Hydrogen Sulfide (H_2S) Data Sheet (P/N 714)

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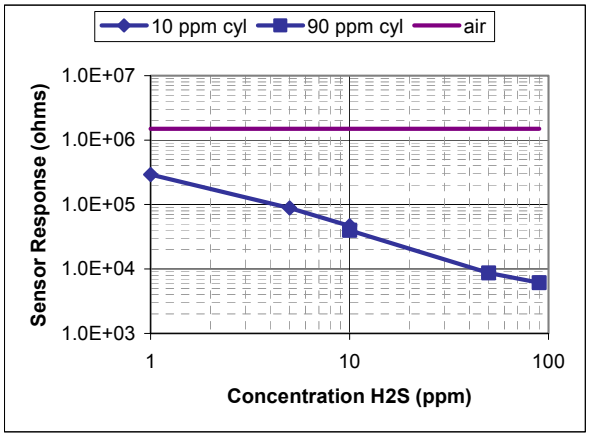
SENSOR FEATURES:

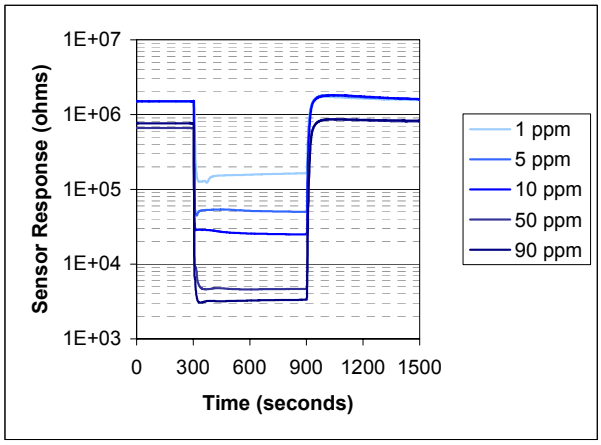
- Sensor designed to reliably detect H_2S at concentrations from 1-100 ppm.
- Rugged sensor undamaged by exposure to temperature and humidity extremes.
- Fast response and complete recovery after H_2S exposure.
- Large, stable, easy to measure resistance change on exposure to H_2S.
- Preliminary studies indicate sensor response is stable (does not go to sleep).

Sensor Response Characteristics

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



Linearity of sensor response to H_2S. Different cylinders used for low and high concentration testing.



Sensor response curves for varying H2S concentrations. H_2S introduced at t=300 seconds, and removed at t=900 seconds.

Electrical Characteristics

The electrical properties below are typical for the H_2S 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_{HL}	~ 900 mW	At V_H = 7.0
Heater Voltage	V_{HL}	7.0 VDC	T_{sensor} ~350°C
Heater Resistance	R_H	32Ω ± 2 Ω	At room temperature
Sensing Voltage	V_C	5.0 VDC	Recommended

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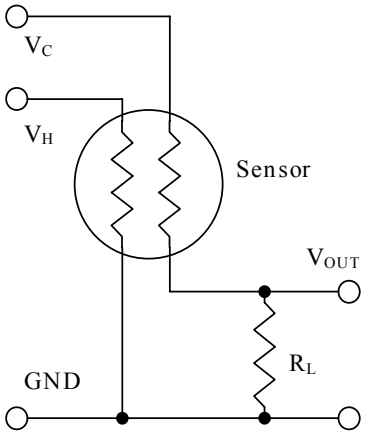
Circuitry

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).

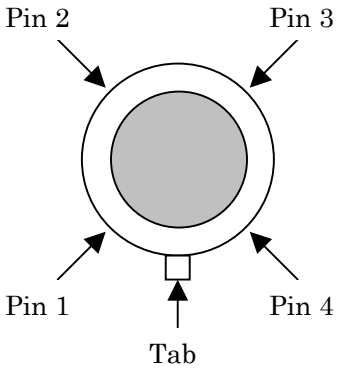


Pins 1 and 3 on the TO-39 header are attached to the heater. Apply V_H across these pins.

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

Sensor 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 sensors@synkera.com.

Sensor Resistance Calculation

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

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