

# Hydrogen Sulfide Sensor

## p-type Metal Oxide



This sensor responds well in the temperature and humidity extremes of the oil and gas industry.

Unlike common n-type sensors, this p-type sensor has a large dynamic range, repeatable response, low humidity response and resistance increases in the presence of H<sub>2</sub>S.

The change in resistance can be converted to an output voltage via a simple electrical circuit. Although the sensor can be used in constant temperature/ voltage mode, best response is achieved when the sensor is cycled between 400°C (sensing temperature) and 525°C (reset temperature). See our Application Note.

### PERFORMANCE

Range	ppm H <sub>2</sub> S	1 to 100
Sensor resistance (R <sub>o</sub> )	kΩ (50% rh, 23 ±2°C)	280 ±50
Sensor resistance (R <sub>g</sub> )	kΩ H <sub>2</sub> S @ 24ppm in air	1500 ±500
Sensor resistance ratio (R <sub>g</sub> /R <sub>o</sub> x 100%)	% H <sub>2</sub> S @ 24ppm in air	550 ±100
Gas response (R <sub>g</sub> /R <sub>o</sub> - 1 = k.Conc <sup>n</sup> )	k	0.5 ± 0.1
	n	0.7 ± 0.05
Heater resistance (R <sub>H</sub> @ 23 ±2°C)	Ω	10.5 ±1.5
Heater resistance (R <sub>H</sub> @ 400 ±10°C)	Ω	25 ±3
Heater resistance (R <sub>H</sub> @ 525 ±10°C)	Ω	29 ±3
Heater power consumption (mW)	V <sub>H</sub> = 2.7 ±0.2V (400°C)	360 ±30
	V <sub>H</sub> = 3.7 ±0.3V (525°C)	550 ±50
Operating Temperature Range	°C	-20 to 120

### CROSS SENSITIVITY

H <sub>2</sub> sensitivity	% measured gas @ 100 ppm H <sub>2</sub>	TBA
EtOH sensitivity	% measured gas @ 50 ppm EtOH	TBA
C <sub>3</sub> H <sub>8</sub> sensitivity	% measured gas @ 500 ppm C <sub>3</sub> H <sub>8</sub>	TBA
NH <sub>3</sub> sensitivity	% measured gas @ 25 ppm NH <sub>3</sub>	TBA
SO <sub>2</sub> sensitivity	% measured gas @ 25 ppm SO <sub>2</sub>	TBA



At the end of the product's life, do not dispose of any electronic sensor, component or instrument in the domestic waste, but contact the instrument manufacturer, Alphasense or its distributor for disposal instructions.

For further information on the performance of this sensor, on other sensors in our range. please contact Alphasense Ltd.

# Technical Specification



# Hydrogen Sulfide Sensor

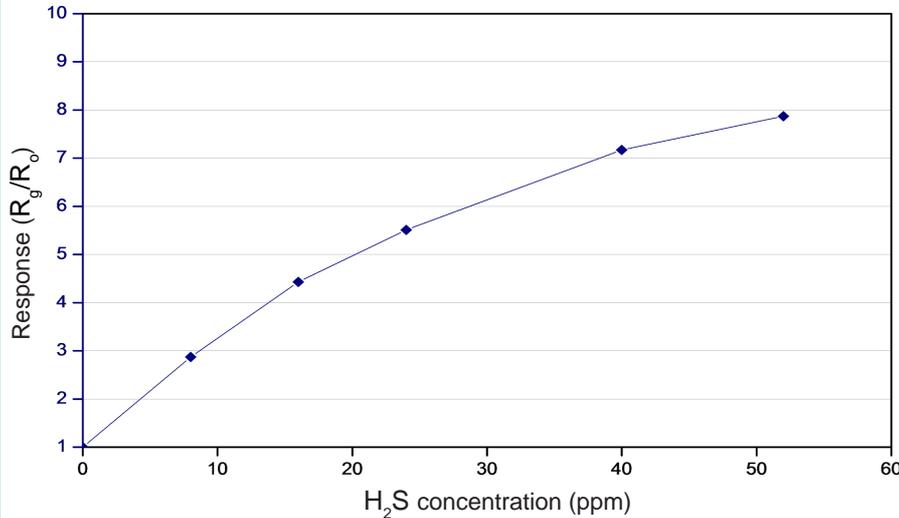
p-type Metal Oxide

## Performance Data



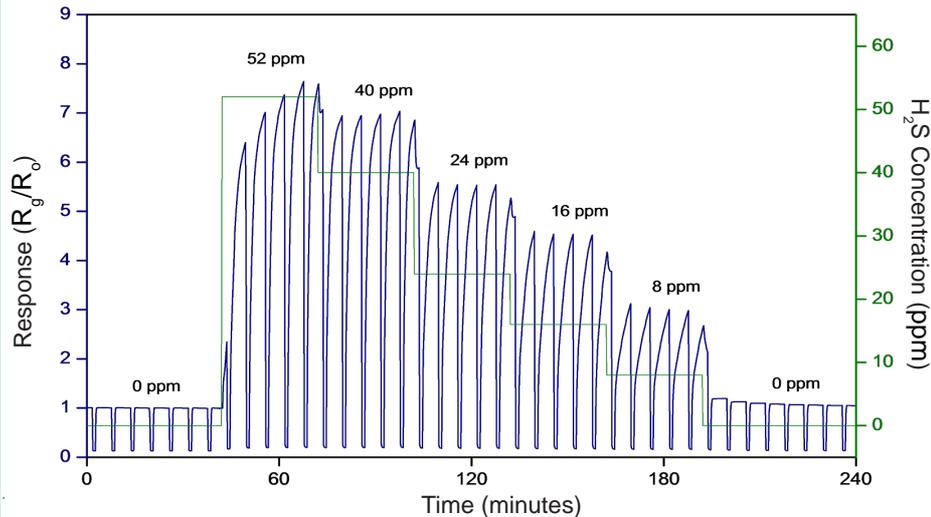
Technical Specification

**Figure 1 Response from 8 to 52ppm H<sub>2</sub>S**



Calibration curve in 50% rh air. Operating in 2-temperature mode with a 5:1 cycle ratio of sensing (400°C) and resetting (525°C).

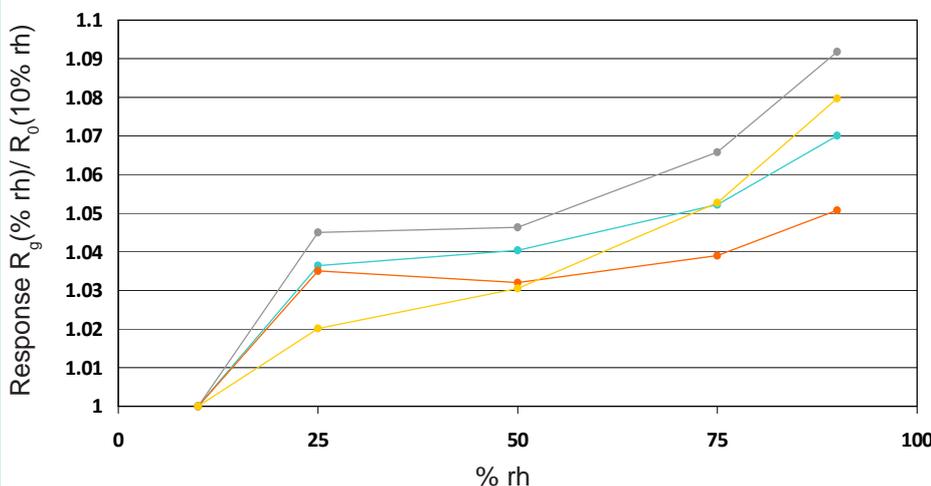
**Figure 2 Response from 8 to 52ppm H<sub>2</sub>S**



Real time response for 8-52ppm H<sub>2</sub>S in 50% rh air. Sensor operating in 2-temperature mode with a 5:1 cycle ratio of sensing (400°C) and resetting (525°C).

The sensor returns repeatedly to the same baseline resistance.

**Figure 3 Response from 10% to 90% rh at 23°C**



Response over range of 10% - 90% rh air, operating in 2-temperature mode with a 5:1 cycle ratio of sensing (400°C) and resetting (525°C)