

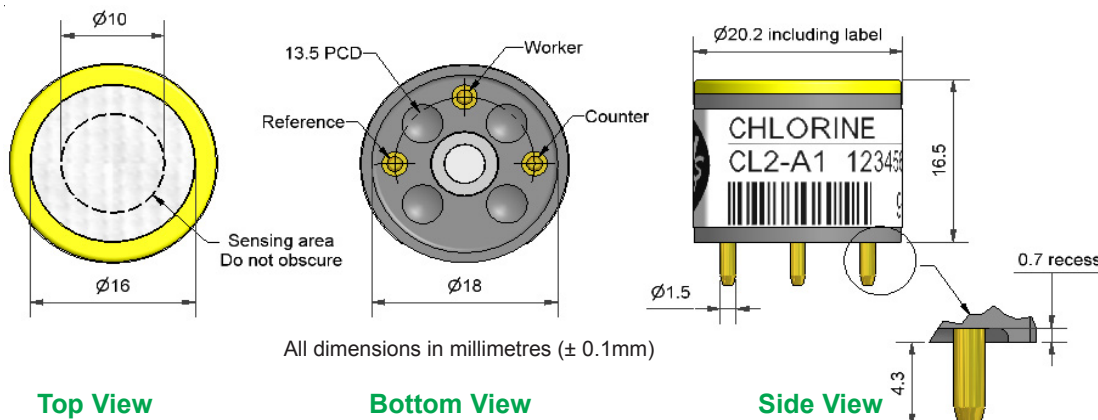


CL2-A1 Chlorine Sensor



PATENTED

Figure 1 CL2-A1 Schematic Diagram



Technical Specification

| PERFORMANCE | Parameter | Specification | Range |
|-------------|---------------|----------------------------------------------------------------------------|--------------|
| | 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 | Parameter | Specification | Range |
|----------|-------------------|-------------------------------------------------------|--------|
| | 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 | Parameter | Specification | Range |
|---------------|---------------------|----------------------------------------------------------|-------------|
| | 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 | Gas | Sensitivity | Specification | Range |
|-------------------|-------------------------------|-------------|-------------------------|--------|
| | H ₂ S | sensitivity | % measured gas @ 20ppm | < -300 |
| | NO ₂ | sensitivity | % measured gas @ 10ppm | 100 |
| | NO | sensitivity | % measured gas @ 50ppm | < 3 |
| | SO ₂ | sensitivity | % measured gas @ 20ppm | < -8 |
| | CO | sensitivity | % measured gas @ 400ppm | < 0.1 |
| | H ₂ | sensitivity | % measured gas @ 400ppm | < 0.1 |
| | C ₂ H ₄ | sensitivity | % measured gas @ 400ppm | < 0.1 |

| KEY SPECIFICATIONS | Parameter | Specification | Range |
|--------------------|-------------------|-------------------------------------------|-----------|
| | 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 |

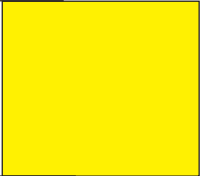


At the end of the product's life, do not dispose of any electronic sensor, component or instrument in the domestic waste, but contact the instrument manufacturer, Alphasense or its distributor for disposal instructions.

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.



CL2-A1 Performance Data



Technical Specification

Figure 2 Sensitivity Temperature Dependence

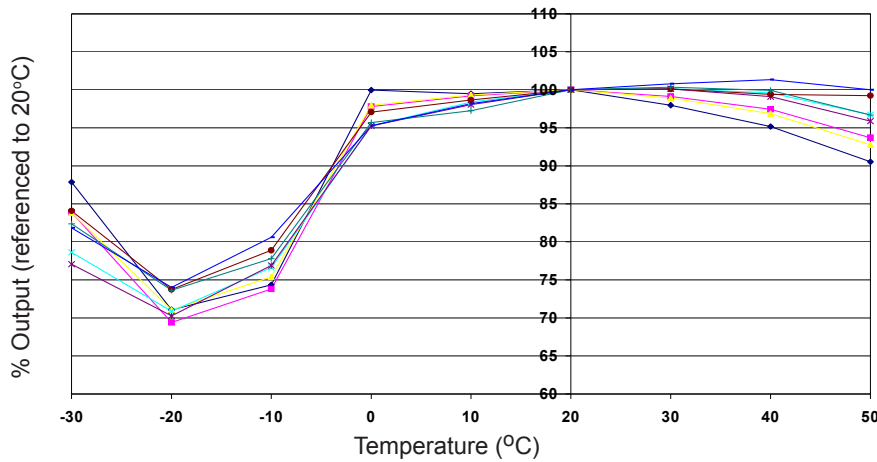


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Chlorine gas tests are difficult, especially at higher temperatures.

Figure 3 Zero Temperature Dependence

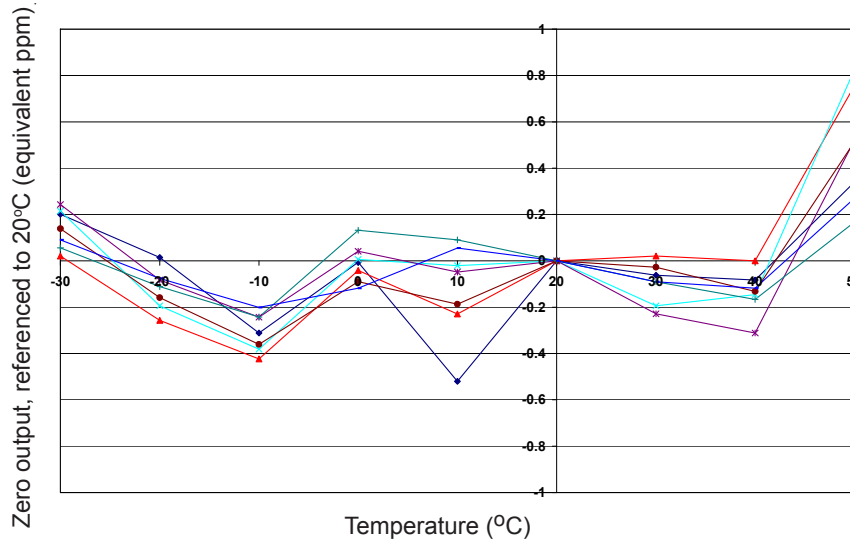


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 4 Response to 10ppm Cl₂ changes with temperature

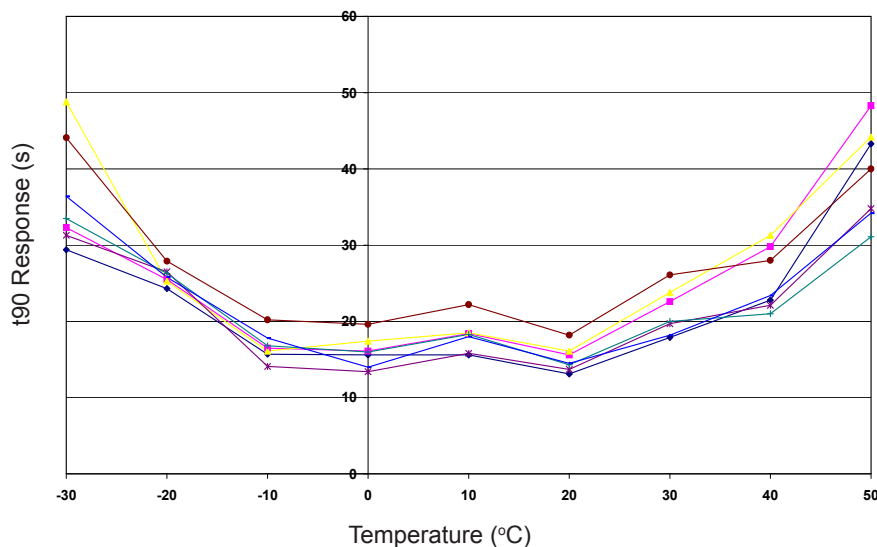


Figure 4 shows the response time temperature dependence for a typical batch of sensors.

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

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".

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