



Midas® Sensor Cartridge Specifications

Perfluoro Compounds (PFC Group)

MIDAS-E-XCF, MIDAS-S-XCF

Gas Measured	Hexafluorobutadiene (C4F6)
Cartridge Part Number	MIDAS-S-XCF MIDAS-E-XCF
Sensor Technology	3 electrode electrochemical cell
Measuring Range	C4F6 0 – 40ppm
Minimum Alarm 1 Set Point	4ppm
Lower Detection Limit	1.7ppm
Linearity	< ± 20% of measured value
Repeatability	< ± 10% of measured value
Resolution	0.2ppm
Response Time t_{62.5}	≤ 45 seconds
Sensor Cartridge Life Expectancy	≥ 12 months under typical application conditions
Operating Temperature	0°C to +40°C (32°F to 104°F)
Effect of Temperature	
Zero	< ± 0.03ppm / °C
Sensitivity	< ± 0.4% of measured value / °C
Operating Humidity	10 to 90% RH
Effect of Humidity	
Zero	< ± 0.01ppm / % RH
Sensitivity	< ± 1% of measured value / % RH
Operating Pressure	90 – 110kPa
Effect of Position	No effect in typical application
Long Term Drift	
Zero	No Drift
Sensitivity	< 15% of measured value / year
Calibration Gas	Hydrogen Fluoride (HF)
Bump Test Gas	Chlorine (Cl ₂)
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.

Separate Pyrolyzer module (MIDAS-T-NP1) required with the PFC sensor cartridge to detect C4F6, C5F8, CH2F2 or SF6 by thermal breakdown. To maintain stated performance, it is recommended to be in 50 – 104°F (10 - 40°C) and the humidity is in 30 – 70 %RH.

Otherwise, more frequent bump testing or calibration will be required to confirm working specifications. Do not use Freon filter to measure C4F6, C5F8 and SF6. Use of the ventilated Midas top cover (MIDAS-A-039) is recommended.

Find out more

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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® transmitter with the designated identification code for each of the following gas types.

Detectable Gas	Chemical Formula	Measuring Range
Hexafluorobutadiene	C4F6	0 - 40ppm
Octafluorocyclopentene	C5F8	0 - 40ppm
Difluoromethane	CH2F2	0 - 120ppm
R134a	C2H2F4	0 - 1000ppm
Hexafluoroisobutylene	C4H2F6	0 - 40ppm

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 C4F6)
Arsine	AsH ₃	1	0
Carbon Monoxide	CO	2000	0
Chlorine	Cl ₂	4.8	5
Diborane	B ₂ H ₆	0.5	0 (Negative Drift)
Hydrogen	H ₂	20000	0
Hydrogen Chloride	HCl	2	2.8
Hydrogen Fluoride	HF	2	3.1
Hydrogen Sulfide	H ₂ S	1	0 (Negative Drift)
Iso Propanol	C ₃ H ₇ OH	500	0
Methanol	CH ₃ OH	500	0
Nitrogen Dioxide	NO ₂	10	2
Phosphine	PH ₃	1	0 (Negative Drift)
Nitrogen Trifluoride	NF ₃	10	4.7
Sulfur Dioxide	SO ₂	5.7	5
Perfluoroether	HFE		Yes
Hydrofluorocarbon, Perfluorocarbon	HFC/PFC		Yes

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.