

MIDAS[®]-M SILANE GROUP (SiH_4 , Si_2H_6)

Smart Sensor Specifications

Bringing new visibility, reliability, and ease-of-use to gas detection in semiconductor processing and industrial manufacturing.

GAS MEASURED	SILANE (SiH_4)
Cartridge Part Number	MMS-X2
Sensor Technology	3 electrode electrochemical cell
Measuring Range	SiH_4 0 ppm to 20 ppm
Default Alarm 1	2.5 ppm (rising)
Default Alarm 2	5 ppm (rising)
Accuracy	<±5% of measured value Exposure to SiH_4 10 ppm for 5 minutes
Response Time ($t_{62.5}$)	Typical 5 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	<±0.04 ppm/°C
Sensitivity	<±0.8% of measured value/°C
Operating Humidity (continuous)	10% RH to 90% RH
Effect of Humidity	
Zero	<±0.005 ppm/% RH
Sensitivity	<±2% of measured value/% RH
Operating Pressure	90 kPa to 110 kPa
Effect of Position	No effect in typical application
Long Term Drift	
Zero	<±2% ppm/year
Sensitivity	<10% of measured value/year
Calibration Gas	Silane (2.5 ppm to 7.5 ppm, default 1.0 ppm)
Challenge Gas (Bump Test)	Silane (10 ppm)
Warm Up Time	<20 minutes
Storage Temperature	5°C to 25°C (41°F to 77°F)



The sensor data listed is based on the test data under normal lab test conditions (20°C to 25°C, 0% RH to 60% RH, normal atmosphere pressure); observed performance may vary based on the actual monitoring system and the sampling conditions employed.

Midas[®]-M Silane Group (SiH₄ Si₂H₆) Specifications

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[®]-M transmitter with the designated identification code for each of the following gas types:

DETECTABLE GAS	CHEMICAL FORMULA	MEASURING RANGE
Disilane	Si ₂ H ₆	0 ppm to 20 ppm

CROSS SENSITIVITIES

Each Midas-M 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).

NOTE: The cross sensitivity data shown below does not form part of the product specification and is supplied for guidance only. Values quoted are based on tests conducted on a small number of sensors and any batch may show significant variation.

GAS/VAPOR	CHEMICAL FORMULA	CONCENTRATION APPLIED (ppm)	READING (ppm SiH ₄)
Ammonia	NH ₃	100	0
Arsine	AsH ₃	1	0.54
Carbon Monoxide	CO	2000	0.56
Chlorine	Cl ₂	5	-0.86
Diborane	B ₂ H ₆	1	0.75
Ethanol	C ₂ H ₅ OH	500	0
Hydrogen	H ₂	5000	0.45
Hydrogen Chloride	HCl	12.5	2.1
Hydrogen Fluoride	HF	10	0
Hydrogen Sulphide	H ₂ S	10	2.7
Iso Propanol	C ₃ H ₇ OH	2000	0
Nitrogen Dioxide	NO ₂	6	-0.89
Phosphine	PH ₃	1	1.13
Sulphur Dioxide	SO ₂	50	3.5

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Manuals and other information about this product are available at:
www.honeywellanalytics.com/en/products/Midas-M



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