

MIDAS[®]-M MINERAL ACIDS (HF GROUP)

Smart Sensor Specifications

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

GAS MEASURED	HYDROGEN FLUORIDE (HF)
Cartridge Part Number	MMS-Z2
Sensor Technology	3 electrode electrochemical cell
Measuring Range	HF 0 ppm to 12 ppm
Default Alarm 1	1.5 ppm (rising)
Default Alarm 2	3 ppm (rising)
Accuracy	<±5% of measured value Exposure to HF 6 ppm for 5 minutes
Response Time (t _{62.5})	Typical 29 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	<±0.015 ppm/°C
Sensitivity	<±0.4% of measured value/°C
Operating Humidity (continuous)	20% RH to 75% RH
Effect of Humidity	
Zero	<±0.003 ppm/%RH
Sensitivity	<±1% of measured value/%RH
Operating Pressure	90 kPa to 110 kPa
Effect of Position	No effect in typical application
Long Term Drift	
Zero	No drift
Sensitivity	<15% of measured value/year
Calibration Gas	Hydrogen Fluoride (3 ppm to 9 ppm, 6 ppm)
Challenge Gas (Bump Test)	Chlorine (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.

NOTE: The HF sensor should not be used with NH₃ or SO₂ sensor in same Midas[®]-M unit.



THADHANI[®]
The Experts in Safety... Since 1947

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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
Boron Trifluoride	BF ₃	0 ppm to 8 ppm
Tungsten Hexafluoride	WF ₆	0 ppm to 12 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 HF)
Arsine	AsH ₃	1	0
Carbon Monoxide	CO	2000	0
Chlorine	Cl ₂	1	1.5
Diborane	B ₂ H ₆	1	-1.3
Hydrogen	H ₂	20000	0
Hydrogen Chlorine	HCl	8	14
Hydrogen Sulphide	H ₂ S	25	-3.6
Iso Propanol	C ₃ H ₇ OH	500	0
Methanol	CH ₃ OH	500	0
Nitrogen Dioxide	NO ₂	5	0.65
Phosphine	PH ₃	1	-0.14
Sulphur Dioxide	SO ₂	50	28.3