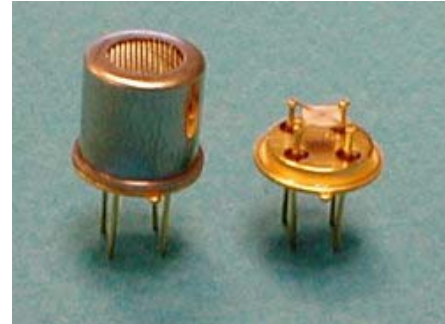


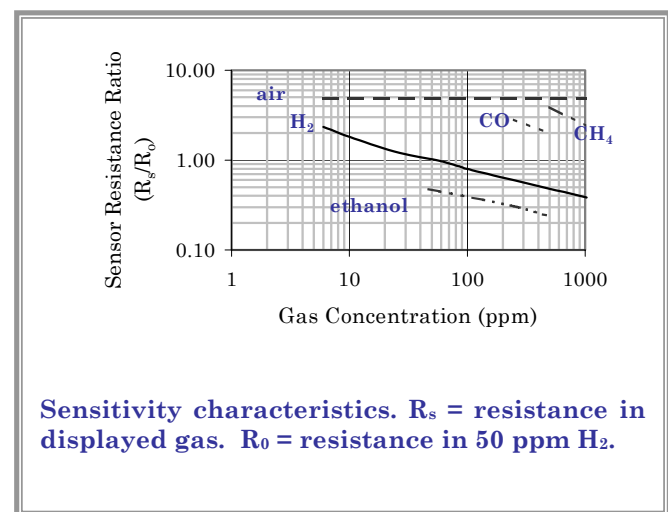
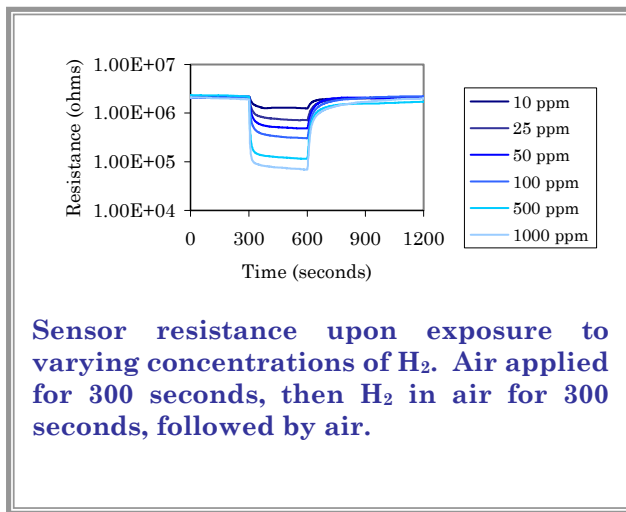
**SENSOR FEATURES:**

- 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.



**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.

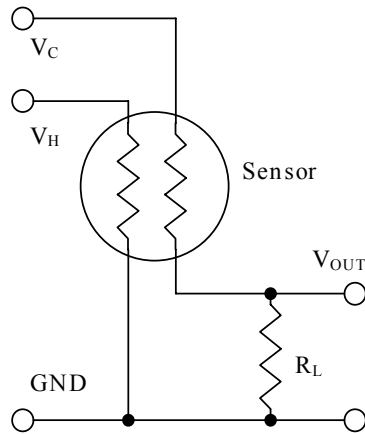
| Property                 | Symbol         | Value     | Remarks                    |
|--------------------------|----------------|-----------|----------------------------|
| Heater Power Consumption | P <sub>H</sub> | ~ 600 mW  | At V <sub>H</sub> = 5.4    |
| Heater Voltage           | V <sub>H</sub> | 5.4 VDC   | T <sub>sensor</sub> ~240°C |
| Heater Resistance        | R <sub>H</sub> | 32Ω ± 2 Ω | At room temperature        |
| Sensing Voltage          | V <sub>C</sub> | 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.

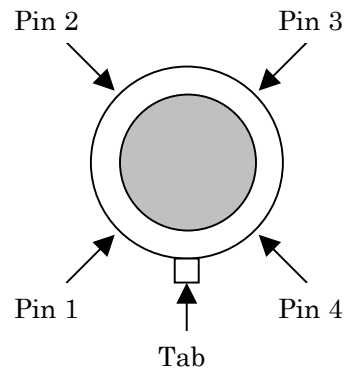
### Sensor Resistance Calculation

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 [sensors@synkera.com](mailto:sensors@synkera.com).