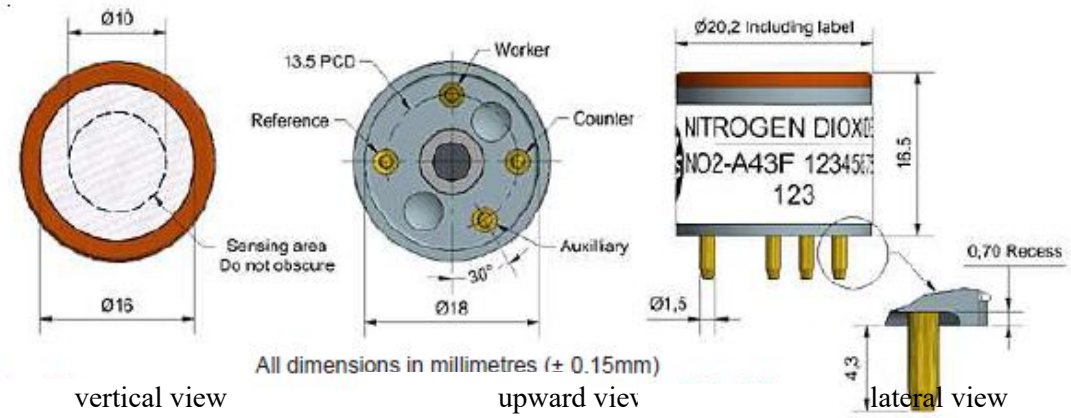
NO2-A43F Four-Electrode Nitrogen Dioxide Sensor

Figure 1 Schematic Diagram of NO2-A43F



vertical view upward view lateral view

function	sensitivity	Sensitivity in 2ppm NO(nA /ppm)	-175~-500
	reaction time	Time to $_{2ppmNO2}$ from zero (s)	< 80
	zero current	Output at 20°Cm in zero-level air (nA)	-70~+70
	noise *	Standard deviation ± 2 (equivalent ppb)	15
	range	Measurable limits (ppm) that guarantee product performance	20
	degree of linearity	The ppm value of the full scale error is linear from 0 to 20ppm	< ±0.5
	overload	Maximum ppm value of gas pulse stabilized reaction	50
	*** 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	0~20
	sensitivity drift	Percentage change in laboratory air over the year, measured monthly	< -20~-40
	working life	Number of months to which the output is reduced to 50% of the original signal (24 months guaranteed)	> 24
envir-onment	-20°C sensitivity	2ppmNO $_2$ at (-20°C output/20°C output)%	40~80
	Sensitivity at 40°C	2ppmNO $_2$ at(40°C output/20°C output)%	95~115
	-20°C when zero point	nA	0~+25
	40°C at the zero point	nA	20~60
cross sen-sitivity	O_3	Filtering capacity $_3$ at 2ppmO (ppm·hrs)	< 500
	H_2S	Gas sensitivity percentage measured at 5ppmH $_2$ S	< -80
	NO	Gas sensitivity percentage measured at 5ppmNO	< 5
	Cl_2	Gas sensitivity percentage $_2$ measured at 5ppmCl	< 100
	SO_2	Gas sensitivity percentage $_2$ at 5ppmSO	< -3
	CO	Gas sensitivity percentage measured at 5ppmCO	< -3
	C_2H_4	Sensitivity percentage of gas measured at 100ppmC $_2$ H $_4$	< 1
	NH_3	Percentage sensitivity of gas $_3$ at 20ppmNH	< 0.2
	H_2	Gas sensitivity percentage measured at 100ppmH $_2$	< 0.1
	CO_2	Sensitivity percentage of gas measured $_2$ at 5%Vol CO	< 0.1
	halothane	Gas sensitivity percentage measured at 100ppm fluorine	nd
key param-eter	temperature range	℃	-30~40
	pressure limit	kPa	80~120
	Humidity range	Percentage of continuous relative humidity	15~85
	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

Figure 2 Sensitivity Temperature Characteristics

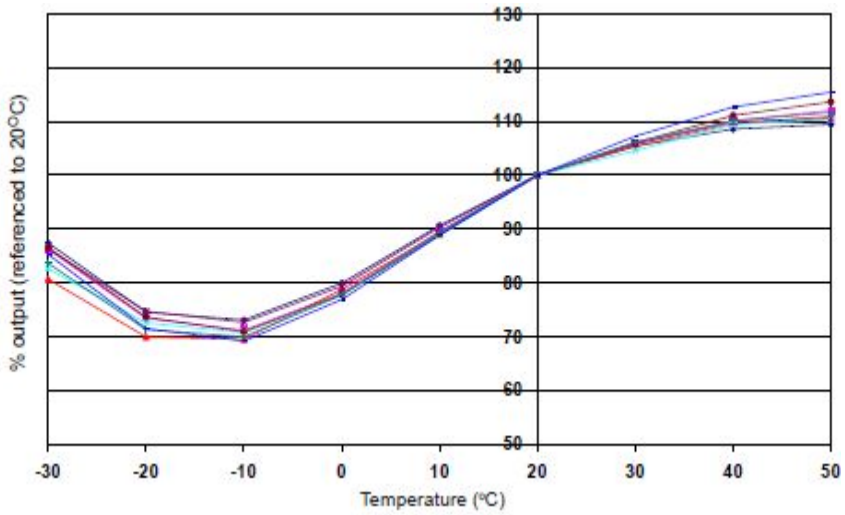


FIG. 2 shows the temperature characteristics of sensitivity at 2ppm NO_2.

Data was collected from typical batch sensors.

Figure 3 Zero Temperature Characteristics

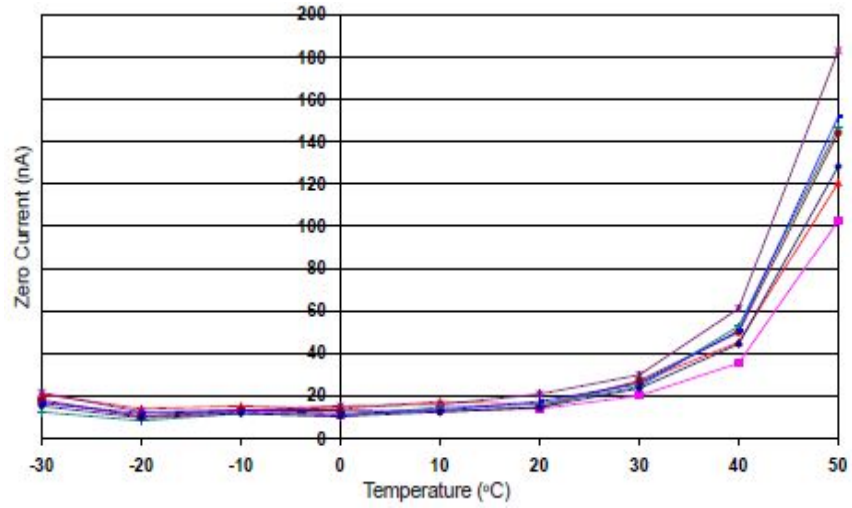


Figure 3 shows the change of zero point output of working electrode caused by temperature change, in units of nA.

Data was taken from a typical batch of sensors.

For more information about zero current correction, please contact Alphasense.

Figure 4 Reaction of NO_2 at 200~ 0 Ppb

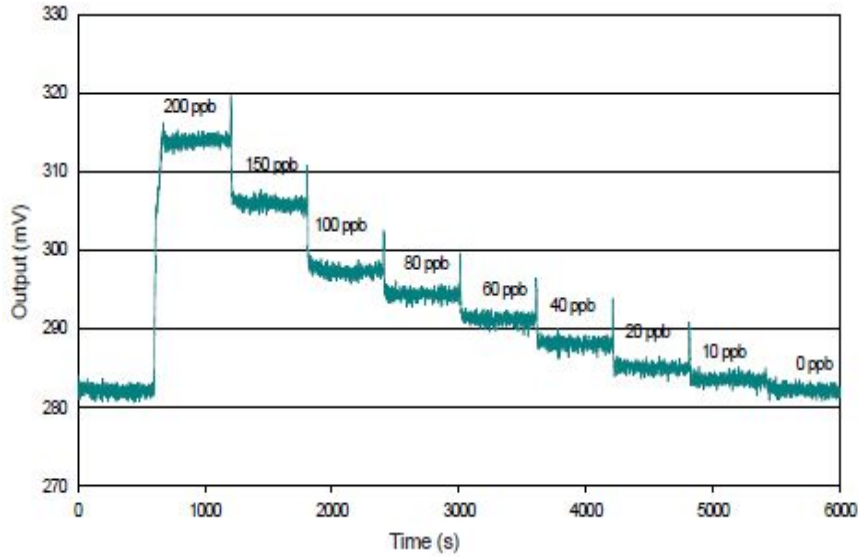


FIG. 4 shows the reaction of the transmitter to 200~0ppb NO_2.

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

The magnitude of the offset voltage depends on the intentional offset value of the AFE circuit board.

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