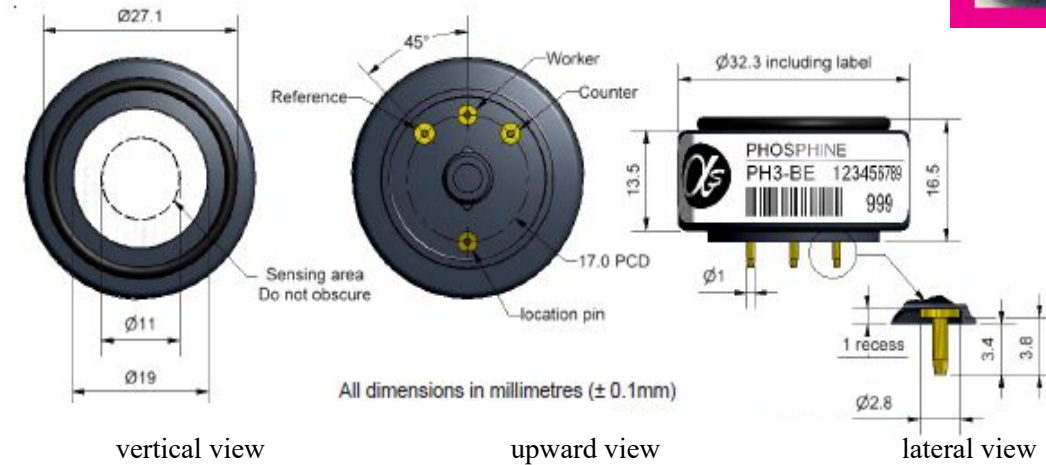


PH3-BE Phosphine Sensor



Figure 1 PH3-BE Schematic Diagram



| | | | |
|-------------------|---|--|---------------|
| function | sensitivity | Sensitivity $_3$ in 800ppmPH (nA/ppm) | 15~35 |
| | reaction time | Time $_3$ to 800ppmPH from zero (s) | < 30 |
| | zero current | Equivalent ppm value of zero air | < -6~+20 |
| | resolution ratio | RMS noise (equivalent ppm value) | < 2 |
| | range | Measurable limits (ppm) that guarantee product performance | 2000 |
| | degree of linearity | The ppm value of the full scale error is linear from 0 to 800ppm | -50~-350 |
| | overload | Maximum ppm value of gas pulse stabilized reaction | 5000 |
| life span | zero drift | Equivalent ppm values that change in the laboratory air from year to year | < 1.5 |
| | sensitivity drift | Percentage change in laboratory air over the year, measured monthly | < 4 |
| | working life | Number of months to which the output is reduced to 80% of the original signal (warranty 24 months) | > 24 |
| environment | -20°C sensitivity | (Output at -20°C/Output at 20°C)% $_3$ at 800 ppmH | 65~85 |
| | Sensitivity at 50°C | (Output at 50°C/Output at 20°C)% $_3$ at 800 ppmH | 120~140 |
| | -20°C when zero point | Change in equivalent ppm values with reference to 20°C zero | < ± 20 |
| | 50°C at zero point | Change in equivalent ppm values with reference to 0°C 20 | < ± 15 |
| cross sensitivity | H ₂ S | Gas sensitivity percentage at 20ppmH ₂ S | < 110 |
| | NO ₂ | Gas sensitivity percentage $_2$ measured at 10ppmNO | < -35 |
| | Cl ₂ | Sensitivity percentage of gas measured $_2$ at 10ppmCl | < -30 |
| | NO | Gas sensitivity percentage measured at 50ppmNO | < 10 |
| | SO ₂ | Gas sensitivity percentage $_2$ at 20ppmSO | < 25 |
| | CO | Gas sensitivity percentage measured at 400ppmCO | < 11 |
| | H ₂ | Gas sensitivity percentage measured at 400ppmH ₂ | < 2 |
| | C ₂ H ₄ | Gas sensitivity percentage measured at 80ppmC ₂ H ₄ | < 60 |
| | NH ₃ | Gas sensitivity percentage measured $_3$ at 25ppmNH | < 0.1 |
| CO ₂ | Sensitivity percentage of gas measured at 5%Vol CO ₂ | < 0.1 | |
| key parameter | temperature range | °C | -20~50 |
| | pressure limit | kPa | 80~120 |
| | Humidity range | Percentage of continuous relative humidity | 20~90 |
| | Storage period | Number of months for preservation at 0~20°C (to be preserved in a sealed tank) | 6 |
| | load resistance | Ω (recommend) | 10~33 |
| | bias voltage | Higher than the mW of simulated grounding | non-essential |
| | weight | g | < 13 |

Figure 2 Zero Temperature Characteristics

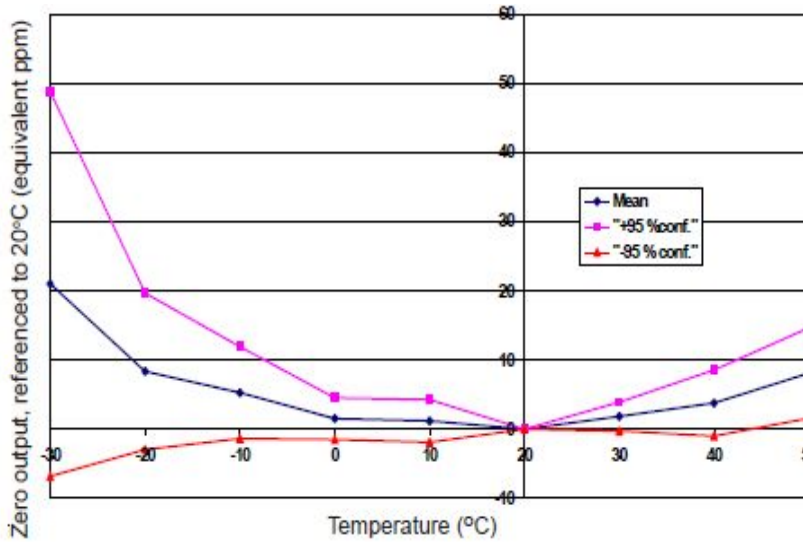
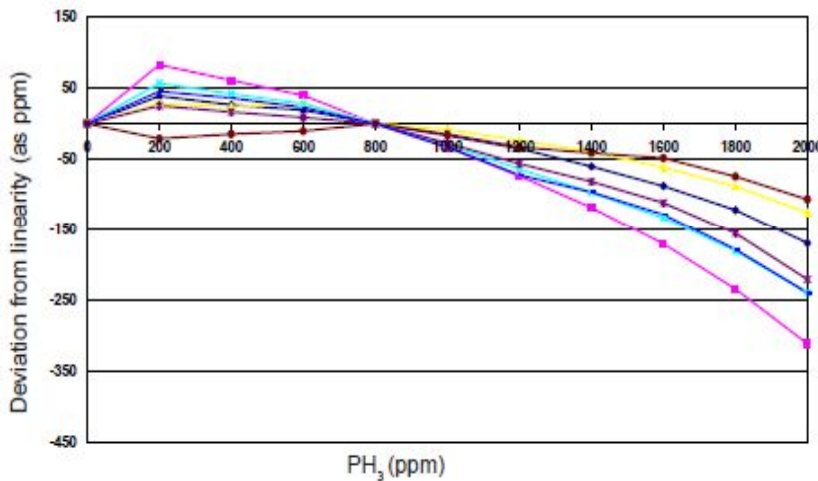


Figure 2 shows the change in zero point output caused by temperature changes, expressed as equivalent ppm values, with reference to the zero point at 20°C.

The data are taken from a typical batch of sensors. Figure 3 shows the mean and $\pm 95\%$ confidence interval of the zero point output percentage (Reference 20°C).

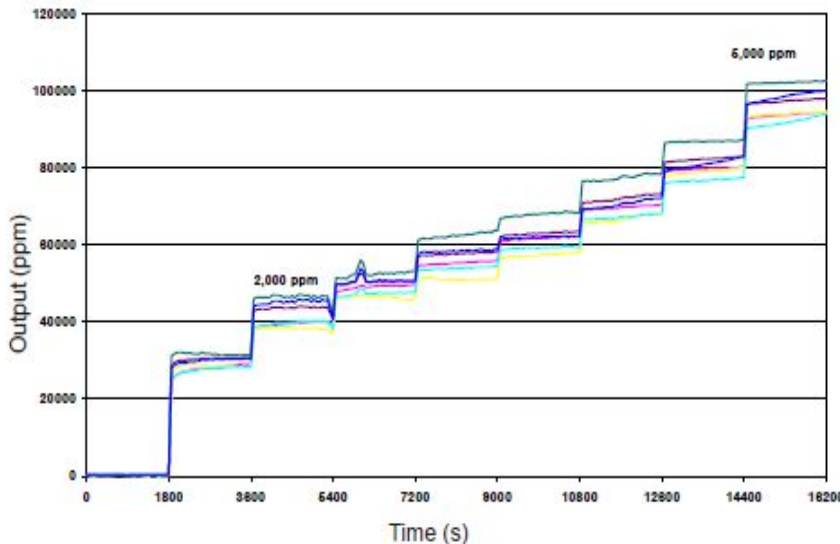
Figure 3. Linear Deviation from 0 to 2000ppm



The linearity between the sensors is repeatable, as shown in Figure 3, and can be corrected by software if needed.

Data was collected from typical batch sensors.

Figure 4 Overload Linearity



Even at PH_3 concentration of 5000 ppm, the sensor response is still fast and stable, as shown in Figure 4.

After short-term exposure to a high concentration of target gas, the sensor will recover quickly and the performance will not change.

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