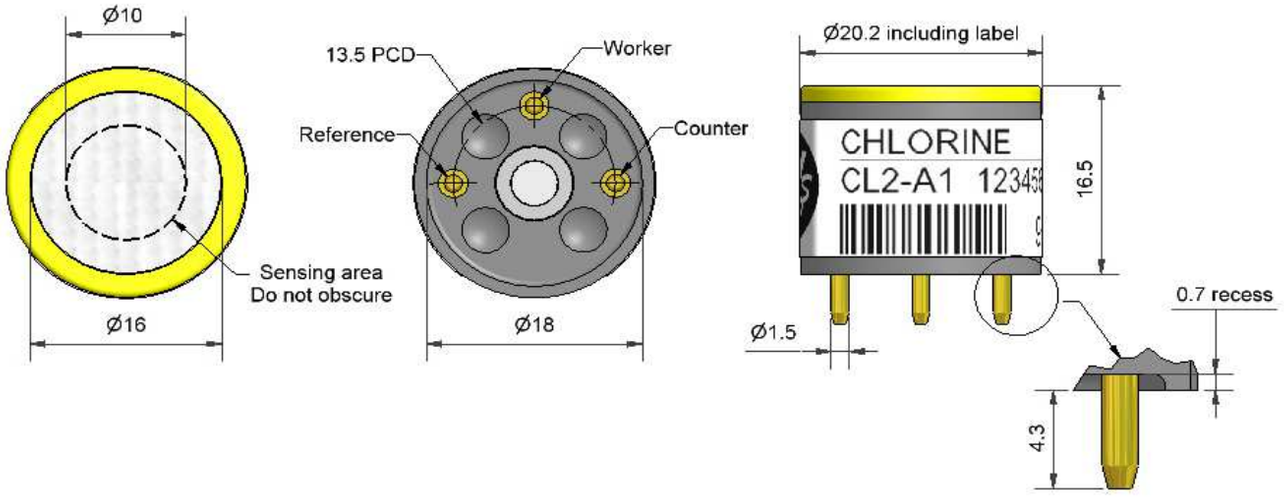
alphasense
AMETEK

Technical specifications Version 1.0

CL2-A1 Chlorine Sensor



Top View **Bottom View** **Side View**

Dimensions are in millimetres (± 0.1 mm).

Performance	Sensitivity	nA/ppm in 10ppm Cl_2	-350 to -750
	Response time	t90 (s) from zero to 10ppm Cl_2 (33Ω load resistor)	< 60
	Zero current	ppm equivalent in zero air	± 0.4
	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	°C	-20 to 50
	Pressure range	kPa	80 to 120
	Humidity range	%rh continuous	15 to 90
	Storage period	months @ 3 to 20°C (stored in sealed pot)	6
	Load resistor	Ω (for optimum performance)	33
	Weight	g	< 6

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For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. or visit our website at "www.alphasense.com".

Figure 1 Sensitivity Temperature Dependence

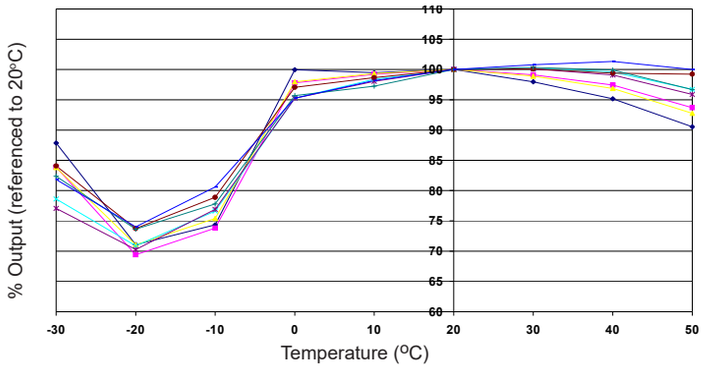

Figure 1 shows the variation in sensitivity caused by changes in temperature.

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 2 Zero Temperature Dependence

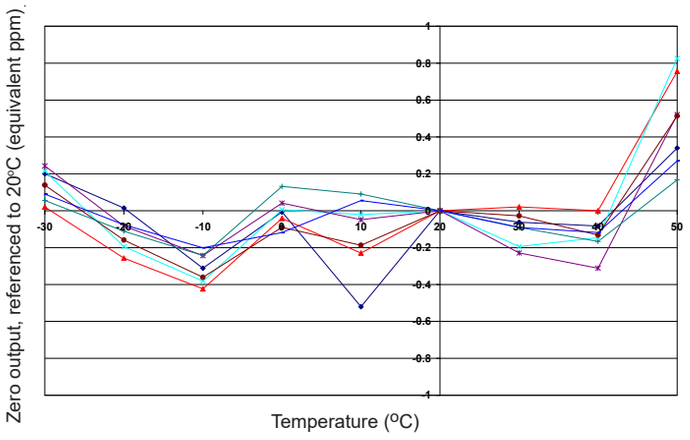

Figure 2 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 3 Response to 10ppm Cl_2 changes with temperature

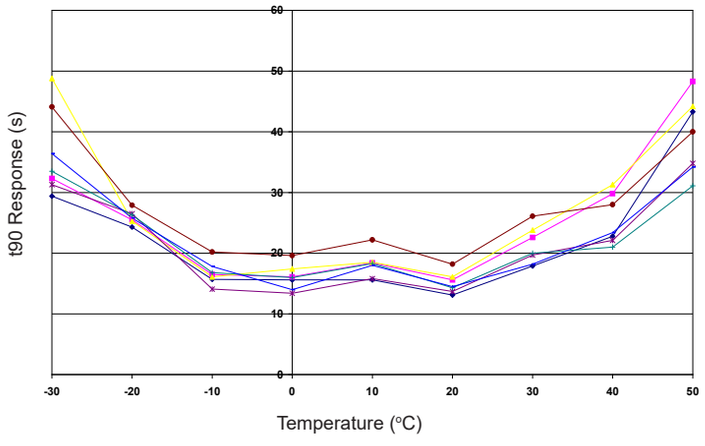

Figure 3 shows the response time temperature dependence for a typical batch of sensors.

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