

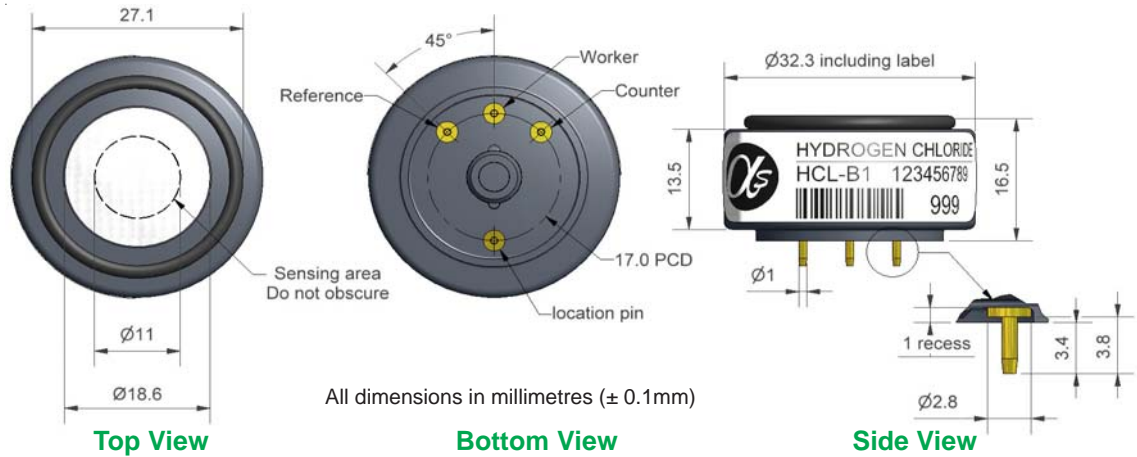


# HCL-B1 Hydrogen Chloride Sensor



PATENTED

Figure 1 HCL-B1 Schematic Diagram



PERFORMANCE	Parameter	Specification	Range
	Sensitivity	nA/ppm in 25ppm HCl	150 to 250
	Response time	$t_{90}$ (s) from zero to 25ppm HCl	< 200
	Zero current	ppm equivalent in zero air	0 to 2
	Resolution	RMS noise (ppm equivalent)	< 0.1
	Range	ppm HCl limit of performance warranty	20
	Linearity	ppm error at full scale, linear at zero, 25ppm HCl	0 to 6
	Overgas limit	maximum ppm for stable response to gas pulse	200

LIFETIME	Parameter	Specification	Value
	Zero drift	ppm equivalent change/year in lab air	nd
	Sensitivity drift	% change/year in lab air, monthly test	nd
	Operating life	months until 80% original signal (12 month warranted)	nd

ENVIRONMENTAL	Parameter	Specification	Value
	Sensitivity @ 0°C	% (output @ 0°C/output @ 20°C) @ 25ppm HCl	80 to 95
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 25ppm HCl	100 to 108
	Zero @ -20°C	ppm equivalent change from 20°C	< +0 to -1.0
	Zero @ 50°C	ppm equivalent change from 20°C	< +0.5 to +2.5

CROSS SENSITIVITY	Gas	Specification	Value
	H <sub>2</sub> S	% measured gas @ ppm H <sub>2</sub> S	< 220
	NO <sub>2</sub>	% measured gas @ ppm NO <sub>2</sub>	< -180
	Cl <sub>2</sub>	% measured gas @ ppm Cl <sub>2</sub>	< -10
	NO	% measured gas @ ppm NO	< 2
	SO <sub>2</sub>	% measured gas @ ppm SO <sub>2</sub> (transient peak)	< 1
	CO	% measured gas @ ppm CO	< 0.1
	H <sub>2</sub>	% measured gas @ ppm H <sub>2</sub>	< 0.1
	C <sub>2</sub> H <sub>4</sub>	% measured gas @ ppm C <sub>2</sub> H <sub>4</sub>	< 1
	NH <sub>3</sub>	% measured gas @ ppm NH <sub>3</sub>	< 0.1
	CO <sub>2</sub>	% measured gas @ 5% CO <sub>2</sub>	< 0.1

KEY SPECIFICATIONS	Parameter	Specification	Value
	Temperature range	°C	0 to +50
	Pressure range	kPa	80 to 120
	Humidity range	% rh continuous	15 to 90
	Storage period	months @ 3 to 20°C (stored in original container)	6
	Load resistor	Ω (recommended)	10 to 33
	Bias voltage	mV	not required
	Weight	g	< 13



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.



# HCL-B1 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

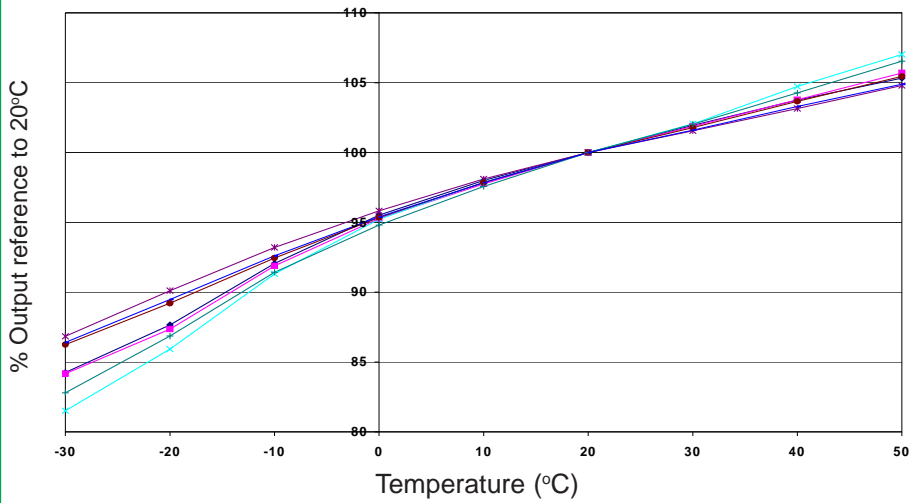


Figure 2 shows the variation of sensitivity at 25ppm HCl caused by changes in temperature.

Figure 3 Zero Temperature Dependence

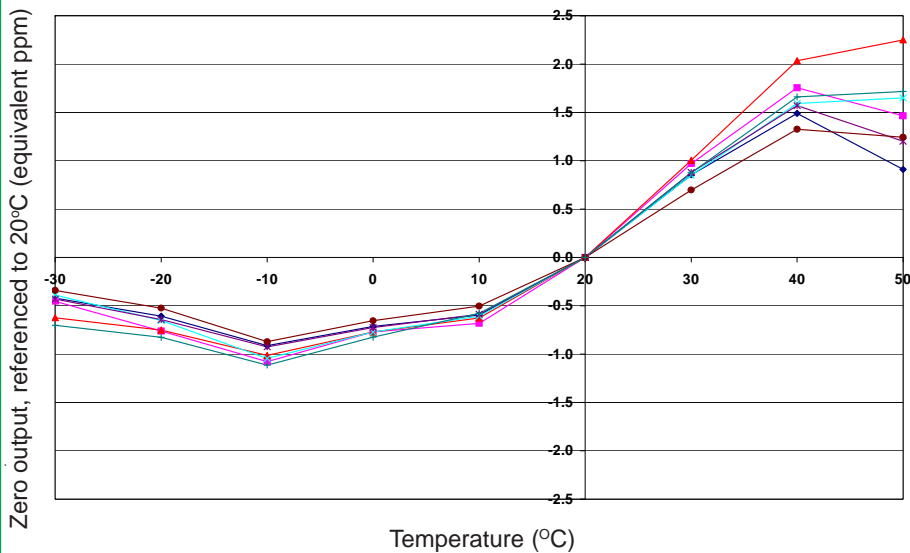
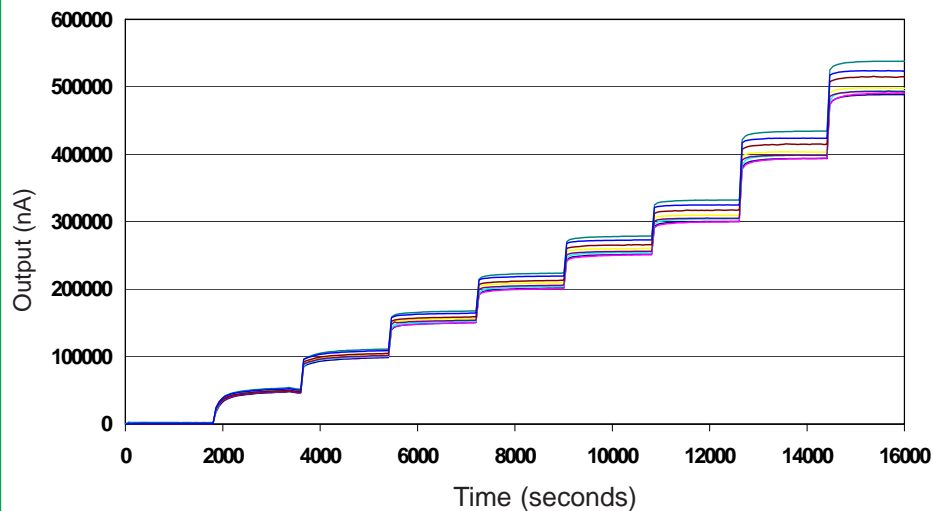


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 4 Response to 200ppm HCl



Sensor shows good response to 200ppm HCl.

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](http://www.alphasense.com)".

*In the interest of continued product improvement, we reserve the right to change design features and specifications without prior notification. The data contained in this document is for guidance only. Alphasense Ltd accepts no liability for any consequential losses, injury or damage resulting from the use of this document or the information contained within. (©ALPHASENSE LTD) Doc. Ref. HCLB1/JAN12*