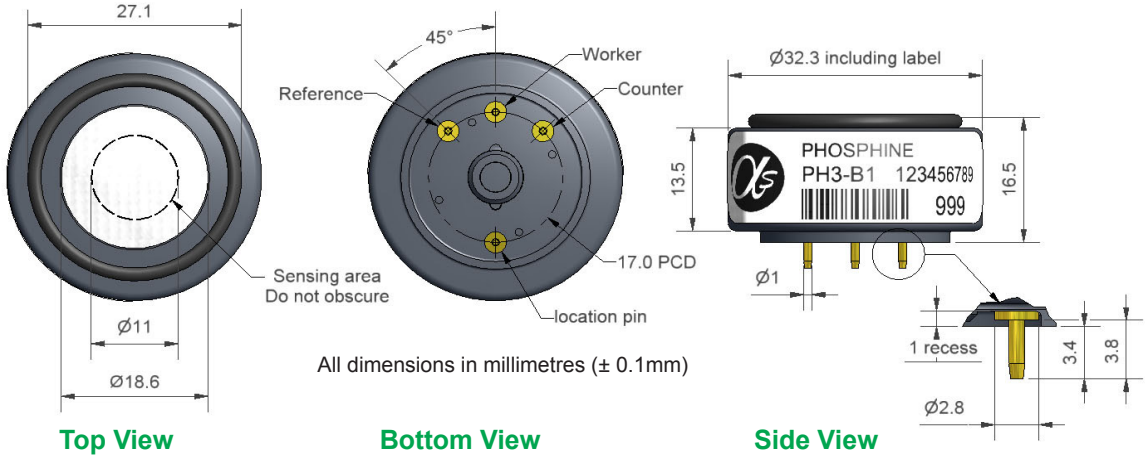
PH3-B1 Phosphine Sensor

PATENTED

Technical Specification

Figure 1 PH3-B1 Schematic Diagram



PERFORMANCE	Sensitivity	nA/ppm in 5ppm PH_3	600 to 1000
	Response time	t_{90} (s) from zero	< 20
	Zero current	ppm equivalent in zero air	< -0.3 to +0.3
	Resolution	RMS noise (ppm equivalent)	< 0.03
	Range	ppm limit of performance warranty	10
	Linearity	ppm PH_3 error at full scale, linear at zero, 4ppm PH_3	-1 to -1.8
	Overgas limit	maximum ppm for stable response to gas pulse	150
LIFETIME	Zero drift	ppm equivalent change/year in lab air	< 0.05
	Sensitivity drift	% change/year in lab air, monthly test	< 4
	Operating life	months until 80% original signal (24 month warranted)	> 24
ENVIRONMENTAL			
	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 5ppm PH_3	65 to 85
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm PH_3	120 to 140
	Zero @ -20°C	ppm equivalent change from 20°C	< ±0.5
	Zero @ 50°C	ppm equivalent change from 20°C	< 0 to +0.2

CROSS SENSITIVITY	CO	sensitivity	% measured gas @ 400ppm	CO	< 1
	H_2S	sensitivity	% measured gas @ 20ppm	H_2S	< 170
	NO_2	sensitivity	% measured gas @ 20ppm	NO_2	< -30
	Cl_2	sensitivity	% measured gas @ 10ppm	Cl_2	< 0.1
	NO	sensitivity	% measured gas @ 50ppm	NO	< 30
	SO_2	sensitivity	% measured gas @ 20ppm	SO_2	< 30
	H_2	sensitivity	% measured gas @ 400ppm	H_2 at 20°C	< 0.3
	C_2H_4	sensitivity	% measured gas @ 400ppm	C_2H_4	< 20
	NH_3	sensitivity	% measured gas @ 20ppm	NH_3	< 0.2
	CO_2	sensitivity	% measured gas @ 5%	CO_2	< 0.1

KEY SPECIFICATIONS	Temperature range	°C	-30 to 50
	Pressure range	kPa	80 to 120
	Humidity range	% rh continuous	15 to 90
	Storage period	months @ 3 to 20°C (stored in sealed pot)	6
	Load resistor	Ω	10 to 33
	Weight	g	< 13

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.

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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PH3-B1 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

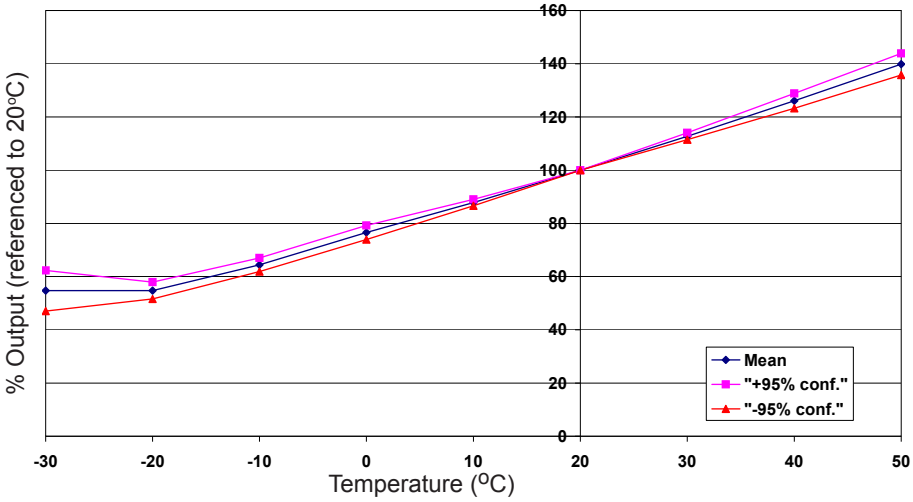


Figure 2 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors. The mean and ±95% confidence intervals are shown.

Figure 3 Zero Temperature Dependence

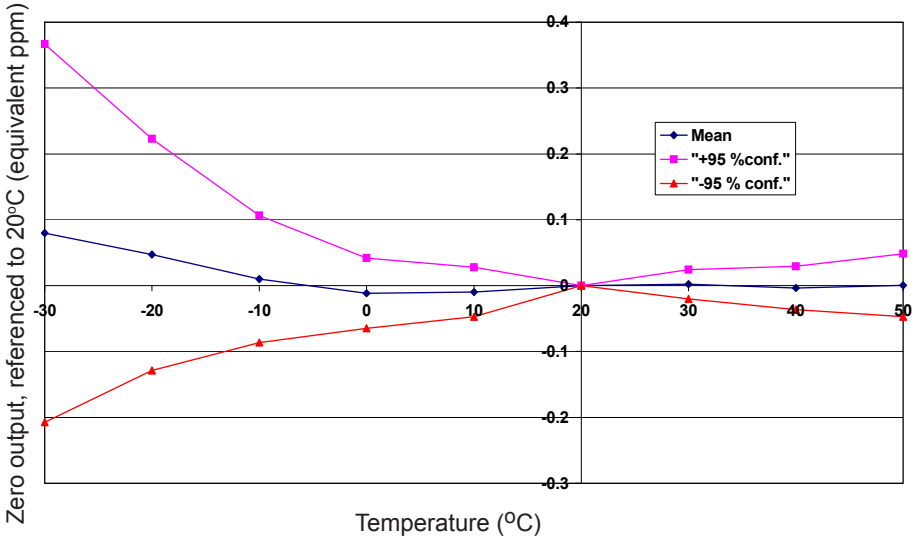
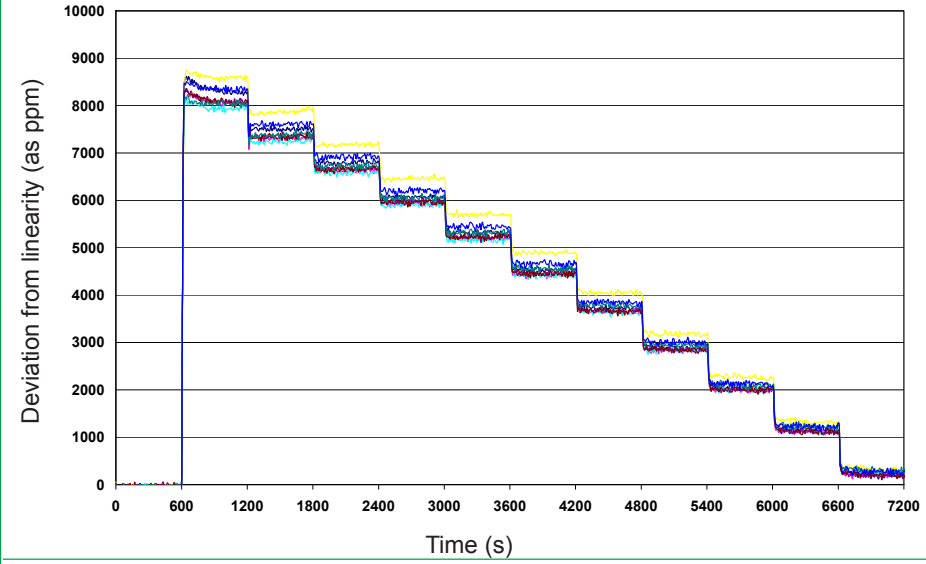


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors. The mean and ± 95% confidence intervals are shown.

Figure 4 Response from 10ppm PH_3 to Zero



Eight PH3-B1 were tested for response from 10 to 1ppm.

Fast response and stable readings are observed.

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".