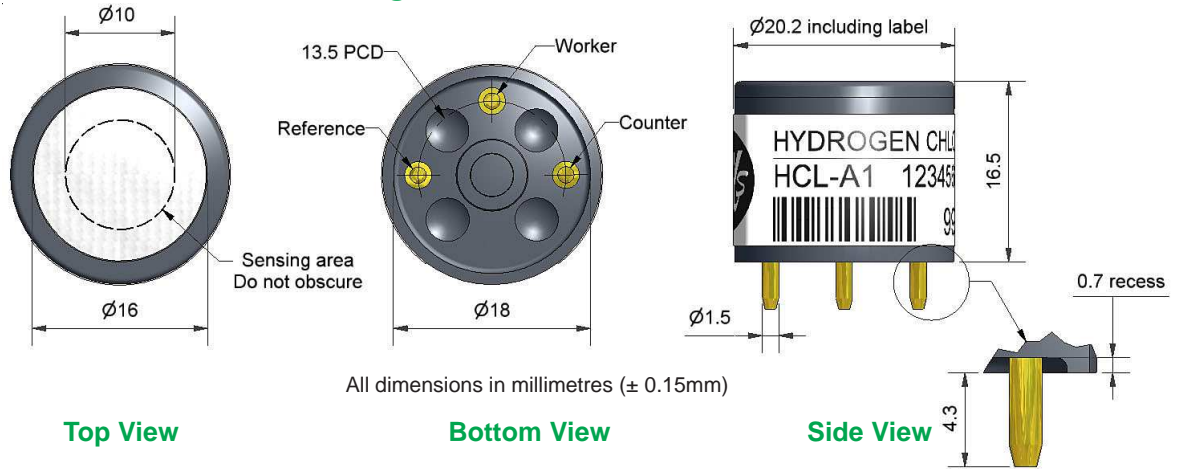




# HCL-A1 Hydrogen Chloride Sensor



**Figure 1 HCL-A1 Schematic Diagram**



# Technical Specification

<b>PERFORMANCE</b>	Sensitivity	nA/ppm in 25ppm HCl	50 to 140
	Response time	$t_{90}$ (s) from zero to 25ppm HCl	< 300
	Zero current	ppm equivalent in zero air	< -3 to 10
	Resolution	RMS noise (ppm equivalent)	< 1
	Range	ppm HCl limit of performance warranty	100
	Linearity	ppm error at full scale, linear at zero, 40ppm HCl	0 to 6
	Overgas limit	maximum ppm for stable response to gas pulse	200
<b>LIFETIME</b>	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
<b>ENVIRONMENTAL</b>	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 25ppm HCl	65 to 90
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 25ppm HCl	102 to 120
	Zero @ -20°C	ppm equivalent change from 20°C	< 0 to 4
	Zero @ 50°C	ppm equivalent change from 20°C	< +1 to -5
<b>CROSS SENSITIVITY</b>	H <sub>2</sub> S sensitivity	% measured gas @ 20 ppm H <sub>2</sub> S	< 250
	NO <sub>2</sub> sensitivity	% measured gas @ 50 ppm NO <sub>2</sub>	< -150
	Cl <sub>2</sub> sensitivity	% measured gas @ 10 ppm Cl <sub>2</sub>	< -20
	NO sensitivity	% measured gas @ 50 ppm NO	< 2
	SO <sub>2</sub> sensitivity	% measured gas @ 20 ppm SO <sub>2</sub>	< 0.1
	CO sensitivity	% measured gas @ 400 ppm CO	< 0.1
	H <sub>2</sub> sensitivity	% measured gas @ 400 ppm H <sub>2</sub>	< 0.1
	C <sub>2</sub> H <sub>4</sub> sensitivity	% measured gas @ 400 ppm C <sub>2</sub> H <sub>4</sub>	< 0.1
<b>KEY SPECIFICATIONS</b>	Temperature range	°C	-30 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	$\Omega$ (recommended)	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 47 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-A1 Performance Data

# Technical Specification

**Figure 2 Response to 25ppm HCl**

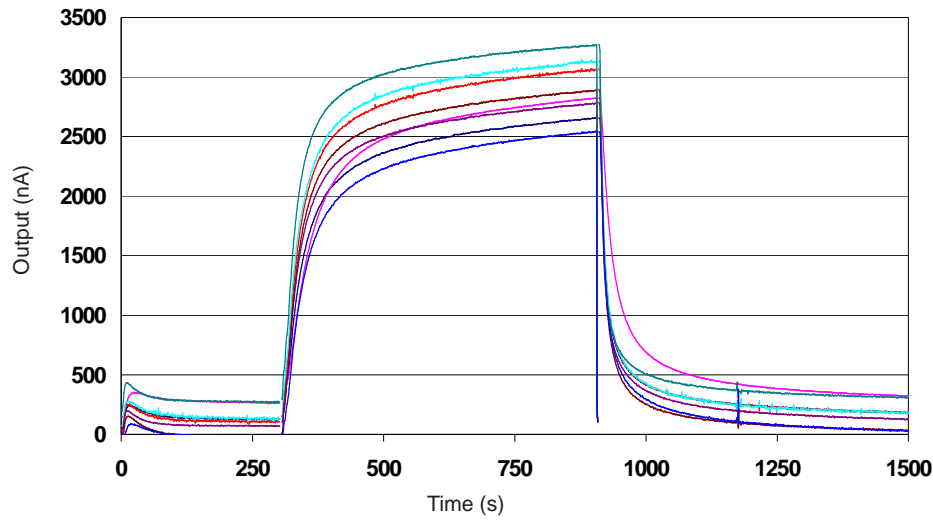


Figure 2 shows the typical response to 25ppm HCl at 20°C.

**Figure 3 Sensitivity Temperature Dependence**

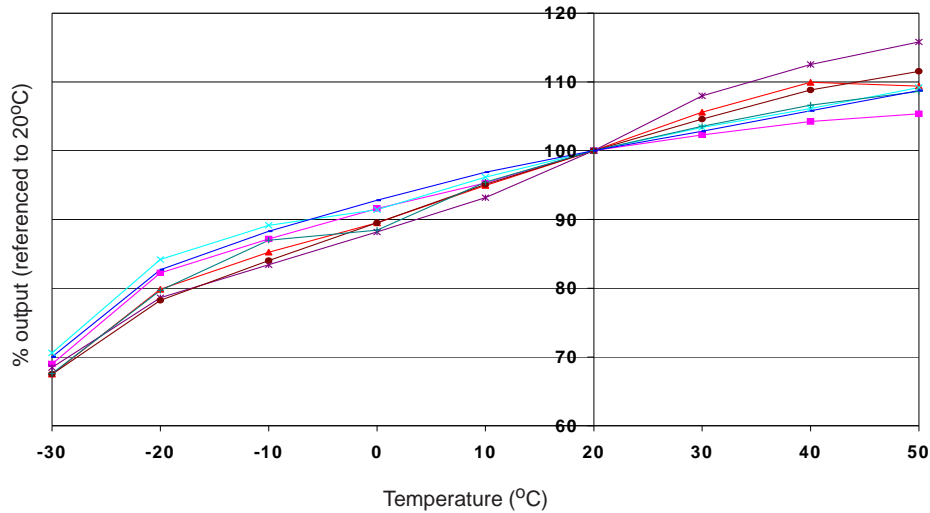


Figure 3 shows the variation in sensitivity caused by changes in temperature. This data is taken from a typical batch of sensors.

**Figure 4 Humidity Transient Response**

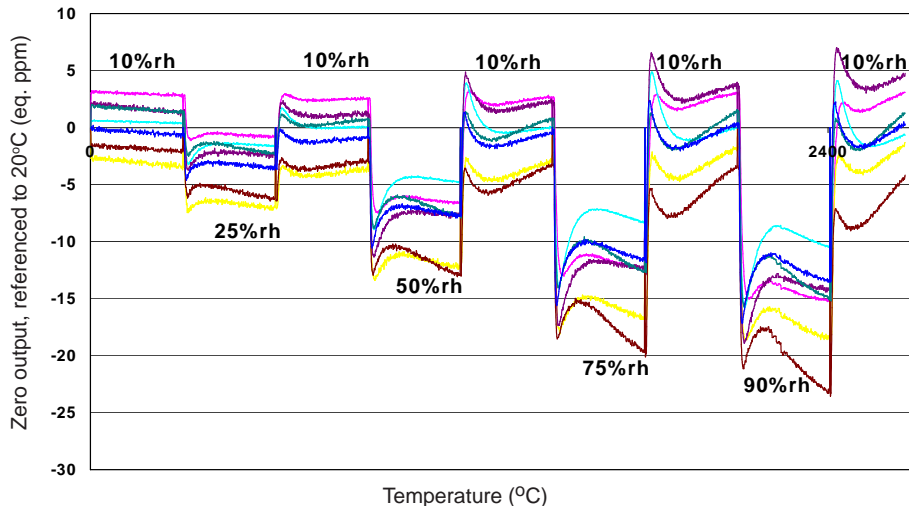


Figure 4 shows transient performance as sensors are subjected to step humidity changes from 10% to 90% rh.

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. HCL-A1/SEPT21*