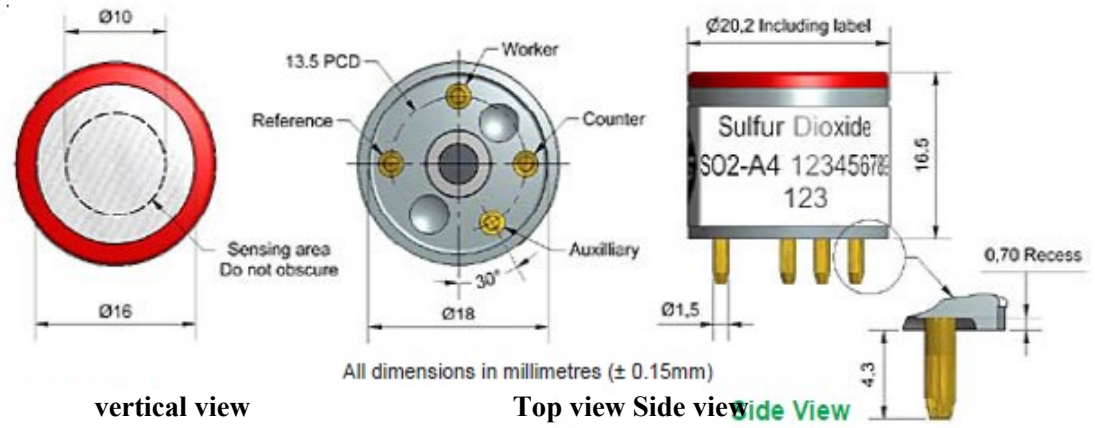
SO2-A4 Four-Electrode Sulfur Dioxide Sensor

Figure 1 Schematic Diagram of SO2-A4



function	sensitivity	Sensitivity $_{in\ 2ppmSO2}$ (nA /ppm)	320~500
	reaction time	Time 2ppmSO90(s) from zero to 2ppmSO	< 20
	zero current	Output at 20℃ in zero grade air (nA)	-80~80
	noise *	Standard deviation ± 2 (equivalent ppb)	15
	range	Measurable limit (ppm) that guarantees product performance	50
	degree of linearity	The value of error in ppb $_2$ at 20ppm, and linear at 0~2ppm	0~-5
	overload	Maximum ppm value of gas pulse stabilized reaction	100
	* The test uses Alphasense AFE low noise circuit board		
life span	zero drift	Equivalent ppb values that change in the laboratory air from year to year	< ±20
	sensitivity drift	Percentage change in laboratory air over the year, measured monthly	< ±15
	working life	Number of months to which the output falls to 50% of the original signal (24 months guaranteed)	> 36
envir-onment	-20°C sensitivity	2ppmSO $_2$ at (-20°C output/20°C output)%	80~95
	Sensitivity at 50°C	2ppmSO $_2$ at(50°C output/20°C output)%	90~110
	-20°C when zero point	Change in nA value, reference 20℃	< ± 25
	50°C at the zero point	Change in nA value, reference 20℃	150~300
cross sen-	filter capacity	ppm· hour	450
sitivity	H_2S	Gas sensitivity percentage measured at 5ppmH $_2$ S	< 2
	NO_2	Gas sensitivity percentage $_2$ at 5ppmNO	< -120
	Cl_2	Gas sensitivity percentage measured $_2$ at 5ppmCl	< -80
	NO	Gas sensitivity percentage measured at 5ppmNO	< 4
	CO	Gas sensitivity percentage measured at 5ppmCO	< 3
	H_2	Gas sensitivity percentage measured at 100ppmH $_2$	< 1
	C_2H_4	Sensitivity percentage of gas measured at 100ppmC $_2$ H $_4$	< 1
	NH_3	Percentage sensitivity of gas $_3$ at 20ppmNH	< 0.1
	CO_2	Sensitivity percentage of gas measured at 5%Vol CO2	< 0.1
	O_3	Gas sensitivity percentage $_3$ at 0.5ppmO	< -120
Key temperature ranges		℃	-30~50
Pressure range of parameters		kPa	80~120
	Humidity range	Percentage of continuous relative humidity (see below)	15~90
	Storage period	Number of months for preservation from 3 to 20℃ (to be kept in a sealed tank)	6
	load resistance	Ω (Recommended use ofAFE circuit board)	33~100
	weight	g	< 6

Note: The sensor can only guarantee the product performance for 10 days when used in an environment with humidity above 85%RH and temperature above 40℃. If the above environment exists, the sensor should be placed in a low humidity and low temperature environment for several days to restore the electrolyte quantity to normal state before use.

Figure 2 Sensitivity Temperature Characteristics

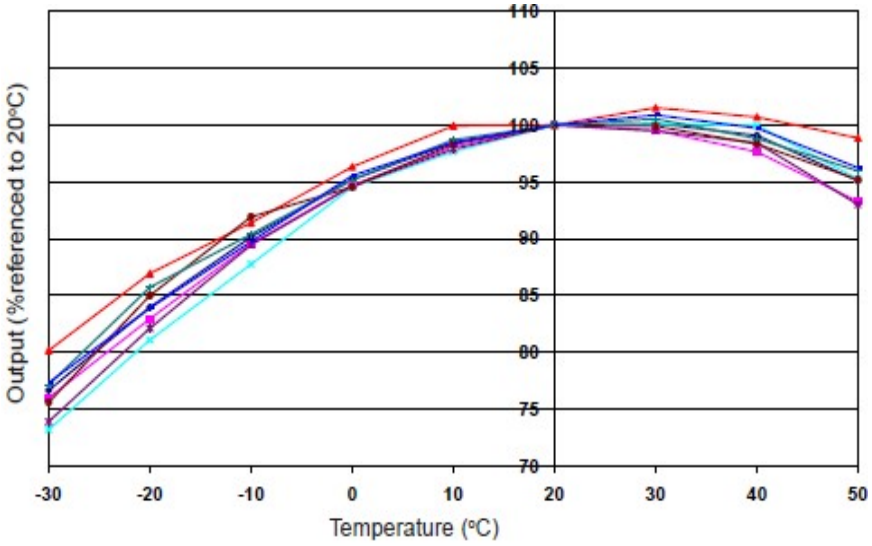


FIG. 2 shows the temperature characteristics of sensitivity at 2ppm SO_2.

Data was collected from typical batch sensors.

Figure 3 Zero Temperature Characteristics

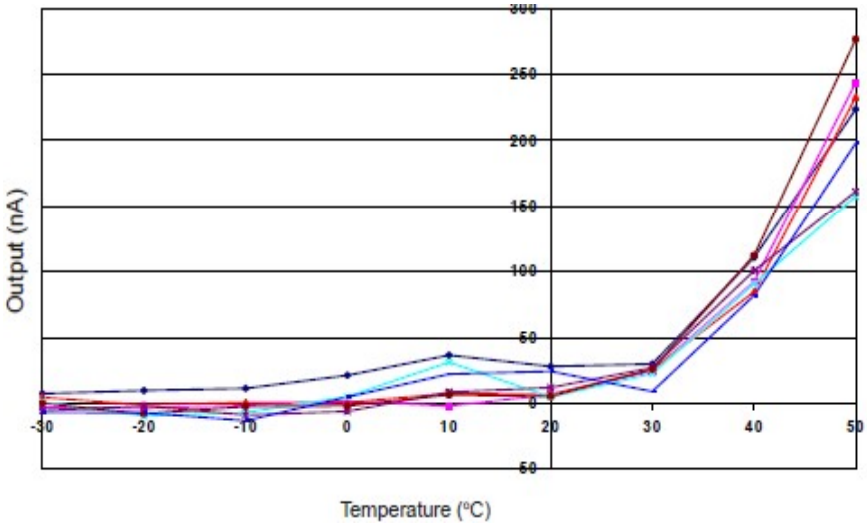


Figure 3 shows the change of zero point output of working electrode caused by temperature change, in units of nA.

Data was taken from a typical batch of sensors.

For more information about zero current correction, contact Alphasense.

Figure 4 Reaction $_2$ of 200ppb SO

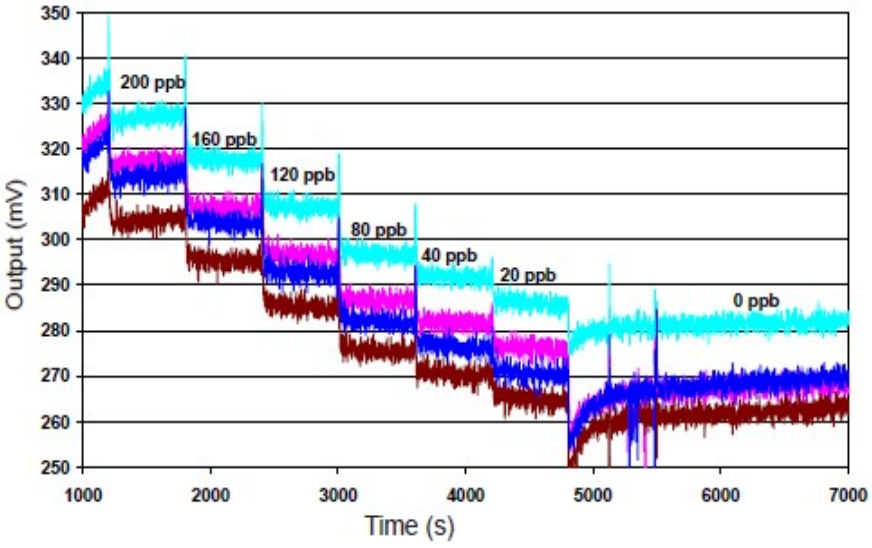


Figure 4 shows the response of the sensor to 20-200ppb SO_2.

The noise can be reduced to 15ppb using Alphasense AFE circuit board, and the use of digital filter can further reduce the noise.

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