

Midas[®] SENSOR CARTRIDGE SPECIFICATIONS

Phosphine (PH₃) MIDAS-S-PH3, MIDAS-E-PH3



| Gas Measured | Phosphine (PH ₃) |
|---|---|
| Cartridge Part Number | MIDAS-S-PH3 1 year standard warranty MIDAS-E-PH3 2 year extended warranty |
| Sensor Technology | 3 electrode electrochemical cell |
| Measuring Range (ppm) | PH ₃ 0 – 1.2ppm |
| Minimum Alarm 1 Set Point | 0.15ppm |
| Lower Detectable Limit (LDL) | 0.11ppm |
| Repeatability | < ± 5% of measured value |
| Linearity | < ± 10% of measured value |
| Response Time t_{92.5} | ≤ 2 seconds |
| Sensor Cartridge Life Expectancy | ≥ 24 months under typical application conditions |
| Operating Temperature | 0°C to +40°C (32°F to 104°F) |
| Effect of Temperature | < ± 0.001ppm / °C (0°C to 20°C) < ± 0.003ppm / °C (20°C to 40°C) Zero Sensitivity < ± 0.6% of measured value / °C |
| Operating Humidity (continuous) | 10 – 90% rH |
| Effect of Humidity | Zero < 0.0015ppm / % rH Sensitivity < ± 1% of measured value / % rH |
| Operating Pressure | 90 – 110kPa |
| Effect of Position | No effect in typical application |
| Long Term Drift | Zero < ± 0.02ppm / year Sensitivity < ± 10% of measured value / year |
| Calibration Gas | Phosphine (PH ₃) |
| Challenge Gas (Bump Test) | Phosphine (PH ₃) |
| Warm Up Time | < 20 minutes |
| Storage Temperature | +5°C to +25°C (+41°F to +77°F) |

The sensor data listed is based on ideal test environment; observed performance may vary based on the actual monitoring system and the sampling conditions employed

Cross Sensitivities

Each Midas[®] sensor is potentially cross sensitive to other gases and this may cause a gas reading when exposed to other gases than those originally designated. The table below presents typical readings that will be observed when a new sensor cartridge is exposed to the cross sensitive gas (or a mixture of gases containing the cross sensitive species).

| Gas / Vapor | Chemical Formula | Concentration Applied (ppm) | Reading (ppm PH ₃) |
|-------------------|----------------------------------|-----------------------------|--------------------------------|
| Ammonia | NH ₃ | 100 | 1.05 |
| Arsine | AsH ₃ | 1 | 0.68 |
| Carbon Monoxide | CO | 2000 | < 0.01 |
| Chlorine | Cl ₂ | 1 | - 0.07 |
| Diborane | B ₂ H ₆ | 1 | 0.45 |
| Ethanol | C ₂ H ₅ OH | 2000 | < 0.01 |
| Germane | GeH ₄ | 1 | 0.45 |
| Hydrogen | H ₂ | 5000 | < 0.01 |
| Hydrogen Chloride | HCl | 10 | < 0.01 |
| Hydrogen Fluoride | HF | 10 | < 0.01 |
| Hydrogen Sulphide | H ₂ S | 0.5 | 0.07 |
| Iso Propanol | C ₃ H ₇ OH | 2000 | 0 |
| Nitrogen Dioxide | NO ₂ | 8 | - 0.86 |
| Silane | SiH ₄ | 1 | 0.36 |
| Sulphur Dioxide | SO ₂ | 50 | 0.55 |

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