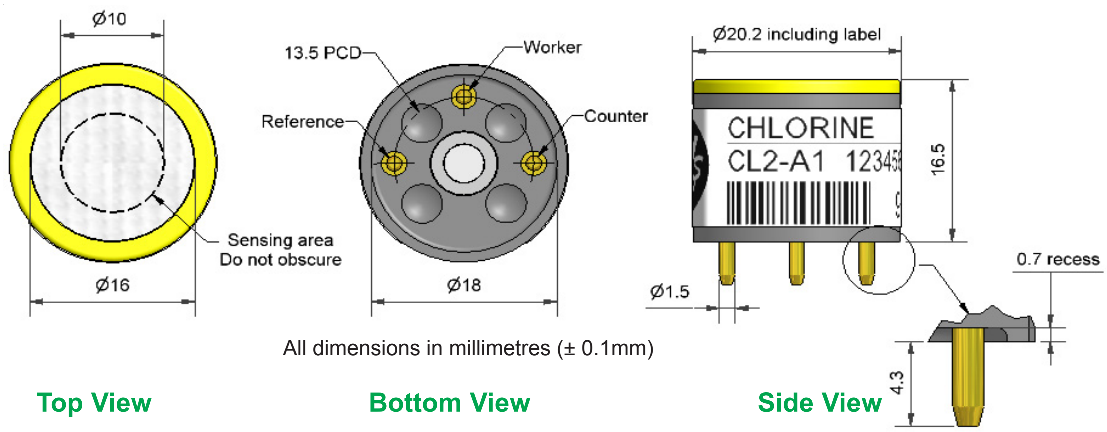
CL2-A1 Chlorine Sensor

Technical Specification

Figure 1 CL2-A1 Schematic Diagram

PATENTED



PERFORMANCE	Sensitivity	nA/ppm in 10ppm Cl_2	-350 to -750
	Response time	t_{90} (s) from zero to 10ppm Cl_2 (33Ω load resistor)	< 60
	Zero current	ppm equivalent in zero air	± 0.3
	Resolution	RMS noise (ppm equivalent, 33Ω load resistor)	< 0.02
	Range	ppm limit of performance warranty	20
	Linearity	ppm error at full scale, linear at zero and 5ppm Cl_2	± 1.5
	Overgas limit	maximum ppm for stable response to gas pulse	50
LIFETIME	Zero drift	ppm equivalent change/year in lab air, monthly test	< 0.05
	Sensitivity drift	% change/year in lab air, monthly test	< 10
	Operating life	months until 80% original signal (24 month warranted)	> 24
ENVIRONMENTAL			
	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 10ppm Cl_2	65 to 85
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 10ppm Cl_2	105 to 125
	Zero @ -20°C	ppm equivalent change from 20°C	< ± 0.2
	Zero @ 50°C	ppm equivalent change from 20°C	< 0 to -0.8
CROSS SENSITIVITY			
	H_2S sensitivity	% measured gas @ 20ppm H_2S	< -300
	NO_2 sensitivity	% measured gas @ 10ppm NO_2	100
	NO sensitivity	% measured gas @ 50ppm NO	< 3
	SO_2 sensitivity	% measured gas @ 20ppm SO_2	< -8
	CO sensitivity	% measured gas @ 400ppm CO	< 0.1
	H_2 sensitivity	% measured gas @ 400ppm H_2	< 0.1
	C_2H_4 sensitivity	% measured gas @ 400ppm C_2H_4	< 0.1
KEY SPECIFICATIONS	Temperature range	^{o}C	-20 to 50
	Pressure range	kPa	80 to 120
	Humidity range	%rh continuous	15 to 90
	Storage period	months @ 3 to 20^{o}C (stored in sealed pot)	6
	Load resistor	Ω (for optimum performance)	33
	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 tested and stored at ambient environments 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.

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CL2-A1 Performance Data

Figure 2 Sensitivity Temperature Dependence

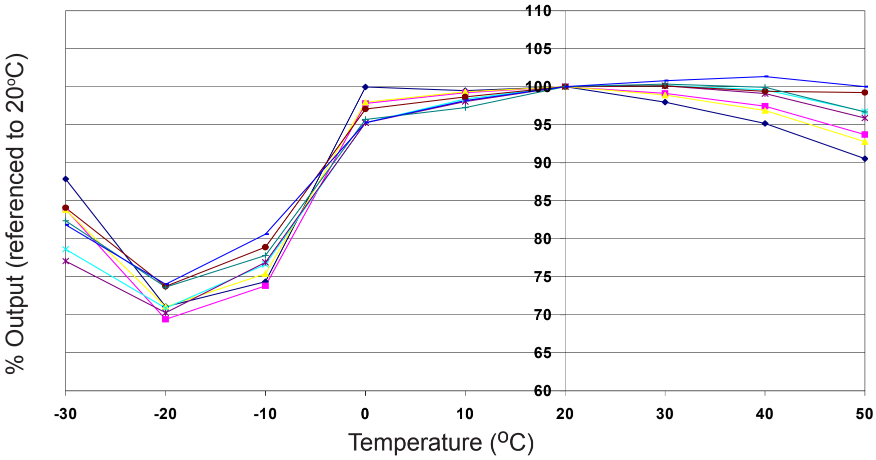

Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Chlorine gas tests are difficult, especially at higher temperatures.

Figure 3 Zero Temperature Dependence

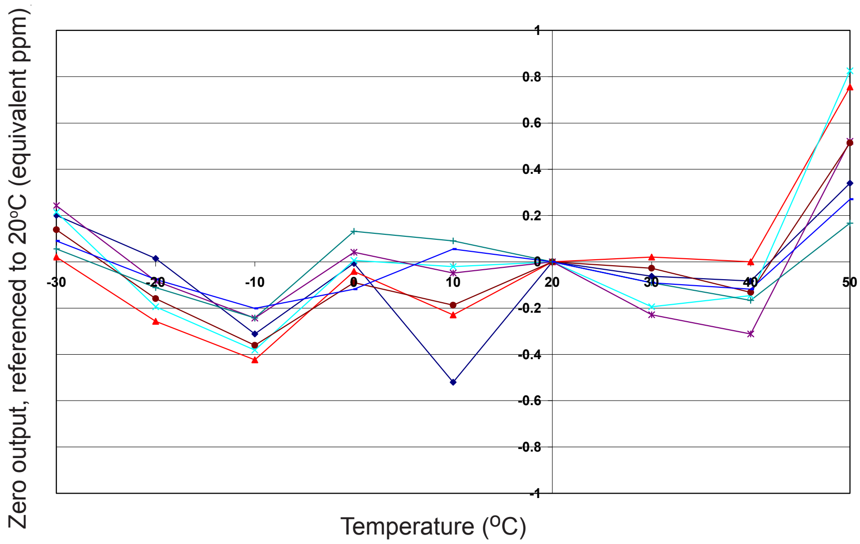

Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 4 Response to 10ppm Cl_2 changes with temperature

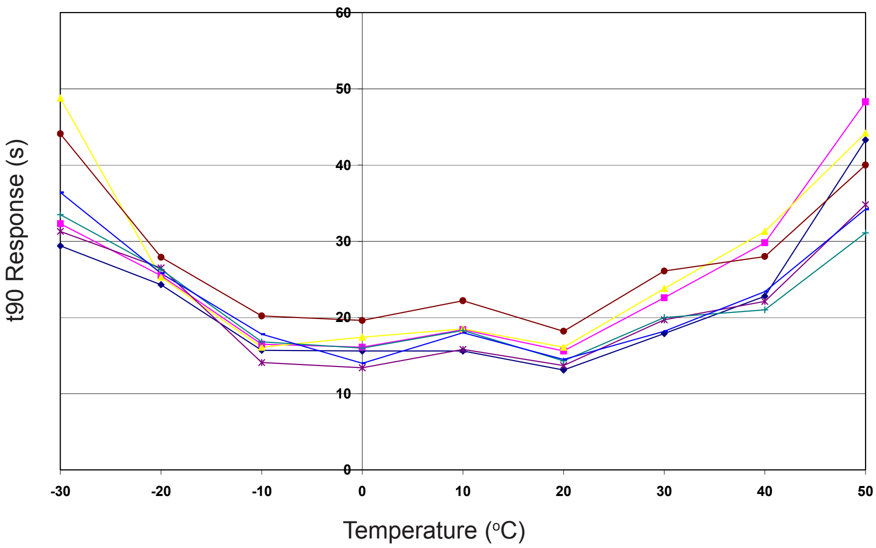

Figure 4 shows the response time temperature dependence for a typical batch of sensors.

Normally the response time increases as the temperature decreases, but for chlorine it also increases at higher temperatures, reflecting the complex chemistry.

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