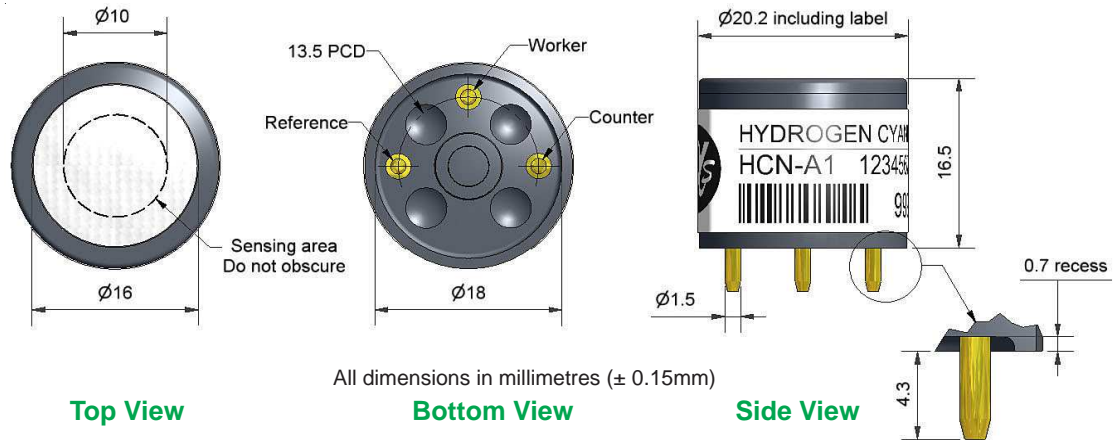




# HCN-A1 Hydrogen Cyanide Sensor



**Figure 1 HCN-A1 Schematic Diagram**



# Technical Specification

PERFORMANCE	Parameter	Specification	Range
	Sensitivity	nA/ppm in 30ppm HCN	45 to 85
	Response time	$t_{90}$ (s) from zero to 30ppm HCN	< 70
	Zero current	ppm equivalent in zero air	< -2 to 10
	Resolution	RMS noise (ppm equivalent)	< 0.05
	Range	ppm HCN limit of performance warranty	100
	Linearity	ppm error at full scale, linear at zero, 40ppm HCN	4 to 8
	Overgas limit	maximum ppm for stable response to gas pulse	150

LIFETIME	Parameter	Specification	Range
	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)	> 12

ENVIRONMENTAL	Parameter	Specification	Range
	Sensitivity @ -10°C% (output @ -10°C/output @ 20°C) @ 30ppm HCN		75 to 95
	Sensitivity @ 50°C% (output @ 50°C/output @ 20°C) @ 30ppm HCN		105 to 120
	Zero @ -20°C	ppm equivalent change from 20°C	< 0 to 1
	Zero @ 50°C	ppm equivalent change from 20°C	< $\pm 1$

CROSS SENSITIVITY	Gas	Sensitivity	%measured gas @	Gas	Range
	H <sub>2</sub> S	sensitivity	@ 20ppm	H <sub>2</sub> S	< 300
	NO <sub>2</sub>	sensitivity	@ 10ppm	NO <sub>2</sub>	< -180
	Cl <sub>2</sub>	sensitivity	@ 10ppm	Cl <sub>2</sub>	< -12
	NO	sensitivity	@ 50ppm	NO	< 1
	SO <sub>2</sub>	sensitivity	@ 20ppm	SO <sub>2</sub>	< 10 (transient)
	CO	sensitivity	@ 400ppm	CO	< 0.1
	H <sub>2</sub>	sensitivity	@ 400ppm	H <sub>2</sub>	< 0.1
	C <sub>2</sub> H <sub>4</sub>	sensitivity	@ 80ppm	C <sub>2</sub> H <sub>4</sub>	< 0.1
	NH <sub>3</sub>	sensitivity	@ 20ppm	NH <sub>3</sub>	< 1
	CO <sub>2</sub>	sensitivity	@ 5% volume	CO <sub>2</sub>	< 0.1

KEY SPECIFICATIONS	Parameter	Specification	Range
	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.



# HCN-A1 Performance Data

# Technical Specification

**Figure 2 Sensitivity Temperature Dependence**

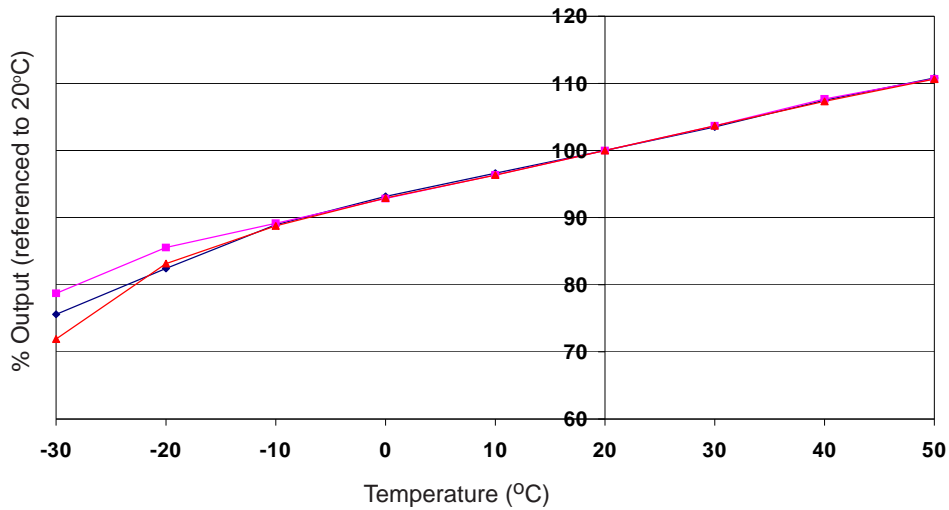


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

**Figure 3 Zero Temperature Dependence**

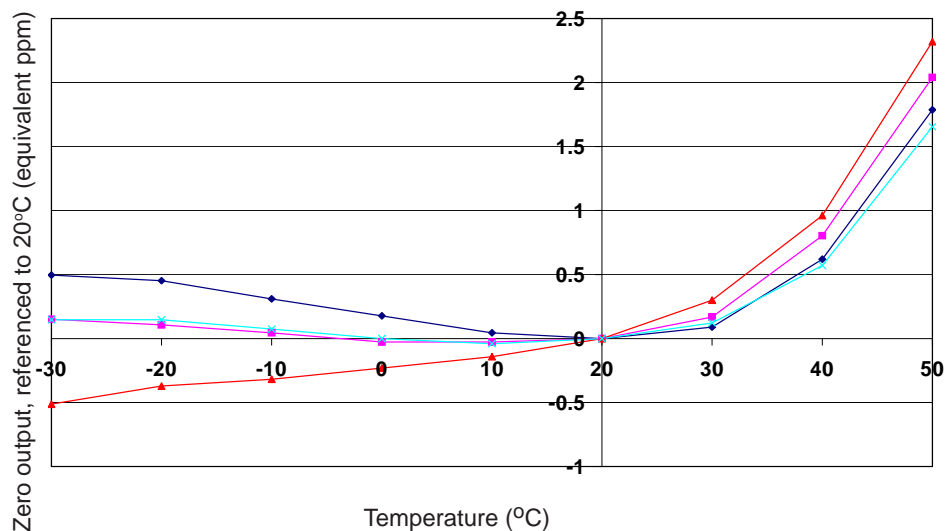
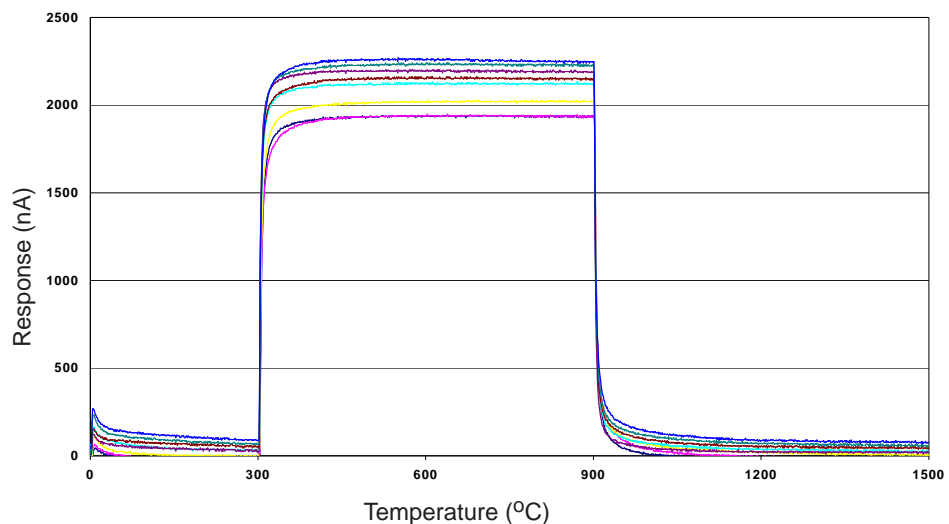


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

**Figure 4 Response to 30ppm HCN**



The HCN-A1 shows fast response and stable output when exposed to 30ppm HCN.

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. HCN-A1/MAY21*