Honeywell

Midas® Sensor Cartridge Specifications



Silane (SiH_4), Disilane (Si_2H_6)
MIDAS-E-SHX, MIDAS-S-SHX

Gas Measured	Silane (SiH_4)
Cartridge Part Number	MIDAS-S-SHX MIDAS-E-SHX
Sensor Technology	3 electrode electrochemical cell
Measuring Range	SiH_4 0 – 20ppm
Minimum Alarm 1 Set Point	2.4ppm
Lower Detection Limit	1.8ppm
Linearity	< ± 5% of measured value
Repeatability	< ± 5% of measured value
Resolution	0.1ppm
Response Time $t_{62.5}$	≤ 3 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	
Zero	< ± 0.04ppm / °C
Sensitivity	< ± 0.8% of measured value / °C
Operating Humidity	10 to 90% RH
Effect of Humidity	
Zero	< ± 0.005ppm / % RH
Sensitivity	< ± 2% of measured value / % RH
Operating Pressure	90 – 110kPa
Effect of Position	No effect in typical application
Long Term Drift	
Zero	<2ppm/year
Sensitivity	< ± 10% of measured value / year
Calibration Gas	Silane (SiH_4)
Bump Test Gas	Hydrogen Sulfide (H_2S)
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.

Other Detectable Gases

The following additional gases can be detected with this sensor cartridge. Sensor performance and characteristics will be representative of the data as tabulated above. Consult the Technical Manual to set up the Midas® transmitter with the designated identification code for each of the following gas types.

Detectable Gas	Chemical Formula	Measuring Range
Disilane	Si_2H_6	0 - 20ppm

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 Measured	Chemical Formula	Concentration Applied(ppm)	Reading (ppm SiH_4)
Ammonia	NH_3	100	0
Arsine	AsH_3	1	1
Carbon Monoxide	CO	2000	0.1
Chlorine	Cl_2	5	0 (Negative Drift)
Diborane	B_2H_6	1	0.7
Ethanol	C_2H_5OH	500	0
Hydrogen	H_2	5000	0.2
Hydrogen Chloride	HCl	8.7	1.6
Hydrogen Fluoride	HF	10	0
Hydrogen Sulfide	H_2S	5	1.8
Iso Propanol	C_3H_7OH	500	0
Nitrogen Dioxide	NO_2	50	0 (Negative Drift)
Silane	SiH_4	1	1.4
Sulfur Dioxide	SO_2	50	1.4

Interference differs from cartridge to cartridge and over cell life. It is not recommended to calibrate with cross sensitivity factors. The target gas should be used for calibration.

Find out more
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