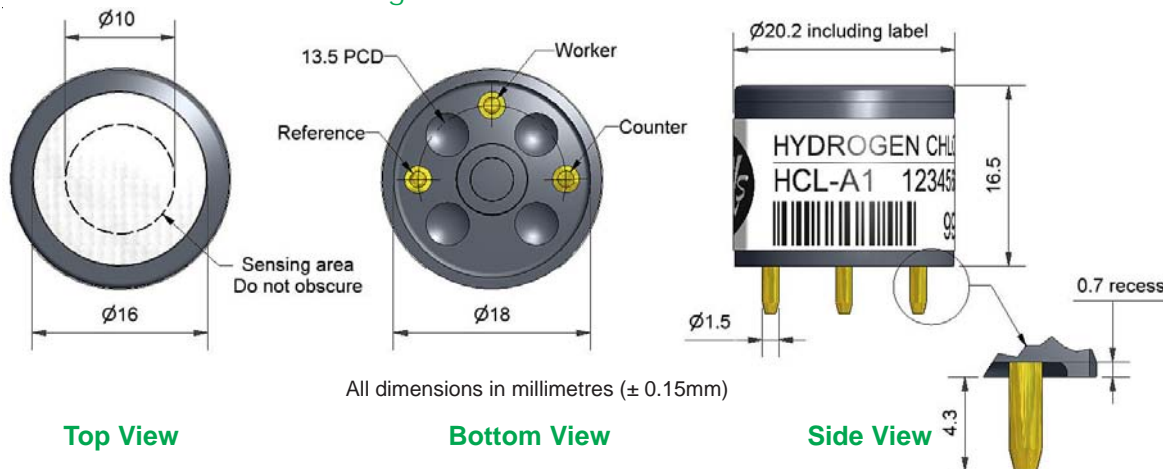


HCL-A1 Hydrogen Chloride Sensor



Figure 1 HCL-A1 Schematic Diagram



Technical Specification

| | | | |
|---------------------------|---|---|--------------|
| PERFORMANCE | Sensitivity | nA/ppm in 25ppm HCl | 80 to 130 |
| | Response time | t_{90} (s) from zero to 25ppm HCl | < 300 |
| | Zero current | ppm equivalent in zero air | < ± 2.5 |
| | Resolution | RMS noise (ppm equivalent) | < 1 |
| | Range | ppm HCl limit of performance warranty | 100 |
| | Linearity | ppm error at full scale, linear at zero, 40ppm HCl | 0 to 6 |
| | Overgas limit | maximum ppm for stable response to gas pulse | 200 |
| LIFETIME | 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) | nd |
| ENVIRONMENTAL | Sensitivity @ -20°C | % (output @ -20°C/output @ 20°C) @ 25ppm HCl | 65 to 90 |
| | Sensitivity @ 50°C | % (output @ 50°C/output @ 20°C) @ 25ppm HCl | 102 to 120 |
| | Zero @ -20°C | ppm equivalent change from 20°C | < 0 to 4 |
| | Zero @ 50°C | ppm equivalent change from 20°C | < +1 to -5 |
| CROSS SENSITIVITY | H ₂ S sensitivity | % measured gas @ ppm H ₂ S | < 250 |
| | NO ₂ sensitivity | % measured gas @ ppm NO ₂ | < -150 |
| | Cl ₂ sensitivity | % measured gas @ ppm Cl ₂ | < -20 |
| | NO sensitivity | % measured gas @ ppm NO | < 2 |
| | SO ₂ sensitivity | % measured gas @ ppm SO ₂ | < 0.1 |
| | CO sensitivity | % measured gas @ ppm CO | < 0.1 |
| | H ₂ sensitivity | % measured gas @ ppm H ₂ | < 0.1 |
| | C ₂ H ₄ sensitivity | % measured gas @ ppm C ₂ H ₄ | < 0.1 |
| KEY SPECIFICATIONS | Temperature range | °C | -30 to +50 |
| | Pressure range | kPa | 80 to 120 |
| | Humidity range | % rh continuous | 15 to 90 |
| | Storage period | months @ 3 to 20°C (stored in original container) | 6 |
| | Load resistor | Ω (recommended) | 10 to 33 |
| | Bias voltage | mV | not required |
| | 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.

HCL-A1 Performance Data

Technical Specification

Figure 2 Response to 25ppm HCl

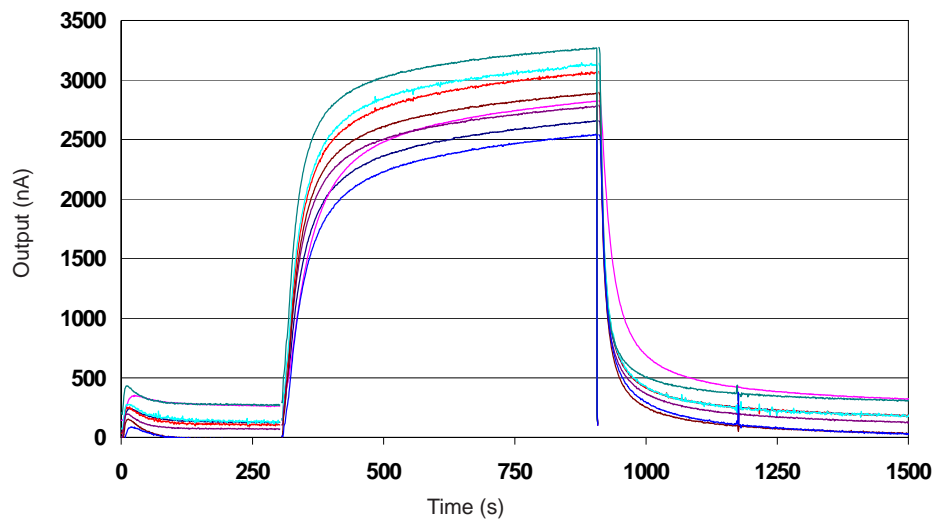


Figure 2 shows the typical response to 25ppm HCl at 20°C.

Figure 3 Sensitivity Temperature Dependence

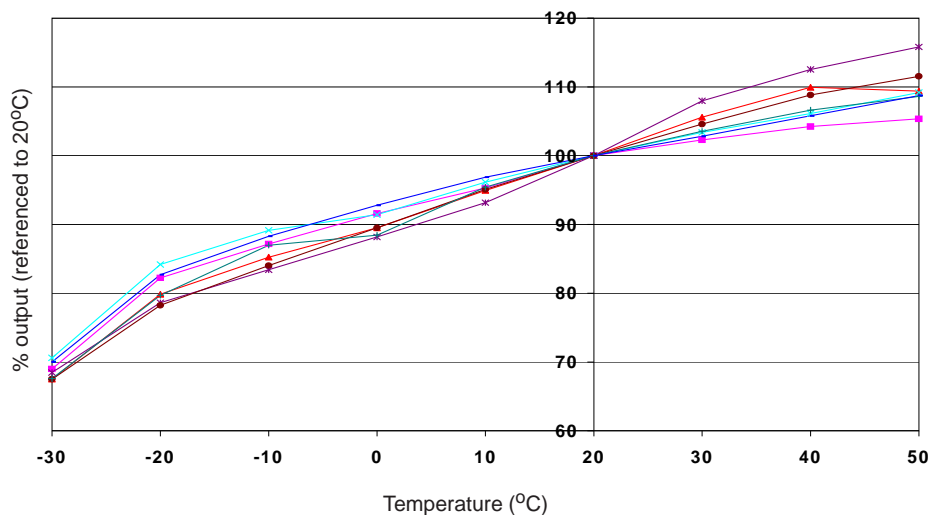


Figure 3 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors.

Figure 4 Humidity Transient Response

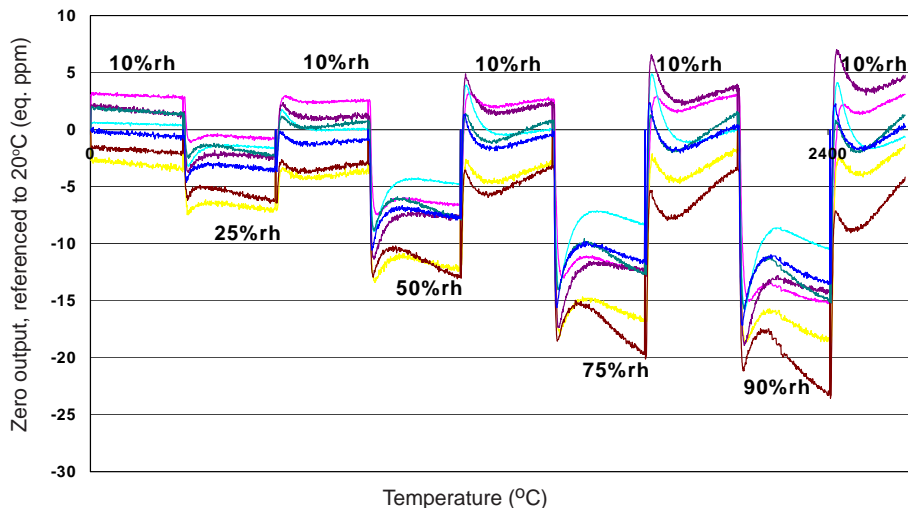


Figure 4 shows transient performance as sensors are subjected to step humidity changes from 10% to 90% rh.