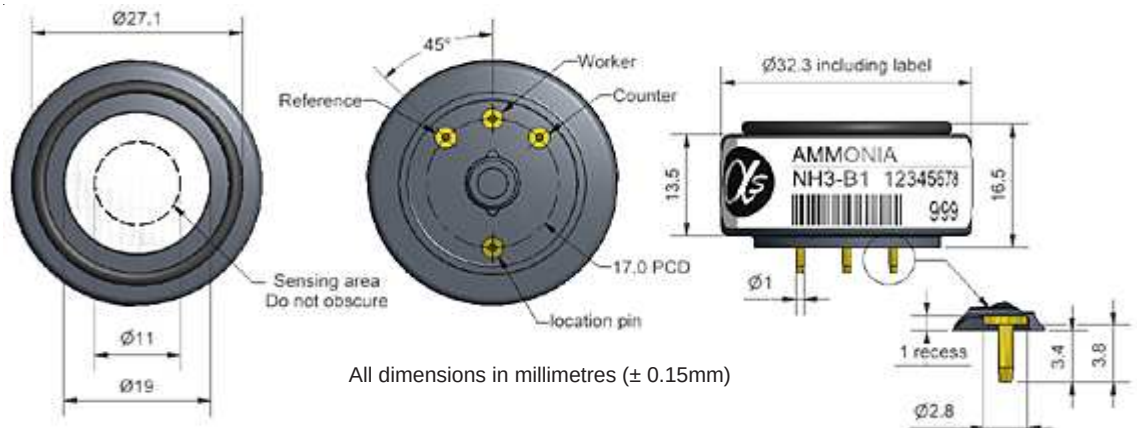
# NH3-B1 Ammonia Sensor

Technical Specification

## Figure 1 NH3-B1 Schematic Diagram




All dimensions in millimetres (± 0.15mm)

| | | | |
|---|---|---|---|
| **PERFORMANCE** | Sensitivity | nA/ppm in 50ppm $NH_3$ | 25 to 60 |
| | Response time | $t_{90}$ (s) from zero to 50ppm $NH_3$ | < 150 |
| | Zero current | ppm equivalent in zero air | < ± 10 |
| | Resolution | RMS noise (ppm equivalent) | < 0.3 |
| | Range | ppm $NH_3$ limit of performance warranty | 100 |
| | Linearity | ppm error at full scale, linear at zero and 70ppm $NH_3$ | +5 to -5 |
| | Overgas limit | maximum ppm for stable response to gas pulse | 200 |
| **LIFETIME** | Zero drift | ppm equivalent change/year in lab air | < 2 |
| | Sensitivity drift | % change/year in lab air, monthly test | < 3 |
| | Operating life | months until 80% original signal (12 month warranted) | > 24 |
| **ENVIRONMENTAL** | | | |
| | Sensitivity @ -20°C | % (output @ -20°C/output @ 20°C) @ 20ppm | nd |
| | Sensitivity @ 50°C | % (output @ 50°C/output @ 20°C) @ 20ppm | nd |
| | Zero @ -20°C | ppm equivalent change from 20°C | nd |
| | Zero @ 50°C | ppm equivalent change from 20°C | nd |
| **CROSS SENSITIVITY** | $H_2S$ sensitivity | % measured gas @ 20ppm $H_2S$ | < -200 |
| | $NO_2$ sensitivity | % measured gas @ 20ppm $NO_2$ | < -200 |
| | $Cl_2$ sensitivity | % measured gas @ 10ppm $Cl_2$ | < -400 |
| | NO sensitivity | % measured gas @ 50ppm NO | < -300 |
| | $SO_2$ sensitivity | % measured gas @ 20ppm $SO_2$ | < -300 |
| | CO sensitivity | % measured gas @ 400ppm CO | < 20 |
| | $H_2$ sensitivity | % measured gas @ 400ppm $H_2$ | < 15 |
| | $C_2H_4$ sensitivity | % measured gas @ 400ppm $C_2H_4$ | nd |
| | $CO_2$ sensitivity | % measured gas @ 5% $CO_2$ | nd |
| **KEY SPECIFICATIONS** | | | |
| | Bias voltage | mV (Working Electrode potential is above ground) | +200 |
| | 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 sealed pot) | 6 |
| | Load resistor | Ω (recommended) | 10 to 47 |
| | Weight | g | < 13 |

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.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# NH3-B1 Performance Data

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## Figure 2 Response to Gas

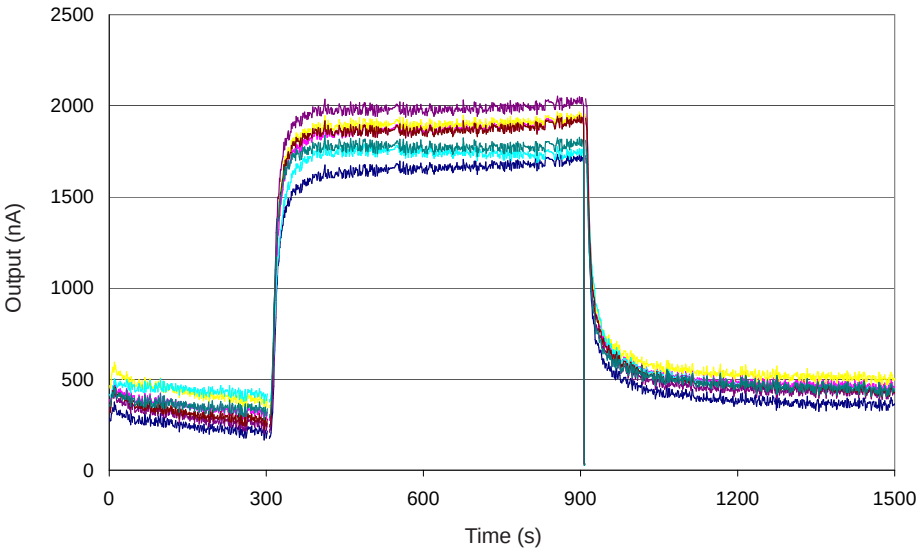


Figure 2 shows the typical response to 50ppm $NH_3$ at 20°C

$t_{50}$ is significantly faster than $t_{90}$ (30 vs. 150 seconds) and shows the sensor's ability to respond quickly to $NH_3$.

## Figure 3 Linearity

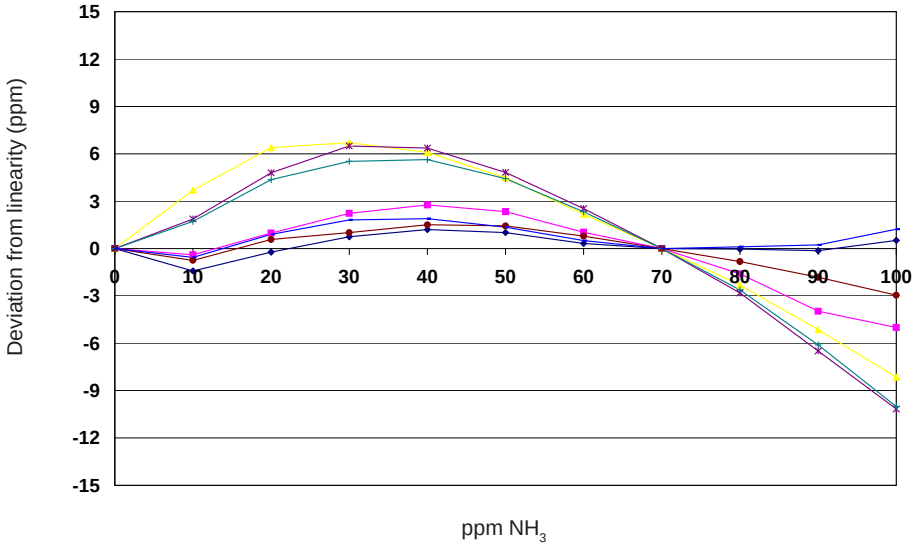


Figure 3 shows the deviation from linear response from 0 to 100ppm $NH_3$, with 0 and 70ppm reference concentrations.

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".