

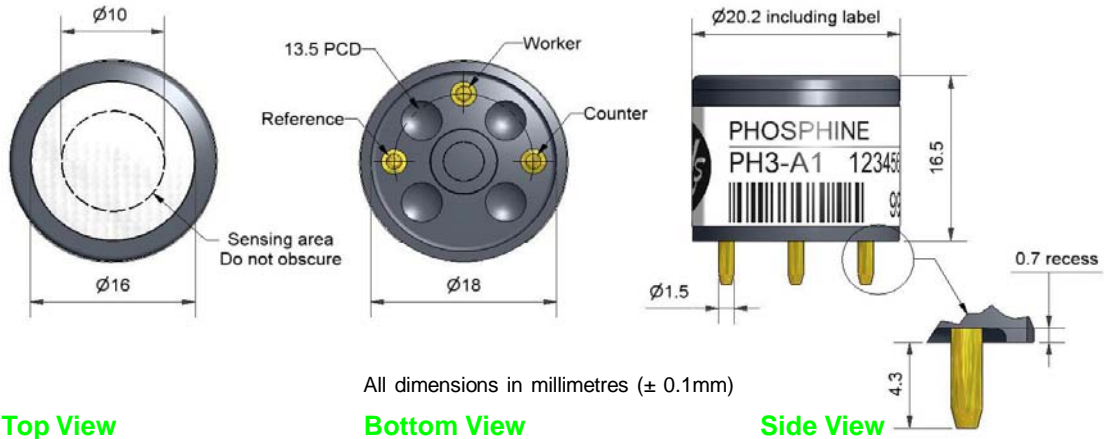


PH3-A1 Phosphine Sensor



PATENTED

Figure 1 PH3-A1 Schematic Diagram



Technical Specification

PERFORMANCE	Parameter	Specification	Range
	Sensitivity	nA/ppm in 11ppm PH ₃	600 to 800
	Response time	t ₉₀ (s) from zero to 5ppm PH ₃	<25
	Zero current	ppm equivalent in zero air	<0.15
	Resolution	RMS noise (ppm equivalent)	<0.03
	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	50

LIFETIME	Parameter	Specification	Range
	Zero drift	ppm equivalent change/year in lab air	$\leq \pm 0.05$
	Sensitivity drift	% change/year in lab air, monthly test	<10
	Operating life	months until 80% original signal (24 month warranted)	>24

ENVIRONMENTAL	Parameter	Specification	Range
	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 11ppm PH ₃	45 to 60
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm PH ₃	130 to 145
	Zero @ -20°C	ppm equivalent change from 20°C	± 0.15
	Zero @ 50°C	ppm equivalent change from 20°C	± 0.07

CROSS SENSITIVITY	Gas	Specification	Range
	H ₂ S	sensitivity % measured gas @ 20ppm H ₂ S	<250
	NO ₂	sensitivity % measured gas @ 10ppm NO ₂	<-80
	Cl ₂	sensitivity % measured gas @ 10ppm Cl ₂	<-25
	NO	sensitivity % measured gas @ 50ppm NO	<-2
	SO ₂	sensitivity % measured gas @ 20ppm SO ₂	<50
	CO	sensitivity % measured gas @ 400ppm CO	<0.7
	H ₂	sensitivity % measured gas @ 400ppm H ₂	<0.2
	C ₂ H ₄	sensitivity % measured gas @ 80ppm C ₂ H ₄	<15
	NH ₃	sensitivity % measured gas @ 25ppm NH ₃	<0.2
	CO ₂	sensitivity % measured gas @ 5% vol CO ₂	<0.1

KEY SPECIFICATIONS	Parameter	Specification	Range
	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.



PH3-A1 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

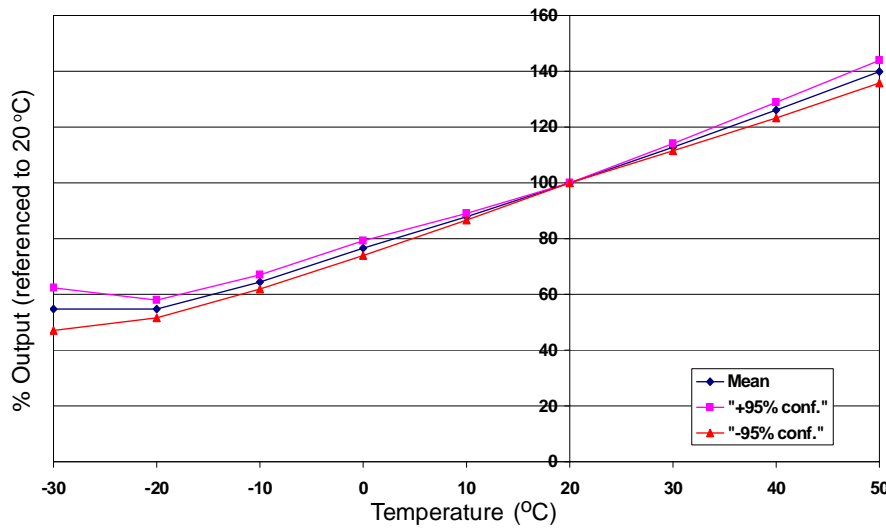


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

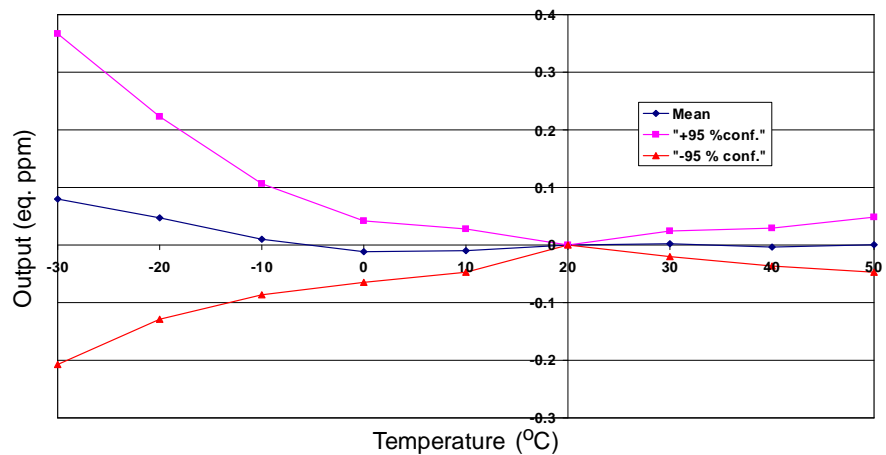


Figure 3 shows the variation in zero output caused by changes in temperature expressed as ppm gas equivalent.

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

Figure 4 Linearity

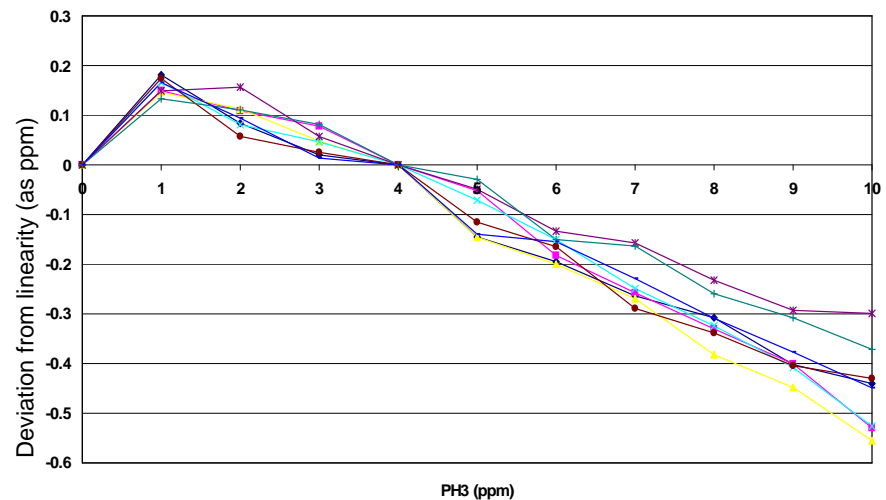


Figure 4 shows variation from linearity to 10ppm. Software correction between 0 and 0.5ppm can improve overall linearity.

Repeatable performance means linearity correction can be added to 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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