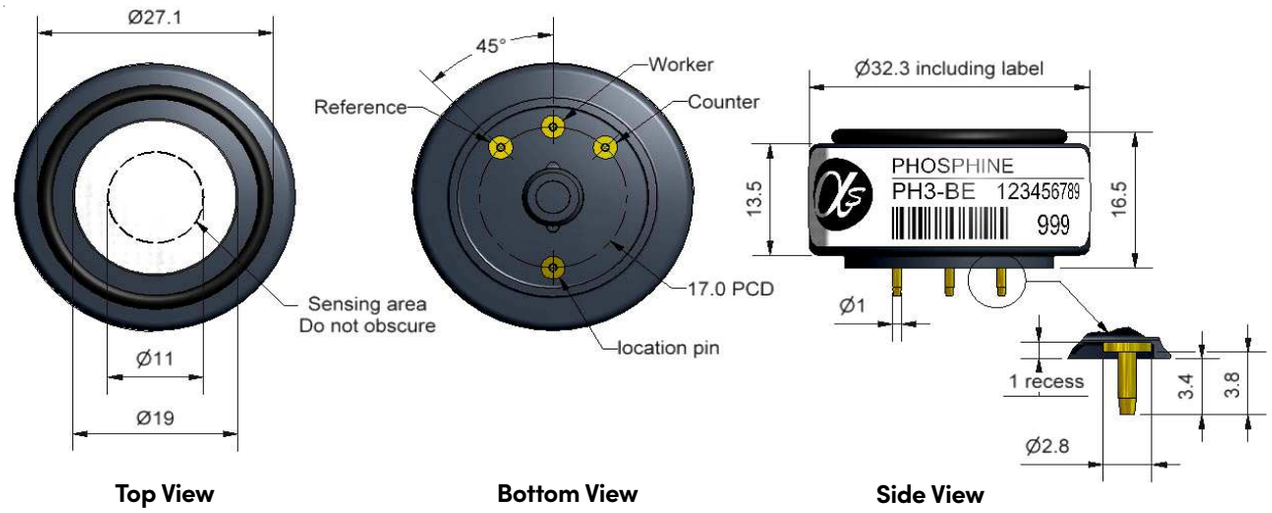
alphasense
AMETEK

Technical specifications Version 1.0

PH3-BE Phosphine Sensor



Top View **Bottom View** **Side View**

Dimensions are in millimetres (± 0.1 mm).

Performance	Sensitivity	nA/ppm in 800 PH_3	15 to 35
	Response time	t90 (s) from zero to 800 PH_3	< 30
	Zero current	ppm equivalent in zero air	< -6 to 20
	Resolution	RMS noise (ppm equivalent)	< 2
	Range	ppm PH_3 limit of performance warranty	2,000
	Linearity	ppm error at full scale, linear at zero, 800ppm PH_3	-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_3	65 to 85
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 800ppm PH_3	120 to 140
	Zero @ -20°C	ppm equivalent change from 20°C	< ± 20
	Zero @ 50°C	ppm equivalent change from 20°C	< ± 15

Cross Sensitivity	H_2S sensitivity	% measured gas @ 20ppm	H_2S	< 110
	NO_2 sensitivity	% measured gas @ 10ppm	NO_2	< -35
	Cl_2 sensitivity	% measured gas @ 10ppm	Cl_2	< -30
	NO sensitivity	% measured gas @ 50ppm	NO	< 10
	SO_2 sensitivity	% measured gas @ 20ppm	SO_2	< 25
	CO sensitivity	% measured gas @ 400ppm	CO	< 11
	H_2 sensitivity	% measured gas @ 400ppm	H_2	< 2
	C_2H_4 sensitivity	% measured gas @ 80ppm	C_2H_4	< 60
	NH_3 sensitivity	% measured gas @ 25ppm	NH_3	< 0.1
	CO_2 sensitivity	% measured gas @ 5%	CO_2	< 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	Ω (recommended)	10 to 33
	Bias voltage	mV above analogue ground	not required
	Weight	g	< 13

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For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. or visit our website at "www.alphasense.com".

Figure 1 Zero Temperature Dependence

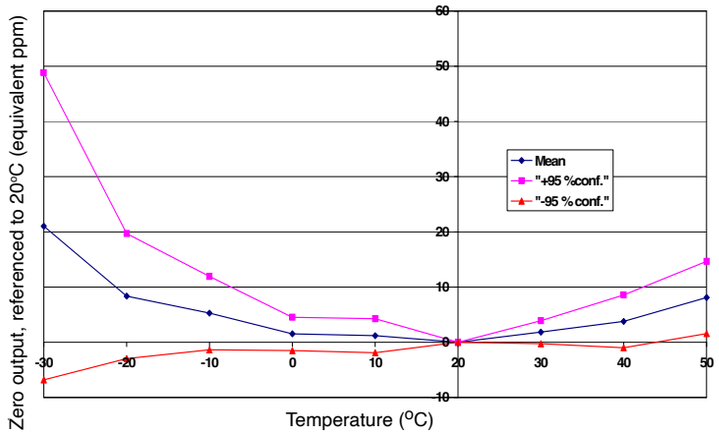
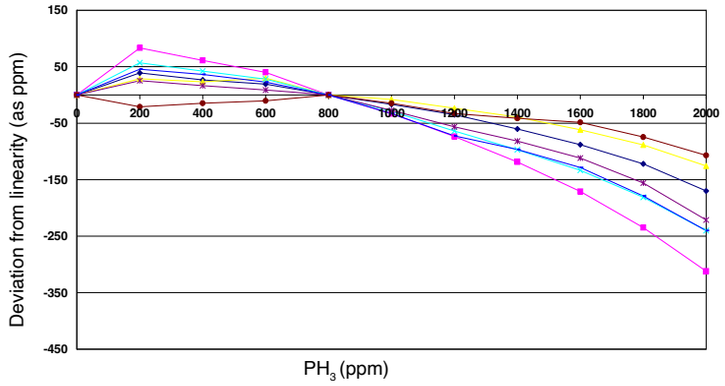


Figure 1 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

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

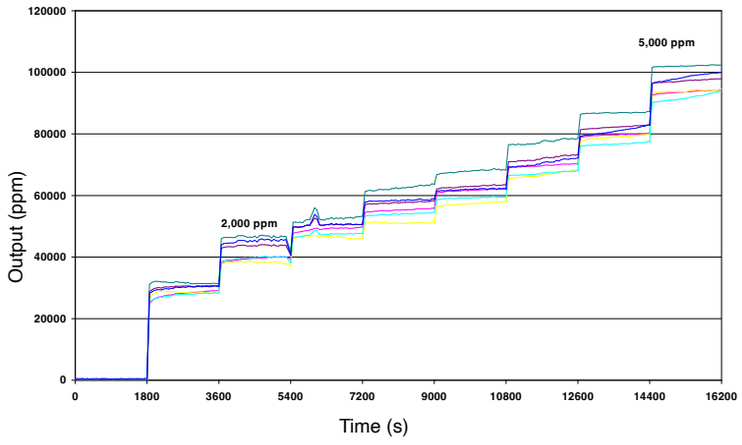
Figure 2 Deviation up to 2,000 ppm



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 PH_3.

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