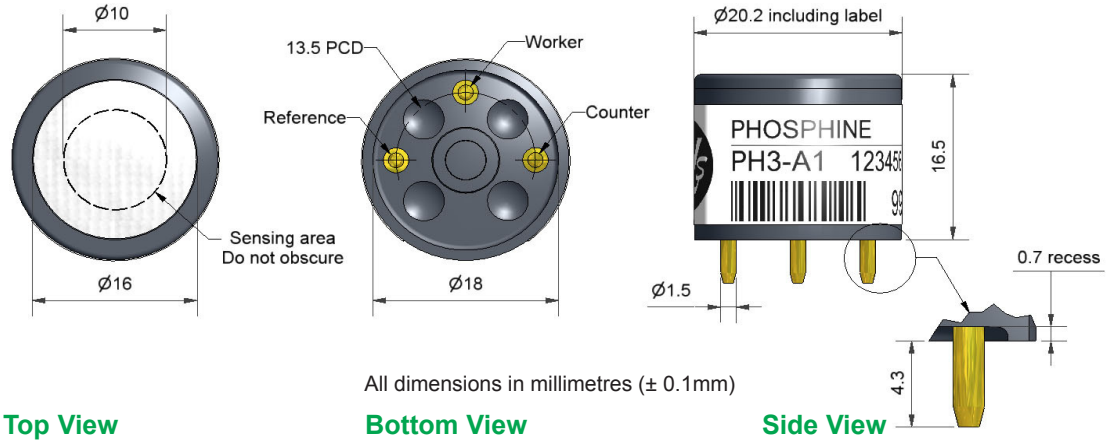
PH3-A1 Phosphine Sensor

PATENTED

Technical Specification

Figure 1 PH3-A1 Schematic Diagram



All dimensions in millimetres (± 0.1mm)

Top View | Bottom View | Side View

PERFORMANCE	Sensitivity	nA/ppm in 11ppm PH_3	550 to 900
	Response time	t_{90} (s) from zero to 5ppm PH_3	< 25
	Zero current	ppm equivalent in zero air	< ±0.5
	Resolution	RMS noise (ppm equivalent)	< 0.1
	Range	ppm PH_3 limit of performance warranty	10
	Linearity	ppm error at full scale, linear at zero, 20ppm PH_3	< -0.6
	Overgas limit	maximum ppm for stable response to gas pulse	75
LIFETIME	Zero drift	ppm equivalent change/year in lab air	< ±0.05
	Sensitivity drift	% change/year in lab air, monthly test	< 10
	Operating life	months until 80% original signal (24 month warranted)	> 24
ENVIRONMENTAL			
	Sensitivity @ -20°C	%(output @ -20°C/output @ 20°C) @ 11ppm PH_3	20 to 70
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm PH_3	130 to 160
	Zero @ -20°C	ppm equivalent change from 20°C	< ±0.04
	Zero @ 50°C	ppm equivalent change from 20°C	< ±0.04
CROSS SENSITIVITY	H_2S sensitivity	% meaured gas @ 20ppm H_2S	< 15
	NO_2 sensitivity	% meaured gas @ 10ppm NO_2	< -30
	Cl_2 sensitivity	% meaured gas @ 10ppm Cl_2	< -30
	NO sensitivity	% meaured gas @ 50ppm NO	< 1
	SO_2 sensitivity	% meaured gas @ 20ppm SO_2	< 60
	CO sensitivity	% meaured gas @ 400ppm CO	< 0.7
	H_2 sensitivity	% meaured gas @ 400ppm H_2	< 0.2
	C_2H_4 sensitivity	% meaured gas @ 80ppm C_2H_4	< 10
	NH_3 sensitivity	% meaured gas @ 25ppm NH_3	< 0.2
	CO_2 sensitivity	% meaured gas @ 5% vol CO_2	< 0.1
KEY SPECIFICATIONS	Temperature range	°C	-30 to 50
	Pressure range	kPa	80 to 120
	Humidity range	% rh continuous	20 to 90
	Storage period	months @ 0 to 20°C (stored in original container)	6
	Load resistor	Ω	10 to 33
	Bias voltage	mV	not required
	Weight	g	< 6

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.

Alphasense Ltd, Sensor Technology House, 300 Avenue West, Skyline 120, Great Notley. CM77 7AA. UK
Telephone: +44 (0) 1376 556 700 Fax: +44 (0) 1376 335 899 E-mail: sensors@alphasense.com Website: www.alphasense.com

PH3-A1 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

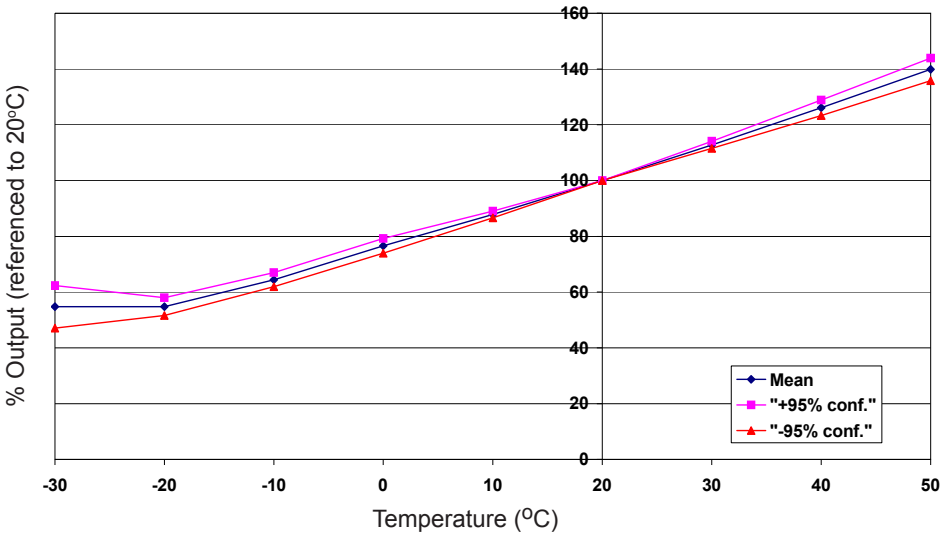


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

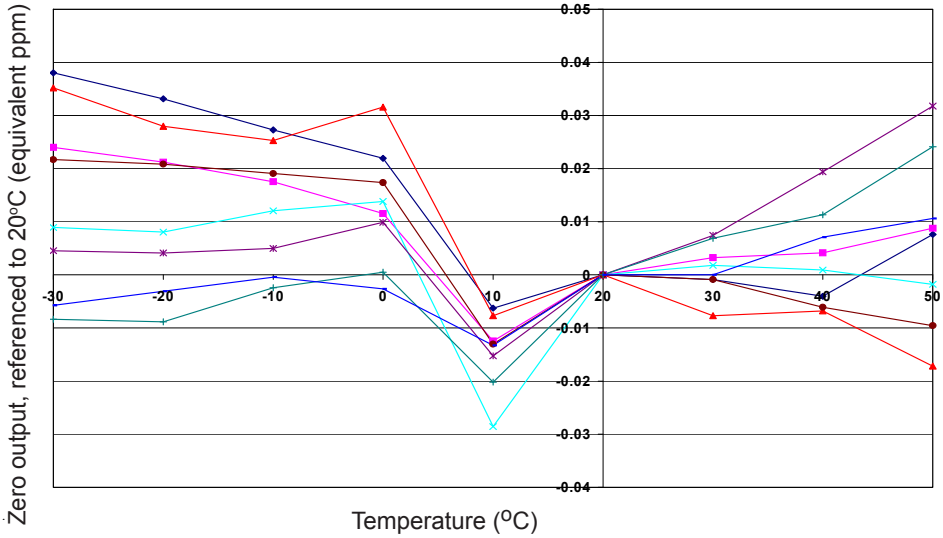


Figure 3 shows the variation in zero output caused by changes in temperature expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 4 Linearity

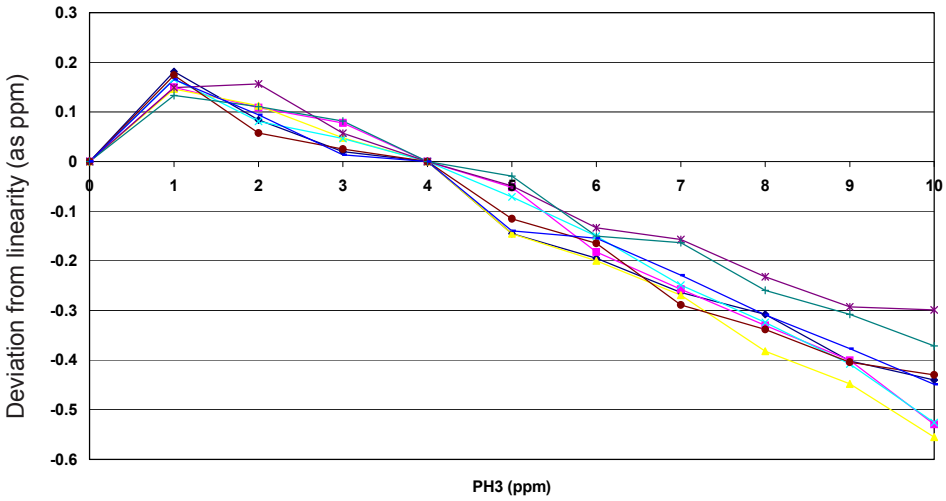


Figure 4 shows variation from linearity to 10ppm. Software correction between 0 and 0.5ppm can improve overall linearity.

Repeatable performance means linearity can be corrected in software.

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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