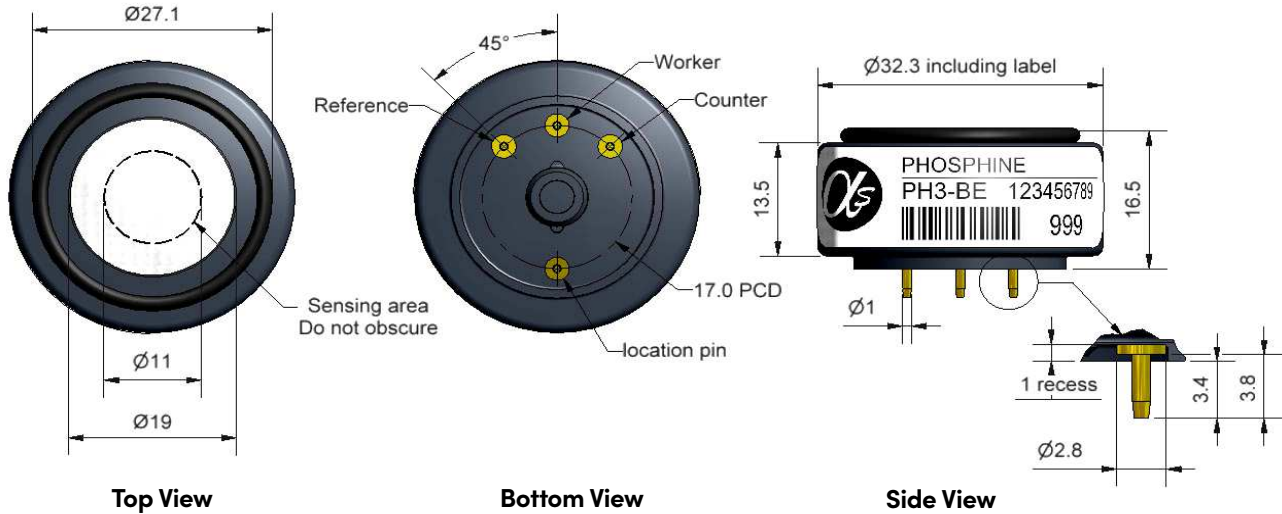


## PH3-BE Phosphine Sensor



Dimensions are in millimetres ( $\pm 0.1$  mm).

### Performance

Sensitivity	nA/ppm in 800 PH <sub>3</sub>	15 to 35
Response time	t90 (s) from zero to 800 PH <sub>3</sub>	< 30
Zero current	ppm equivalent in zero air	< -6 to 20
Resolution	RMS noise (ppm equivalent)	< 2
Range	ppm PH <sub>3</sub> limit of performance warranty	2,000
Linearity	ppm error at full scale, linear at zero, 800ppm PH <sub>3</sub>	-50 to -350
Overgas limit	maximum ppm for stable response to gas pulse	5,000

### Lifetime

Zero drift	ppm equivalent change/year in lab air	< 1.5
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) @ 800ppm PH <sub>3</sub>	65 to 85
Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 800ppm PH <sub>3</sub>	120 to 140
Zero @ -20°C	ppm equivalent change from 20°C	< $\pm 20$
Zero @ 50°C	ppm equivalent change from 20°C	< $\pm 15$

### Cross Sensitivity

H <sub>2</sub> S sensitivity	% measured gas @ 20ppm	H <sub>2</sub> S	< 110
NO <sub>2</sub> sensitivity	% measured gas @ 10ppm	NO <sub>2</sub>	< -35
Cl <sub>2</sub> sensitivity	% measured gas @ 10ppm	Cl <sub>2</sub>	< -30
NO sensitivity	% measured gas @ 50ppm	NO	< 10
SO <sub>2</sub> sensitivity	% measured gas @ 20ppm	SO <sub>2</sub>	< 25
CO sensitivity	% measured gas @ 400ppm	CO	< 11
H <sub>2</sub> sensitivity	% measured gas @ 400ppm	H <sub>2</sub>	< 2
C <sub>2</sub> H <sub>4</sub> sensitivity	% measured gas @ 80ppm	C <sub>2</sub> H <sub>4</sub>	< 60
NH <sub>3</sub> sensitivity	% measured gas @ 25ppm	NH <sub>3</sub>	< 0.1
CO <sub>2</sub> sensitivity	% measured gas @ 5%	CO <sub>2</sub>	< 0.1

### Key Specifications

Temperature range	°C	-20 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	$\Omega$ (recommended)	10 to 33
Bias voltage	mV above analogue ground	not required
Weight	g	< 13

**Figure 1 Zero Temperature Dependence**

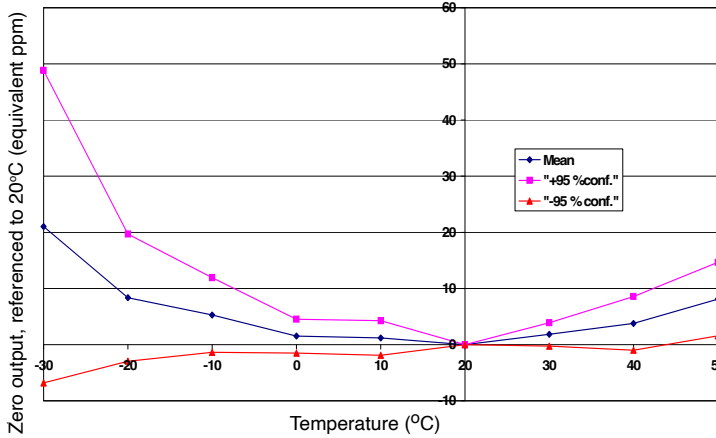
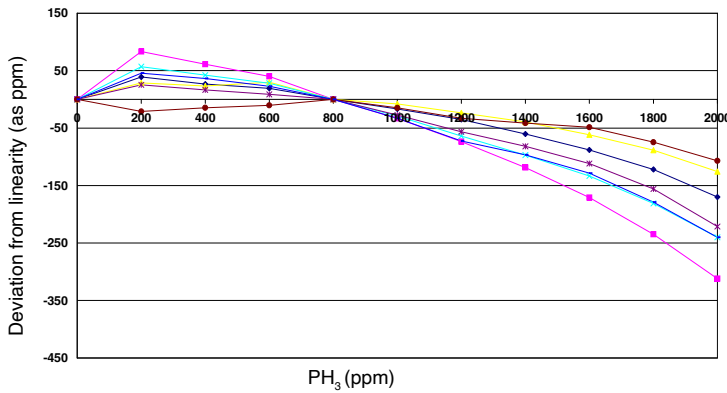


Figure 1 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

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

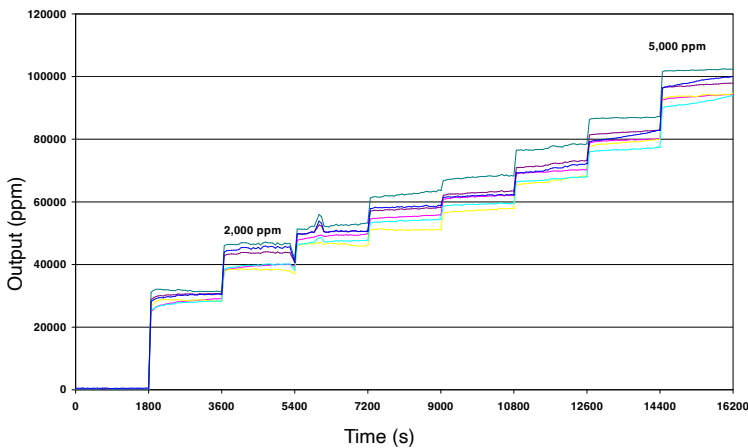
**Figure 2 Deviation up to 2,000 ppm**



Sensor linearity is repeatable between sensors, allowing for software correction if required.

Data is from a typical batch of sensors.

**Figure 3 Overgas Linearity**



Sensors respond rapidly and are stable even at 5,000ppm  $\text{PH}_3$ .

Sensors recover after short high concentration exposure without change to performance.

NOTE: Tested with surrogate gas. 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.

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 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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