Honeywell

Midas® SENSOR CARTRIDGE SPECIFICATIONS

Perfluoro Compounds (PFC Group)
MIDAS-S-XCF, MIDAS-E-XCF

Gas Measured	Hexafluorobutadiene (C_4F_6)
Cartridge Part Number	MIDAS-S-XCF 1 year standard warranty MIDAS-E-XCF 2 year standard warranty
Sensor Technology	3 electrode electrochemical cell
Measuring Range (ppm)	C_4F_6 0 – 40 ppm
Minimum Alarm 1 Set Point	4 ppm
Repeatability	< ± 10% of measured value
Linearity	< ± 20% of measured value
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	< ± 0.009 ppm / °C (at 0°C to 20°C)
Zero	< ± 0.03 ppm / °C (at 20°C to 40°C)
Sensitivity	< ± 0.4% of measured value / °C
Operating Humidity (continuous)	20 – 75% RH[1]
Effect of Humidity	
Zero	< ± 0.01 ppm / % 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)
Challenge Gas (Bump Test)	Chlorine (CL_2)
Warm Up Time	< 60 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 C_4F_6, C_5F_8, CH_2F_2 or SF_6 by thermal breakdown. To maintain stated performance, it is recommended to perform gas calibration every 6 months, and ensure the constant temperature of the installation point is in 50 – 104ºF(10 - 40ºC) and the humidity is in 30 – 70 %RH.
Otherwise, more frequent bump testing or callibration will be required to confirm working specifications. Do not use Freon filter to measure C_4F_6, C_5F_8 and SF_6. Use of the ventilated Midas top cover (MIDAS-A-039) is recommended.

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
Octofluorocylcopentene	C_5F_8	0 – 40 ppm
Difluoromethane	CH_2F_2	0 – 120 ppm
R134a	$C_2H_2F_4$	0 – 1000 ppm
Hexafluoroisobutylene	$C_4H_2F_6$	0 – 40 ppm

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 / Vapor	Chemical Formula	Concentration applied (ppm)	Reading (ppm C_4F_6)
Arsine	AsH_3	1	0
Carbon Monoxide	CO	2,000	0
Chlorine	Cl_2	4.8	14.9
Diborane	B_2H_6	0.5	-2.3
Hydrogen	H_2	20,000	0
Hydrogen Chloride	HCl	2	2.8
Hydrogen Fluoride	HF	2	4.2
Hydrogen Sulfide	H_2S	1	-0.6
Isopropanol	C_3H_7OH	500	0
Methanol	CH_3OH	500	0
Nitrogen Dioxide	NO_2	10	2
Phosphine	PH_3	1	-0.6
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.

Find out more
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