



# H2-AF Hydrogen Sensor



**Figure 1 H2-AF Schematic Diagram**



All dimensions in millimetres ( $\pm 0.15$ mm)

Top View

Bottom View

Side View

PERFORMANCE	Sensitivity		
	nA/ppm in 400ppm H <sub>2</sub> at 23°C	10 to 20	
Response time	t <sub>90</sub> (s) from zero to 400ppm H <sub>2</sub>	< 35	
Zero current	ppm equivalent in zero air	$\pm 10$	
Resolution	RMS noise (ppm equivalent)	< 0.7	
Range	ppm H <sub>2</sub> limit of performance warranty	2,000	
Linearity	ppm error at full scale, linear at zero and 400ppm H <sub>2</sub>	-200 to -500	
Overgas limit	maximum ppm for stable response to gas pulse	5,000	

LIFETIME	Zero drift		
	ppm equivalent change/year in lab air	< 20	
	Sensitivity drift	% change/year in lab air, monthly test	nd
Operating life	months until 80% original signal (24 month warranted)	> 24	

ENVIRONMENTAL	Sensitivity @ -20°C		
	% (output @ -20°C/output @ 20°C) @ 500 ppm H <sub>2</sub>	10 to 25	
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 500 ppm H <sub>2</sub>	220 to 275
	Zero @ -20°C	ppm equivalent change from 20°C	$\pm 2$
Zero @ 50°C	ppm equivalent change from 20°C	0 to -4	

CROSS SENSITIVITY	Filter capacity		ppm-hrs		H <sub>2</sub> S		nd	
	CO	sensitivity	% measured gas	@ 400ppm	CO	< 4		
NO <sub>2</sub>	sensitivity	% measured gas	@ 10ppm	NO <sub>2</sub>	< 1			
Cl <sub>2</sub>	sensitivity	% measured gas	@ 10ppm	Cl <sub>2</sub>	< 1			
NO	sensitivity	% measured gas	@ 50ppm	NO	< 40			
SO <sub>2</sub>	sensitivity	% measured gas	@ 20ppm	SO <sub>2</sub>	< 4			
H <sub>2</sub> S	sensitivity	% measured gas	@ 20ppm	H <sub>2</sub> S	< 2			
C <sub>2</sub> H <sub>4</sub>	sensitivity	% measured gas	@ 400ppm	C <sub>2</sub> H <sub>4</sub>	< 25			
NH <sub>3</sub>	sensitivity	% measured gas	@ 20ppm	NH <sub>3</sub>	< 1			
CO <sub>2</sub>	sensitivity	% measured gas	@ 5%	CO <sub>2</sub>	< 1			

KEY SPECIFICATIONS	Temperature range		°C		-30 to 50	
	Pressure range	kPa	80 to 120			
	Humidity range	% rh	15 to 90			
	Storage period	months @ 3 to 20°C (stored in sealed pot)	6			
	Load resistor	$\Omega$ (recommended)	10 to 47			
	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.

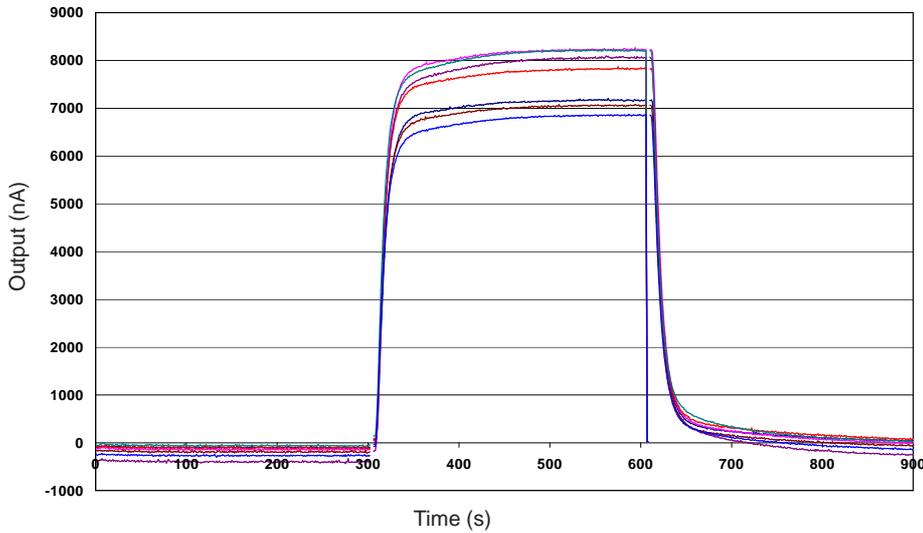
**NOTE:** all sensors are tested at ambient environmental conditions, with 47 ohm load resistor, unless otherwise stated. As applications of use are outside our control, the information provided is given without legal responsibility. Customers should test under their own conditions, to ensure that the sensors are suitable for their own requirements.



# H2-AF Performance Data

# Technical Specification

**Figure 2 Response to 400ppm H<sub>2</sub>**



This Hydrogen sensor shows a strong, repeatable response to Hydrogen, combined with low sensitivity to CO.

**Figure 3 Sensitivity Temperature Dependence**

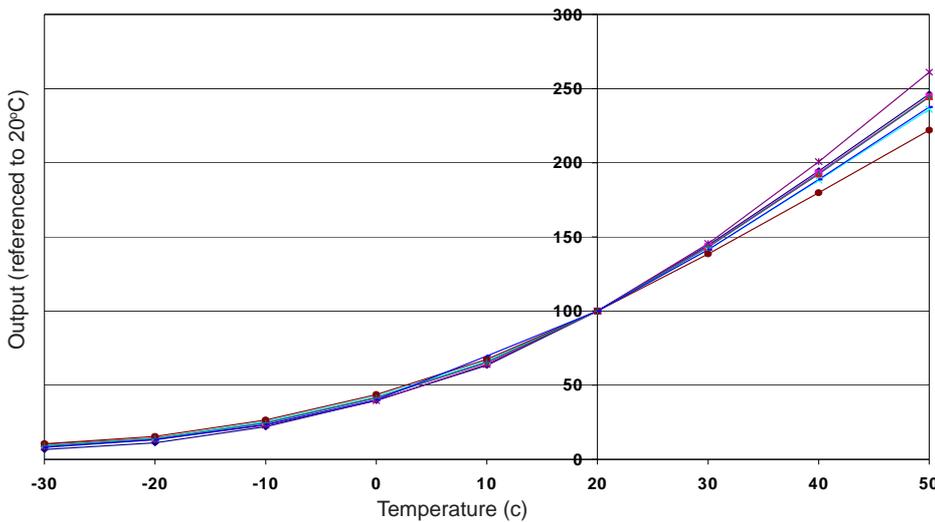


Figure 3 shows typical temperature dependence, measured at 1,000ppm H<sub>2</sub>.

This strong temperature dependence is very repeatable, so accurate temperature measurement ( $\pm 0.5^\circ\text{C}$ ) is needed.

**Figure 4 Zero Current Temperature Dependence**

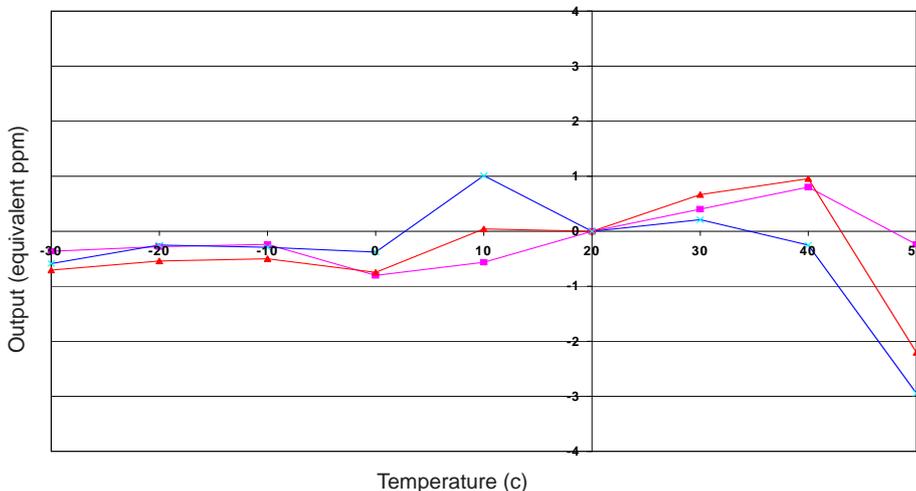


Figure 4 shows typical zero current from  $-30^\circ\text{C}$  to  $+50^\circ\text{C}$ , expressed as equivalent ppm deviation from the zero current at  $20^\circ\text{C}$ .

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)".

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