



CEREX MICRO FTIR Analyzer

Offering more versatility and portability than the SHEPHERD FTIR, the MICRO FTIR is a flexible and cost-effective, yet sensitive and accurate, multi-gas point analyzer. With Cerex's industry-leading FTIR technology, the MICRO FTIR offers over 300 compounds for targeting with ultra low parts per billion detection limits in an easy to operate, portable package.

System Specifications

Analyzer	Portable multi-gas point analyzer		
Measuring Technology	Fourier-Transform InfraRed (FTIR) Spectroscopy		
Measuring Principle	Beer-Lambert Law		
Measuring Technique	Classical Least Squares (CLS) regression analysis		
Multi-gas Capability	Capable of simultaneous analysis of over 300 compounds		
Response Time	T90, Typically < 30s, depending on the gas flow rate and measurement time		
Power Supply	100 to 240VAC / 50-60Hz; 40V Battery 2Ahr, 4Ahr, 6Ahr		
Power Consumption	Average 120W		
Real Time Analysis Software	Cerex Monitoring Software (CMS) Windows® 10, 11 Operating System		
Data Connection	USB, WiFi. Remote operable.		
Enclosure (Standard Model)	Dimensions	18" x 14" x 6.7" (45.7cm x 35.6cm x 17cm)	
	Weight	38 lbs (17.2kg) (35 lbs without battery)	
Spectrometer	Spectral Range	2 - 14 μm (microns)	
	Resolution	User configurable: 1cm^{-1} , 2cm^{-1} , 4cm^{-1} , 8cm^{-1} , 16cm^{-1} , 32cm^{-1} Best resolution 0.6cm^{-1}	
	Scan frequency	6 scans/s @ 32cm^{-1}	
	Detector	Standard DTGS or Peltier Cooled MCT (optional)	
	Source	SiC, 1550K	
	Beamsplitter	ZnSe	
	Window Material	ZnSe	
	Wavelength range	$600-4200\text{cm}^{-1}$	
Sample	Gas Inlet	$\frac{1}{2}$ " Quick Coupling;	$\frac{1}{4}$ " Swagelok test adaptor provided
	Gas Outlet	Case Vent	$\frac{3}{8}$ " OD push-to-connect tube adaptor provided
Run Time	3.5 Hour Battery, Continuous AC		

Performance Specifications

Concentration measurement accuracy*	5% of reading typical
Concentration measurement precision*	5% of reading typical
Interferent Mitigation	Proprietary adaptive analysis and false positive rejection routines
Zero point	Automatic and manual zero point
Sample Flow Rate	0-50 liters per minute
Sample Gas Filtration	5 micron attached to sample hose

*Accuracy and Precision typically within +/- 1% at calibrated concentrations

Operating Conditions

Sample Gas Pressure	< 1 PSI
Sample Gas Temperature	0°C - 50°C; Inquire for extended operating temperatures
Operating Humidity	10 - 95% RH non-condensing
Operating Temperature	Short term 0°C to 40°C, long term 5°C to 35°C
Storage Conditions	-20°C to 60°C; non-condensing
HMI	Internal touchscreen (standard model)
Digital Interface	MODBUS, VNC, and remote desktop. Spectral data may be stored locally, on a NAS, or disabled. Industrial external wireless option available. USB-C for data retrieval and peripheral accessories. Cellular capable for full remote access and control from any PC, anywhere.
Integrated Computer	Embedded industrial PC

Options

Integrated Wind Mapping	Three dimensional ultrasonic anemometer with temperature measurement. Data integrated into CMS data tables and available via MODBUS.
Integrated Data Acquisition	Optional external ports with data integration for particulate or ancillary co-located analyzers (TDLAS laser, electrochemical, etc.).
Data Output	MODBUS over TCP-IP is standard. MODBUS over RS-232, RS-485.

Common Compounds: Minimum Detection Limits

Compound Name	Chemical Formula	Molecular Weight	CAS Number	Detection Limit
Acetylene	C ₂ H ₂	26.04 g/mol	74-86-2	0.010 ppm
Ammonia	NH ₃	17.03	7664-41-7	0.038
Benzene	C ₆ H ₆	78.11	71-43-2	0.120
Carbon Dioxide	CO ₂	44.01	124-38-9	2.170
Carbon Monoxide	CO	28.01	630-08-0	0.110
Desflurane	C ₃ H ₂ F ₆ O	168.038	57041-67-5	0.02
Enflurane	C ₃ H ₂ ClF ₅ O	184.49	13838-16-9	0.03
Ethylbenzene	C ₈ H ₁₀	106.167	100-41-4	0.034
Ethylene	C ₂ H ₄	28.05	74-85-1	0.046
Ethylene Oxide	C ₂ H ₄ O	44.052	75-21-8	0.09
Formaldehyde	CH ₂ O	30.031	50-00-0	0.094
Halothane	C ₂ HBrClF ₃	197.38	151-67-7	0.09
Hydrogen Sulfide	H ₂ S	34.1	7783-06-4	38.000
Isopropyl Alcohol	C ₃ H ₈ O	60.096	67-63-0	0.26
Methane	CH ₄	16.04	74-82-8	0.082
Methyl Alcohol	CH ₃ OH	32.04	67-56-1	0.12
n-Hexane	C ₆ H ₁₄	86.178	110-54-3	0.021
Nitric Oxide	NO	30.01	10102-43-9	0.020
Nitrogen Dioxide	NO ₂	46.0055	10102-44-0	0.240
Nitrous Oxide	N ₂ O	44.013	10024-97-2	0.09
Phosphine	PH ₃	33.99758	7803-51-2	0.190
Propane	C ₃ H ₈	44.1	74-98-6	0.250
Propylene	C ₃ H ₆	42.08	115-07-1	0.350
Sevoflurane	C ₄ H ₃ F ₇ O	200.056	28523-86-6	0.03
Styrene	C ₈ H ₈	104.15	100-42-5	0.190
Sulfur Dioxide	SO ₂	64.066	7446-09-5	0.020
Sulfur Hexafluoride	SF ₆	146.06	2551-62-4	0.002
Toluene	C ₇ H ₈	92.14	108-88-3	0.053

Cerex has over 300 compounds available for detection with the MICRO FTIR. The wide measurement spectrum makes detection of individual species simple – it's easy to know the concentrations of the required species without erroneous concentrations due to cross interference.

If your compound is not one of the compounds already available within our database, the Cerex MICRO FTIR may import gas spectra from the numerous FTIR databases on the web (NIST, EPA, PNNL, etc.)

If you have a compound that is not available in a public database, we may be able to work with you to develop a custom spectrum. Detection limits are a function of the IR detector, installed path length, and site conditions. The detection limits shown are based on three times the standard deviation of the system noise in the regions of analysis at 8cm⁻¹ in air. Improved MDLs may be obtained in nitrogen instead of air.