

## Midas<sup>®</sup> SENSOR CARTRIDGE SPECIFICATIONS

### Phosphine (PH<sub>3</sub>) MIDAS-S-PH3, MIDAS-E-PH3



Gas Measured	Phosphine (PH <sub>3</sub> )
<b>Cartridge Part Number</b>	MIDAS-S-PH3 1 year standard warranty MIDAS-E-PH3 2 year extended warranty
<b>Sensor Technology</b>	3 electrode electrochemical cell
<b>Measuring Range (ppm)</b>	PH <sub>3</sub> 0 – 1.2ppm
<b>Minimum Alarm 1 Set Point</b>	0.15ppm
<b>Repeatability</b>	< ± 5% of measured value
<b>Linearity</b>	< ± 10% of measured value
<b>Response Time</b> <sub>t62.5</sub>	≤ 2 seconds
<b>Sensor Cartridge Life Expectancy</b>	≥ 24 months under typical application conditions
<b>Operating Temperature</b>	0°C to +40°C (32°F to 104°F)
<b>Effect of Temperature</b>	< ± 0.001ppm / °C (0°C to 20°C) < ± 0.003ppm / °C (20°C to 40°C)
<b>Zero Sensitivity</b>	< ± 0.6% of measured value / °C
<b>Operating Humidity (continuous)</b>	10 – 90% rH
<b>Effect of Humidity</b>	
<b>Zero Sensitivity</b>	< 0.0015ppm / % rH < ± 1% of measured value / % rH
<b>Operating Pressure</b>	90 – 110kPa
<b>Effect of Position</b>	No effect in typical application
<b>Long Term Drift</b>	
<b>Zero Sensitivity</b>	< ± 0.02ppm / year < ± 10% of measured value / year
<b>Calibration Gas</b>	Phosphine (PH <sub>3</sub> )
<b>Challenge Gas (Bump Test)</b>	Phosphine (PH <sub>3</sub> )
<b>Warm Up Time</b>	< 20 minutes
<b>Storage Temperature</b>	+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<sup>®</sup> 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 <sub>3</sub> )
<b>Ammonia</b>	NH <sub>3</sub>	100	1.05
<b>Arsine</b>	AsH <sub>3</sub>	1	0.68
<b>Carbon Monoxide</b>	CO	2000	< 0.01
<b>Chlorine</b>	Cl <sub>2</sub>	1	- 0.07
<b>Diborane</b>	B <sub>2</sub> H <sub>6</sub>	1	0.45
<b>Ethanol</b>	C <sub>2</sub> H <sub>5</sub> OH	2000	< 0.01
<b>Germane</b>	GeH <sub>4</sub>	1	0.45
<b>Hydrogen</b>	H <sub>2</sub>	5000	< 0.01
<b>Hydrogen Chloride</b>	HCl	10	< 0.01
<b>Hydrogen Fluoride</b>	HF	10	< 0.01
<b>Hydrogen Sulphide</b>	H <sub>2</sub> S	0.5	0.07
<b>Iso Propanol</b>	C <sub>3</sub> H <sub>7</sub> OH	2000	0
<b>Nitrogen Dioxide</b>	NO <sub>2</sub>	8	- 0.86
<b>Silane</b>	SiH <sub>4</sub>	1	0.36
<b>Sulphur Dioxide</b>	SO <sub>2</sub>	50	0.55

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