

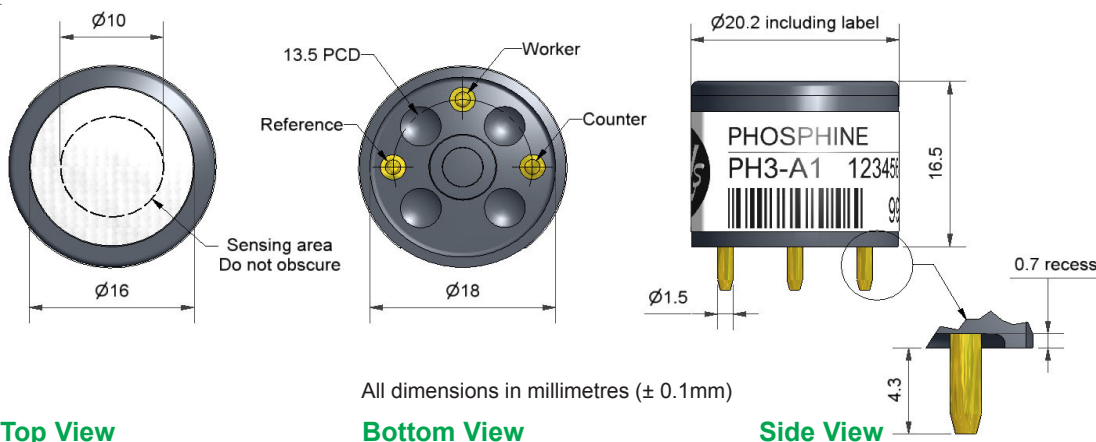


# PH3-A1 Phosphine Sensor



**Figure 1 PH3-A1 Schematic Diagram**

**PATENTED**



All dimensions in millimetres ( $\pm 0.1\text{mm}$ )

**Top View**

**Bottom View**

**Side View**

PERFORMANCE	Parameter	Specification	Value
	Sensitivity	nA/ppm in 11ppm PH <sub>3</sub>	550 to 900
	Response time	t <sub>90</sub> (s) from zero to 5ppm PH <sub>3</sub>	< 25
	Zero current	ppm equivalent in zero air	< $\pm 0.5$
	Resolution	RMS noise (ppm equivalent)	< 0.1
	Range	ppm PH <sub>3</sub> limit of performance warranty	10
	Linearity	ppm error at full scale, linear at zero, 20ppm PH <sub>3</sub>	< -0.6
	Overgas limit	maximum ppm for stable response to gas pulse	75

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

ENVIRONMENTAL	Parameter	Specification	Value
	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 11ppm PH <sub>3</sub>	20 to 70
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm PH <sub>3</sub>	130 to 160
	Zero @ -20°C	ppm equivalent change from 20°C	< $\pm 0.04$
	Zero @ 50°C	ppm equivalent change from 20°C	< $\pm 0.04$

CROSS SENSITIVITY	Gas	Sensitivity	Specification	Value
	H <sub>2</sub> S	sensitivity	% measured gas @ 20ppm	< 15
	NO <sub>2</sub>	sensitivity	% measured gas @ 10ppm	< -30
	Cl <sub>2</sub>	sensitivity	% measured gas @ 10ppm	< -30
	NO	sensitivity	% measured gas @ 50ppm	< 1
	SO <sub>2</sub>	sensitivity	% measured gas @ 20ppm	< 60
	CO	sensitivity	% measured gas @ 400ppm	< 0.7
	H <sub>2</sub>	sensitivity	% measured gas @ 400ppm	< 0.2
	C <sub>2</sub> H <sub>4</sub>	sensitivity	% measured gas @ 80ppm	< 10
	NH <sub>3</sub>	sensitivity	% measured gas @ 25ppm	< 0.2
	CO <sub>2</sub>	sensitivity	% measured gas @ 5% vol	< 0.1

KEY SPECIFICATIONS	Parameter	Specification	Value
	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.

**ApolloSense Ltd**

**Technical Specification**



# PH3-A1 Performance Data

**Technical Specification**

**Figure 2 Sensitivity Temperature Dependence**

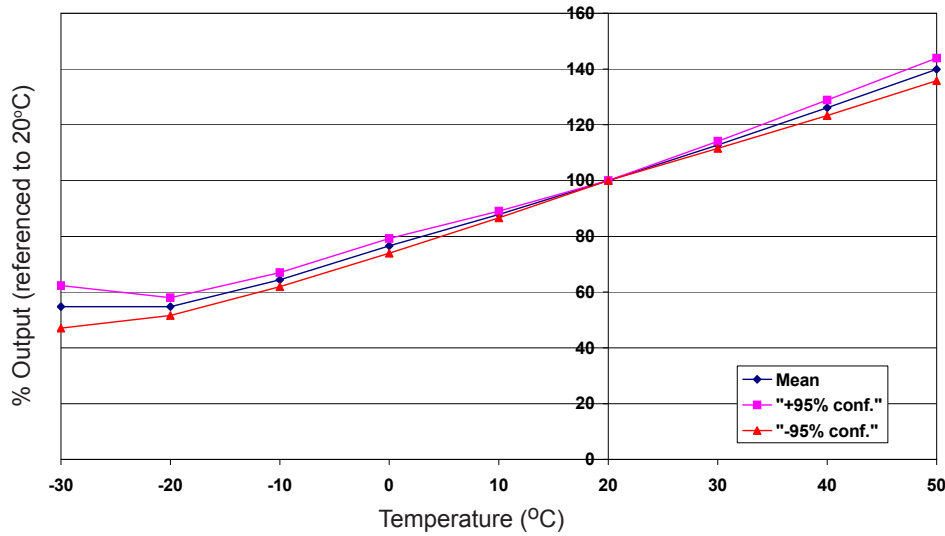


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

**Figure 3 Zero Temperature Dependence**

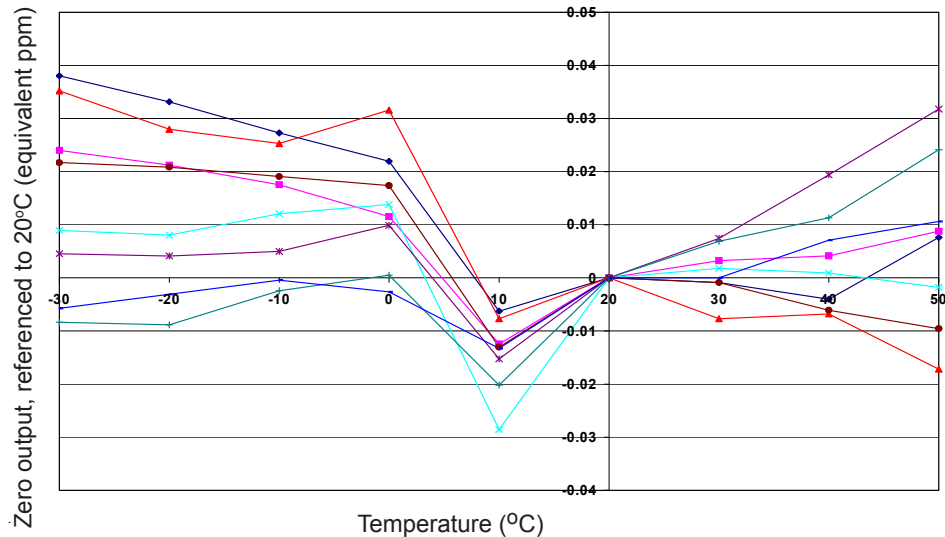


Figure 3 shows the variation in zero output caused by changes in temperature expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

**Figure 4 Linearity**

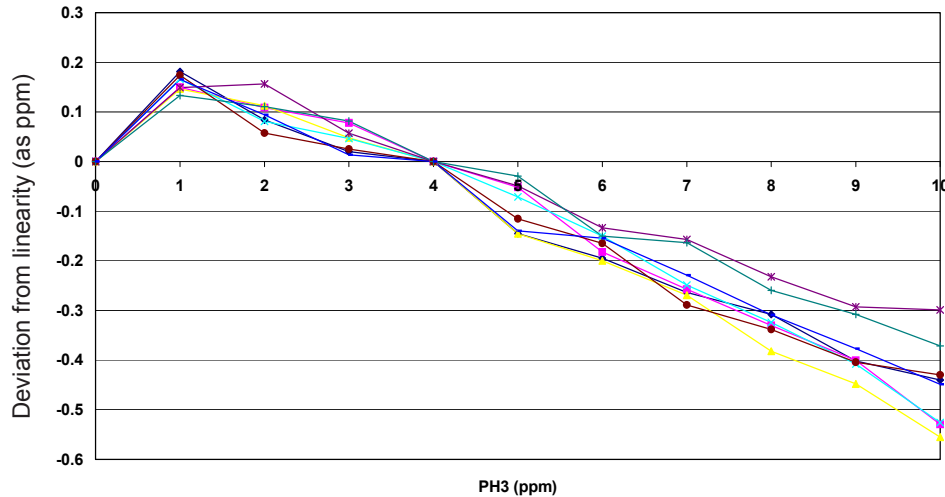


Figure 4 shows variation from linearity to 10ppm. Software correction between 0 and 0.5ppm can improve overall linearity.

Repeatable performance means linearity can be corrected in software.

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