



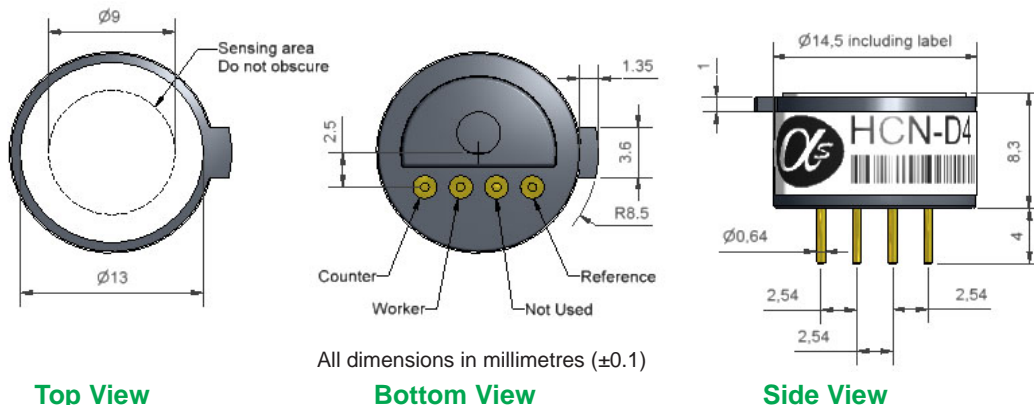
# HCN-D4 Hydrogen Cyanide Sensor

## Miniature Size



PATENTED

Figure 1 HCN-D4 Schematic Diagram



# Technical Specification

PERFORMANCE	Parameter	Specification	Range
	Sensitivity	nA/ppm 20ppm HCN	30 to 50
	Response time	$t_{90}$ (s) from zero to 20ppm HCN	< 50
	Zero current	ppm equivalent in zero air	$\pm 5$
	Resolution	RMS noise (ppm equivalent)	< 0.3
	Range	ppm limit of performance warranty	50
	Linearity	ppm error at full scale, linear at zero, 200ppm HCN	0 to -4
	Overgas limit	maximum ppm for stable response to gas pulse	250

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 @ -20°C/output @ 20°C) @ 20ppm	55 to 90
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 20ppm	105 to 120
	Zero @ -20°C	ppm equivalent change from 20°C	< $\pm 1$
	Zero @ 50°C	ppm equivalent change from 20°C	< $\pm 1$

CROSS SENSITIVITY	Gas	Sensitivity	Specification	Range
	H <sub>2</sub> S	sensitivity % measured gas @ 20ppm	H <sub>2</sub> S	< 50
	NO <sub>2</sub>	sensitivity % measured gas @ 10ppm	NO <sub>2</sub>	< -120
	Cl <sub>2</sub>	sensitivity % measured gas @ 10ppm	Cl <sub>2</sub>	< -40
	NO	sensitivity % measured gas @ 50ppm	NO	< -1
	SO <sub>2</sub>	sensitivity % measured gas @ 20ppm	SO <sub>2</sub>	< 25
	CO	sensitivity % measured gas @ 400ppm	CO	< 0.1
	H <sub>2</sub>	sensitivity % measured gas @ 400ppm	H <sub>2</sub>	< 0.1
	C <sub>2</sub> H <sub>4</sub>	sensitivity % measured gas @ 400ppm	C <sub>2</sub> H <sub>4</sub>	< 0.1
	NH <sub>3</sub>	sensitivity % measured gas @ 20ppm	NH <sub>3</sub>	< 5

KEY SPECIFICATIONS	Parameter	Specification	Range
	Temperature range	°C	-10 to 50
			-30 to -10 with reduced sensitivity
	Pressure range	kPa	80 to 120
	Humidity range	%rh (see note below)	15 to 90
	Storage period	months @ 3 to 20°C (stored in sealed pot)	6
	Load resistor	$\Omega$ (recommended)	10 to 47
	Weight	g	< 2

Note: Above 85% rh and 40°C a maximum continuous exposure period of 10 days is warranted. >40°C (50°C) limited exposure.



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.



# HCN-D4 Performance Data

# Technical Specification

Figure 2 Sensitivity temperature dependence

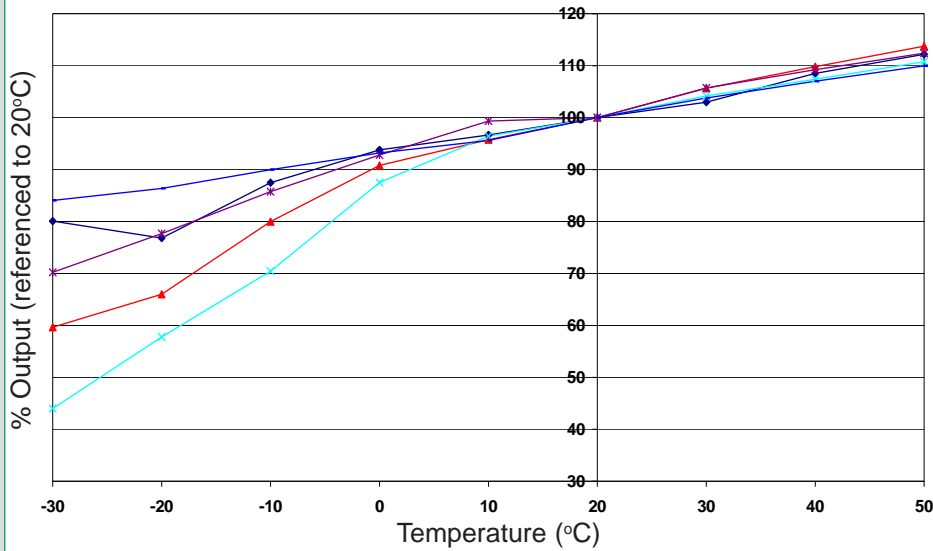


Figure 2 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of HCN-D4 sensors.

Figure 3 Zero Temperature Dependence

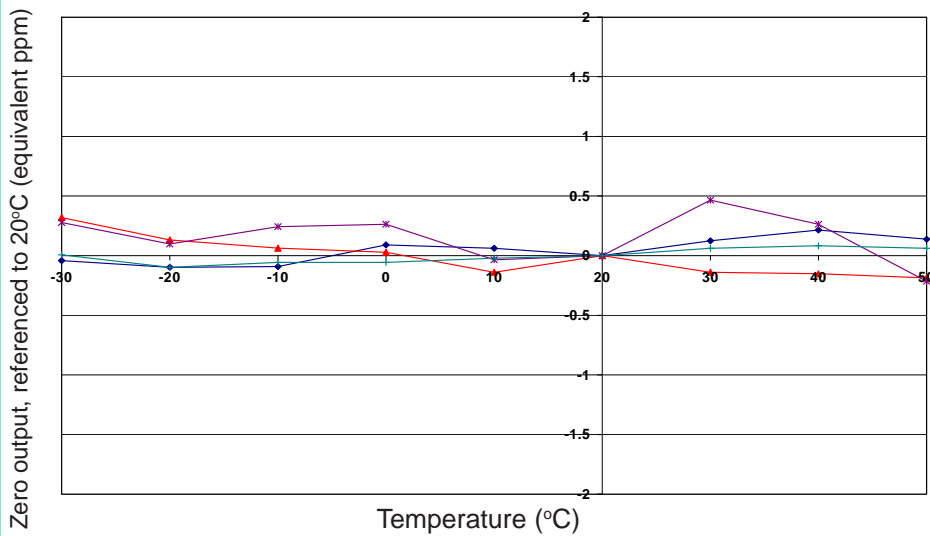


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 4 Response to 25ppm HCN

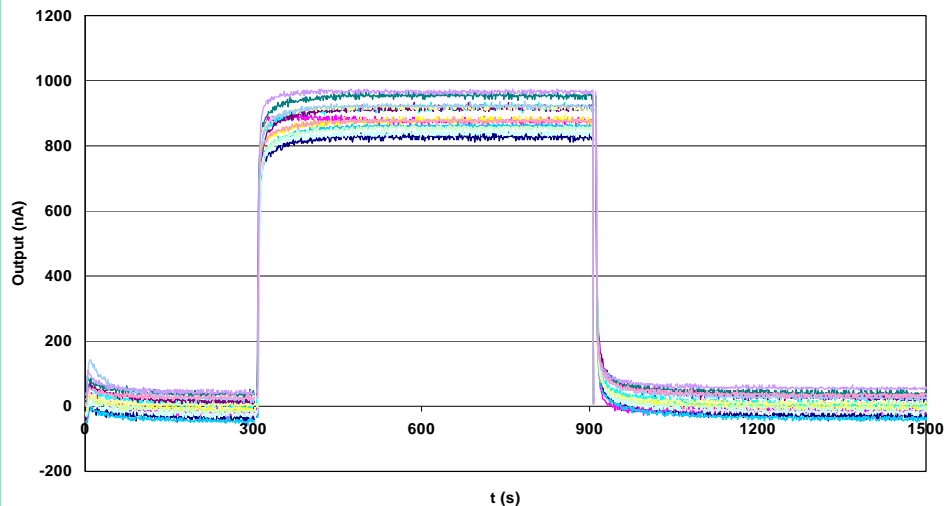


Figure 4 shows response to first zero air, then 25 ppm HCN and then zero air.

Fast response time and good zero stability give confidence that the sensor will respond rapidly and reliably to a gas emergency.

For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd or access our web site at "[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. HCND4/NOV12*