

Model 2031

MultiGas™ FTIR Gas Analyzer



The MultiGas™ FTIR Gas Analyzer, Model 2031, is an FTIR based analyzer that ensures high gas purity by detecting ppb level contaminants in bulk process gases such as NH_3 , NF_3 , and H_2 . The analyzer uses an FTIR Spectrometer, high-optical throughput sampling cell, and application specific analysis software to ensure gas purity. These integrated components ensure high precision and accuracy for bulk gas contaminant monitoring.

Product Features

- Real-time, on-line purity analysis of bulk process gas
- ppb level impurity detection in bulk process gases such as NF_3 , NH_3 and H_2
- Constructed for corrosive high purity gases
 - 316 SS welded sample lines and gas cell construction
 - Active purging of the optics
- Specialized zeroing and self-calibration software
- Specialized optics purging mechanism to reach low level detection limits for H_2O
- 5 and 10m pathlength gas cell available



Applications

Continuous monitoring of trace contaminants in high purity bulk gases in production environments, including:

- H_2O , CO , CO_2 , N_2O and CH_4 in NH_3
- H_2O , CO , CO_2 , N_2O and HF in NF_3
- H_2O , CO , CO_2 , HF , HCl , NH_3 , CH_2Cl_2 and CHCl_3 in H_2
- H_2O , CO , CO_2 , CH_4 , and NH_3 in N_2O
- Various impurities in electronic bulk gases such as BCl_3 , diborane, Chlorine, dichlorosilane, HCl , Arsine, Phosphine, HBr , WF_6 , HF , SiF_4 , Silane, CH_3F and many others

Specifications

Analyzer	
Measurement Technique	FTIR Spectrometry
Gases and Vapors Measurable	Most molecules except for N ₂ , H ₂ , and O ₂
Ranges	Full scale concentration setting between 10ppb and 100% Full Scale
Spectral Resolution	0.5 – 128cm ⁻¹
Scan Time	1-300 sec
Detector	LN ₂ -cooled MCT; TE-cooled MCT
Purge Pressure	20 psig (1.5 bar) max.
Spectrometer Purge Flow	4 L/min of purified ultra pure N ₂
Optics Purge Flow	4 L/min of purified ultra pure N ₂
Pressure Transducer	MKS Baratron® capacitance manometer
Purge Connection	¼" VCR®
Computer Requirements	Desktop or Laptop with Windows 10 OS
Communications	Ethernet
Dimensions	17.5"W x 12.5"H x 25.5"D
Installation	19" rack mount chassis
Power	120 or 240 VAC, 50/60 Hz, 6 amps
Weight	125 lbs. (57 kg)
Laser Safety	Class 1 laser product contains a Class 3R laser with continuous wave output at 633 nm
Sampling Parameters	
Sample Temperature	Ambient to 60°C (calibration temperature dependent)
Sample Flow	0.5 to 10 L/min
Sample Pressure	0.01 – 8 atm (calibration pressure dependent)

Specifications

Detection Limits

Examples of low-level detection limits (as 3 sigma) for typical gases in pure corrosive bulk gas:

Name	Formula	Bulk Media	Typical Detection Limit (2 minute measurement)
Water	H ₂ O	NH ₃ , NF ₃ , N ₂ O, PH ₃ , AsH ₃	<100ppb
Carbon Dioxide	CO ₂	NH ₃ and NF ₃	5ppb
Carbon Monoxide	CO	NH ₃ and NF ₃	6ppb
Hydrofluoric Acid	HF	NF ₃	9ppb
Methane	CH ₄	NH ₃	15ppb
Nitrous Oxide	N ₂ O	NF ₃	3ppb

Ordering Information

Please contact your local MKS office for price and availability information.