

CO sensor p-type metal oxide sensor

CO-M31/F CO-P31/F CO-A31/F



foreword

The sensor can operate well in the surrounding environmental conditions and also work normally in extreme temperature and humidity environments that electrochemical sensors cannot handle. In addition, the metal oxide gas sensor is equipped with a filter device to make it selective for CO.

Unlike the common N-type sensor, this metal oxide sensor has a large dynamic range, repeatable response, is less affected by humidity, and increases in resistance to CO.

A simple electrical circuit converts changes in resistance into an output voltage. Although the sensor can operate in constant temperature/constant voltage mode, it responds best when cycling between 400°C (sensing temperature) and 525°C (reset temperature). For details, see application notes.

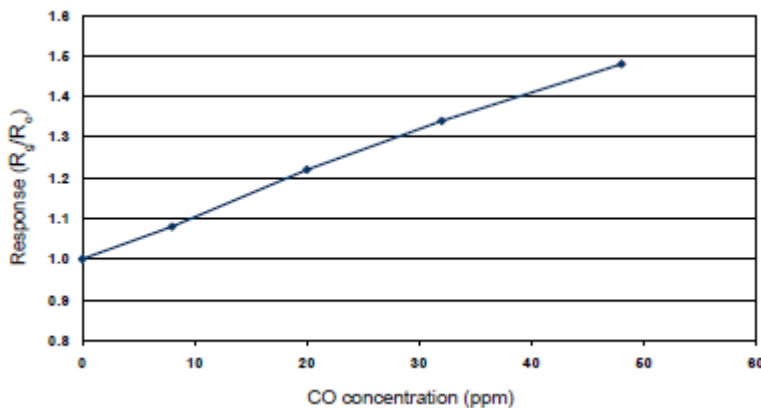
function

scope	CO measurement limit (ppm) that guarantees product performance	5~500
Sensor resistor (R_0)	$k\Omega$ (50% rh, 23 (± 2)°C)	220 \pm 50
Sensor resistance ratio ($R_g/R_0 * 100\%$)	%; CO@ air 10ppm	120 \pm 15
Gas response relation ($R_g/R_0 - 1 = k \cdot \text{Conc}$)	5-50ppm	0.01 \pm 10%
Gas response relationship ($R_g/R_0 - 1 = k \cdot \text{Conc}^{0.5}$)	50-500ppm	0.08 \pm 15%
Heating resistor (RH @ RT)	Ω (23 \pm 1°C)	10 \pm 1.5
Heating resistor (RH @ sensing temperature)	Ω (400 \pm 10°C)	22 \pm 3
Heating resistor (RH @ reset temperature)	Ω (525 \pm 10°C)	26 \pm 3
Typical heating power consumption (mW) at 5:1 cycle	$V_H = 2.7 \pm 0.2V$ (400°C)	340 \pm 30
	3.7 \pm 0.3V (525°C)	530 \pm 50
operating temperature range	°C	-20~120

Sensitivity to other gases

H ₂ sensitivity	Gas sensitivity percentage measured at 100ppmH ₂	To be released
EtOH sensitivity	Gas sensitivity percentage measured at 50ppmEtOH	To be released
C ₃ H ₈ sensitivity	Gas sensitivity percentage at 500ppmC ₃ H ₈	To be released
NH ₃ sensitivity	Gas sensitivity percentage measured at 25ppmNH ₃	To be released

Figure 1 Response at Low Concentrations



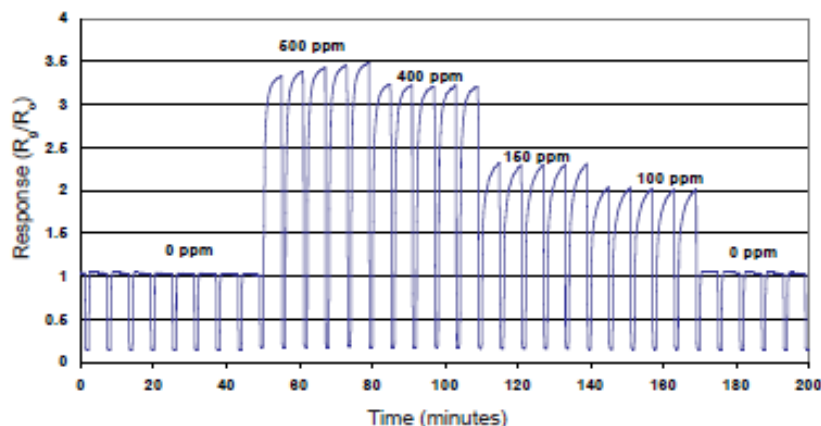
The left figure shows the sensor response at 8-48 ppm CO. At this time, the sensor is operating in two temperature modes, with a ratio of 5:1 between the cycle of sensing (400°C) and resetting (525°C).

CO Sensor

Performance Data of P-Type Metal Oxide Sensor

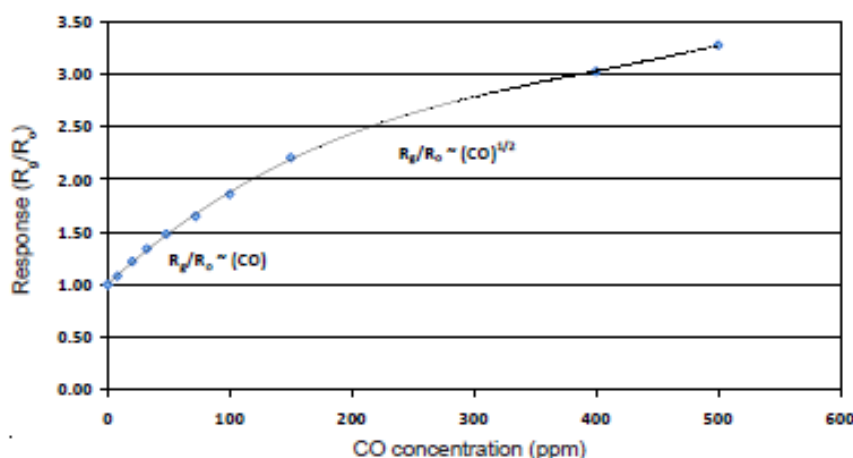


Figure 2 Real-Time Response at High CO Concentration



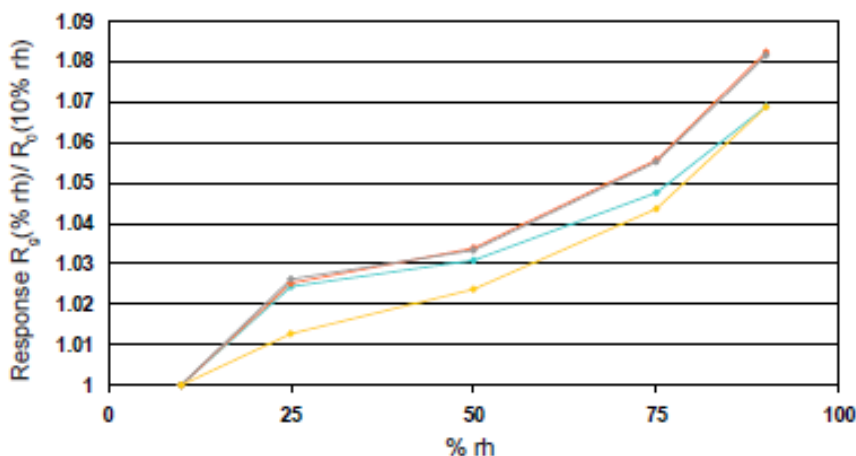
The left figure shows the transducer at 100ppm at 50% RH. Real-time response at ~500 ppm CO. The sensor operates in two temperature modes: 400°C for 5 minutes and 525°C for 1 minute (cycling pulse)

Figure 3 Response at 10~500ppmCO



The left figure shows the sensor's response under two temperature modes (400°C and 525°C) with a 5:1 loop ratio when CO concentration ranges from 8 to 500 ppm. Note the linear behavior of the sensor at concentrations <50ppm and the power-law behavior at concentrations > 50 ppm.

Figure 4 Response at 23°C Humidity of 10~90%



The left figure shows the response curve of the transducer in the range of 10%~90%RH. At this point, the sensor is operating in two temperature modes, and the ratio of sensing (400°C) to resetting (525°C) is 5:1.

深圳市杰晟兴电子有限公司 JM Components Limited

地址：深圳市福田区中航路7号鼎诚国际大厦南座2007室
手机：13662266995 马少良 电话：0755-83951311
官网：cn-sensor.com

邮编：518031
传真：0755-83952401
电邮：jackson@jmcomponents.com