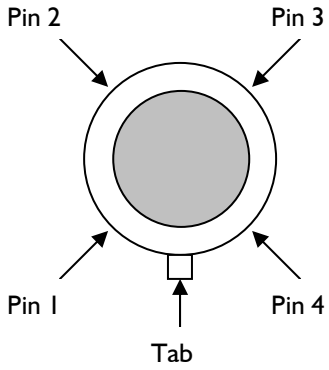
SENSOR RESISTANCE CALCULATION:

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

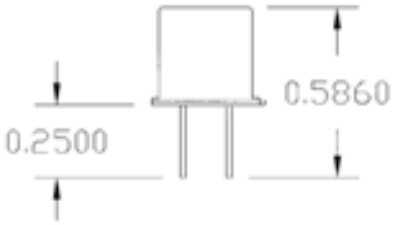
$$R_s = \frac{V_C - V_{out}}{V_{out}} * R_L$$

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.

- 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.