

## H2S Sensor

### Type P metal oxide sensor H2S-M31 H2S-P31 H2S-A31



#### foreword

The sensor responds well to extreme humidity and temperature conditions in the oil and gas industry. In addition, the sensor is equipped with an integrated filter device that makes it selective for H<sub>2</sub>S.

Unlike the common N-type sensor, this metal oxide sensor has a large dynamic range, repeatable response, is less affected by humidity, and the resistance increases in the presence of H<sub>2</sub>S.

Resistive changes can be converted into output voltage through simple electrical circuits. Although the sensor can operate in constant temperature/constant voltage mode, it responds best when cycling between 400°C (induced temperature) and 525°C (reset temperature). See application notes for details.

#### function

scope	ppm H <sub>2</sub> S	1~100
Sensor resistor (R <sub>0</sub> )	kΩ (50% rh, 23 (± 2) °C)	280±50
Sensor resistor (R <sub>g</sub> )	kΩ; H <sub>2</sub> S@ air 24ppm	1500 ±500
Sensor resistance ratio (R <sub>g</sub> /R <sub>0</sub> *100%)	%; H <sub>2</sub> S@ air 24ppm	550 ±100
Gas response relation (R <sub>g</sub> /R <sub>0</sub> -1 = k.Conc)	ppm <sup>-1</sup> (5 - 30 ppm)	0.5 ± 0.1
Gas response relation (R <sub>g</sub> /R <sub>0</sub> -1 = k.Conc)	ppm <sup>-1</sup> (30 - 100 ppm)	0.7 ± 0.05
Heating resistor (R <sub>H</sub> @ 23±1°C)	Ω	10.5 ±1.5
Heating resistor (R <sub>H</sub> @400 ± 10°C)	Ω	25 ±3
Heating resistor (R <sub>H</sub> @ 525±10°C)	Ω	29 ±3
Heater power (mW)	V <sub>H</sub> = 2.7 ±0.2V (400 °C) 3.7 ±0.3V (525 °C)	360 ±30 550 ±50
operating temperature range	°C	-20~120

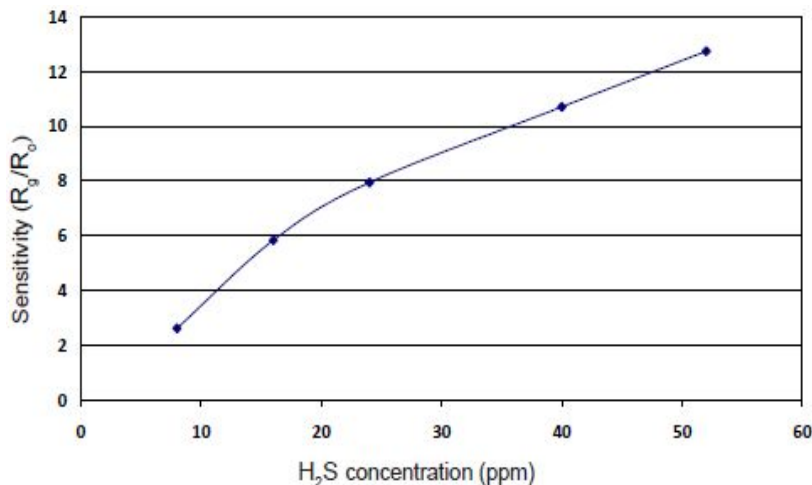
#### Sensitivity to other gases

H <sub>2</sub> sensitivity	Gas sensitivity percentage measured at 100ppmH <sub>2</sub>	To be released
EtOH sensitivity	Gas sensitivity percentage measured at 50ppmEtOH	To be released
C <sub>3</sub> H <sub>8</sub> sensitivity	Gas sensitivity percentage measured at 500ppmC <sub>3</sub> H <sub>8</sub>	To be released
NH <sub>3</sub> sensitivity	Gas sensitivity percentage measured at 25ppmNH <sub>3</sub>	To be released
SO <sub>2</sub> sensitivity	Gas sensitivity percentage measured at 25ppmSO <sub>2</sub>	To be released

# Performance Data of H2S Sensor and P Type Metal Oxide Sensor

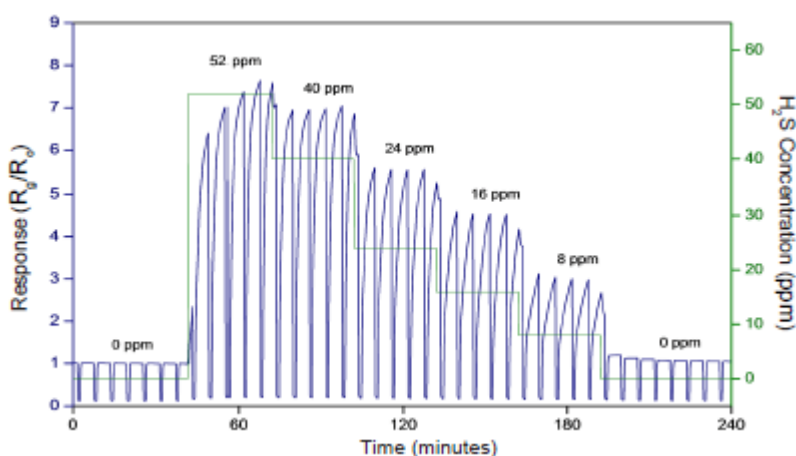


Figure 1 Sensitivity at 8-52ppm



The left figure shows the sensitivity of the sensor at 50% RH. At this time, the sensor works in two temperature modes, and the ratio of induction (400°C) to repositioning (525°C) is 5:1.

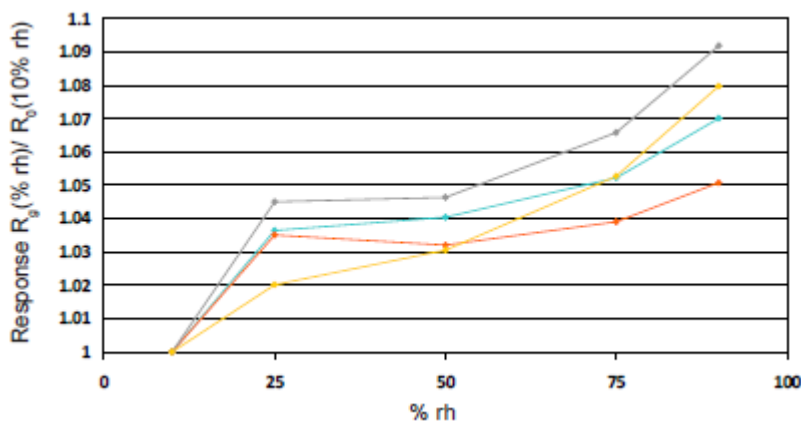
Figure 2 Response at 8-52ppm



The left figure shows the real-time response of the sensor at 50%RH when H<sub>2</sub>S concentration ranges from 8 ppm to 52 ppm. The sensor operates in paired temperature modes with a ratio of induction (400°C) to reset (525°C) cycles of 5:1.

It is not difficult to see that the sensor can repeatedly return to the baseline.

Figure 3 23°C Sensitivity at 10-90% Humidity



The left figure shows the response curve of the transducer in the range of 10%~90%RH

Line, at this time the sensor is working in two temperature modes, the ratio of sensing (400°C) to resetting (525°C) is 5:1.

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