



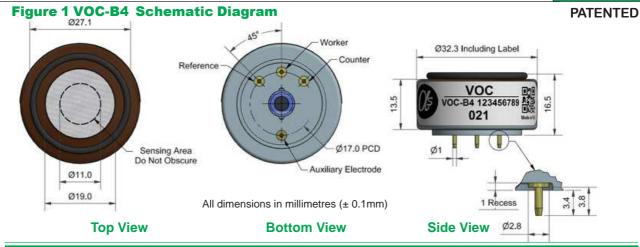
VOC-B4 4-Electrode **Volatile Organic Compound Sensor**



80 to 120

15 to 90

< 13



SPECIFICATION	CO SENSING
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PERFORMANCE	Sensitivity Response time Zero current Noise* Range Linearity Overgas limit	nA/ppm in 2ppm CO t ₉₀ (s) from zero to 2ppm CO nA in zero air at 20°C ±2 standard deviations (ppb equivalent) ppm limit of performance warranty ppm CO error at full scale, linear at zero, 10ppm CO maximum ppm for stable response to gas pulse	400 to 700 < 30 ± 200 20 100 ± 1 1000
LIFETIME	Zero drift Sensitivity drift Operating life	ppb equivalent change/year in lab air % change/year in lab air, monthly test months until 50% original signal (24 month warranted)	±500 < 15 > 36
ENVIRONMENTAL		C (% output @ -20°C/output @ 20°C) @ 2ppm CO C (% output @ 50°C/output @ 20°C) @ 2ppm CO nA change from 20°C nA change from 20°C	60 to 80 90 to 110 ± 20 1800 to 2200
CROSS SENSITIVIT		% measured gas @ <1ppm C ₀ H ₀ O	< 100

Tempe	erature range	e °C		-30 to 50
CO ₂	sensitivity	% measured gas @ 5% vol	CO ₂	< 0.1
NH_3	sensitivity	% measured gas @ 20ppm	NH_3	< -0.1
C_2H_4	sensitivity	% measured gas @ 40ppm	C_2H_4	< 120
H_2^-	sensitivity	% measured gas @ 100ppm	H ₂ at 20°C	< 50
SO_2	sensitivity	% measured gas @ 5ppm	SO ₂	< 80
NŌ	sensitivity	% measured gas @ 5ppm	NŌ	< 30
Cl ₂	sensitivity	% measured gas @ 5ppm	Cl ₂	< -40
$N\overline{O}_2$	sensitivity	% measured gas @ 5ppm	$N\bar{O}_2$	< -80
H_2S	sensitivity	% measured gas @ 5ppm	H_2^-S	< 350
C_2H_6	Sensitivity	% measured gas @ <1ppm	C ₂ H ₆ O	< 100

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SPECIFICATIONS Pressure range Humidity range % rh continuous Storage period months @ 3 to 20°C (stored in sealed pot) Ω (AFE circuit is recommended)

33 to 100 Load resistor Weight g

NOTE: all sensors are tested at ambient environmental conditions, with 10 ohm load resistor, unless otherwise stated. As applications of use are outside our control, the information provided is given without legal responsibility. Customers should test under their own conditions, to ensure that the sensors are suitable for their own requirements



Performance Data VOC-B4

Specification

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Figure 2 Linearity from 0 to 10ppm CO

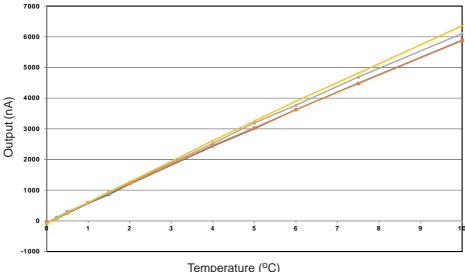


Figure 2 shows example sensor response concentrations of up to 10ppm

Temperature (°C)

Figure 3 Zero Temperature Dependence

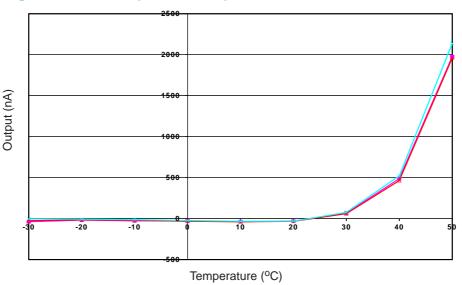


Figure 3 shows example variation in zero output of the working electrode caused by changes in temperature, expressed as nA.



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 the range or any other subject, please contact Alphasense Ltd. For Application Notes visit "www.alphasense.com".

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VOC-B4 4-Electrode Volatile Organic Compound Sensor

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The VOC-B4 detects both VOCs and CO gases. Using both a VOC-B4 and a CO-B4 sensor in combination allows the estimation of VOC concentration at 0V bias.

The data given in this TDS refers to the use of the VOC-B4 sensor at 0V bias. Other voltages within the range 0 to 0.3V can also be applied (see application note AAN-805)

In order to calculate the VOC concentration, it is necessary to ensure the signals from the two sensors have been corrected for electronic zero offset, sensor zero offset and temperature dependence, and sensitivity (nA/ppm) calibration and temperature dependence.

SPECIFICATION ET				100 / 5-5
PERFORMANCE	Sensitivity	$nA/ppm in < 1ppm C_2H_6O$		400 to 650
	Response tim Zero current	e t ₉₀ (s) from zero to <1ppm C ₂ nA in zero air at 20°C	2H6O	< 30 ± 200
	Noise	±2 standard deviations (ppb e	quivalent)	± 200 20
	Range	ppm limit of performance war		2
	Linearity		ppm error at full scale, linear at zero, <1 ppm C ₂ H ₆ O	
	Overgas limit maximum ppm for stable response to gas pulse		5	
LIFETIME	Zero drift ppb equivalent change/year in lab air		± 500	
	Sensitivity drif			< 15
	Operating life	months until 50% original sign	nal (24 month warranted)	> 36
ENVIRONMENTAL		20°C (% output @ -20°C/output @		ND
	Zero @ -20°C	50°C (% output @ 50°C/output @ nA change from 20°C	20°C)	ND ± 20
	Zero @ 50°C	nA change from 20°C		1800 to 2200
	2010 @ 00 0	The toricing monte of		1000 10 2200
CROSS SENSITIVI	ГҮ			
	CO sensiti	vity % measured gas @ 2ppm [—]	CO	< 125
	H ₂ S sensiti	vity % measured gas @ 5ppm	H_2S	< 450
	NO ₂ sensiti	, , ,	$N\overline{O}_2$	< -90
	Cl ₂ sensiti	, , , , , , , , , , , , , , , , , , , ,	Cl ₂	< -40
	NO sensiti	, , , , , , , , , , , , , , , , , , , ,	NŌ	< 25
	SO ₂ sensiti	, , , , , , , , , , , , , , , , , , , ,	SO ₂	< 90
	H ₂ sensiti	•	_	< 50
	C ₂ H ₄ sensiti	, , , , , , , , , , , , , , , , , , , ,	C_2H_4	< 120
	NH ₃ sensiti	, , , , , , , , , , , , , , , , , , , ,	NH ₃	< -0.1 < 0.1
	CO ₂ sensiti	vity % measured gas @ 5% vol	CO ₂	< 0.1
KEY	Temperature r	ange °C		-30 to 50
SPECIFICATIONS	Pressure rang	0		80 to 120
	Humidity rang			15 to 90
	Storage period months @ 3 to 20°C (stored in sealed pot)		6	
	Load resistor Ω (AFE circuit is recommended)			
	• .	Ω (AFE circuit is recommend	ded)	33 to 100

NOTE: all sensors are tested at ambient environmental conditions, with 10 ohm load resistor, unless otherwise stated. As applications of use are outside our control, the information provided is given without legal responsibility. Customers should test under their own conditions, to ensure that the sensors are suitable for their own requirements.

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VOC-B4 Performance Data



Figure 4 Linearity from 0 to 860ppb (approx) Ethanol

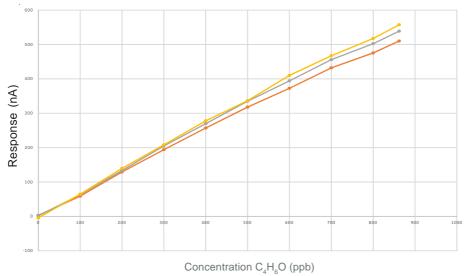


Figure 4 shows example sensor output at concentrations of up to 860ppb Ethanol

Figure 5 Response to 860ppb (approx) Ethanol

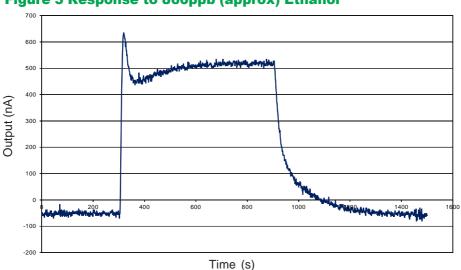


Figure 5 shows example sensor output in reponse to 860ppb Ethanol

Figure 6 Response to 2ppm C₄H₈ with voltage bias

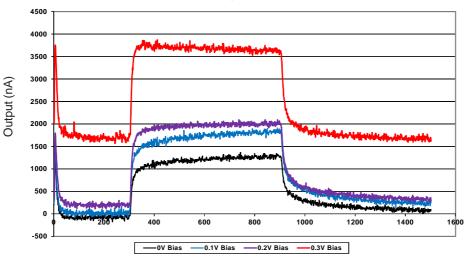


Figure 6 shows example output at different bias voltages in reponse to 2ppm C₄H₈

Time (s)

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