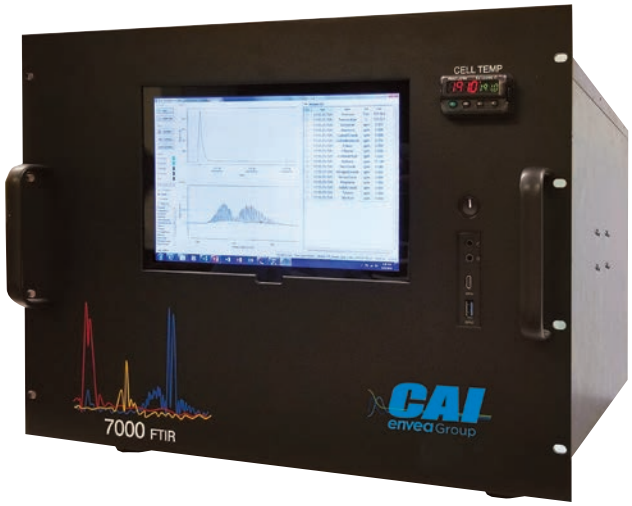
7000 FTIR Analyzer

FOURIER TRANSFORM INFRARED ANALYZER



CAI ENVEA Group's 7000 FTIR Analyzer provides fast, continuous and stable analysis of virtually any gas that has an infrared absorption spectrum. The proprietary heated sample cell enables the instrument to accommodate hot samples containing high levels of moisture.

SPECIFIC FEATURES:

- Proven, rugged interferometer with gold mirrors
- 1 Hz live data output
- Live color-coded spectrum while scanning
- Live residual spectrum while scanning
- 0.5 wave number (cm-1) resolution
- Heated sample cell (50° or 191°C)
- High sensitivity with 10.2-meter optical path
- Pressure compensation
- Ability to measure 20+ gases simultaneously
- Low ppb to high % ranges
- No liquid nitrogen required

MAIN APPLICATIONS:

- Automotive
- Diesel emissions
- CEM monitoring
- Ammonia Slip
- SCR inlet/outlet monitoring
- Process monitoring
- Greenhouse Gas

MAIN OPTIONS:

- Analog output module
- Intelligent multi-point sampler
- Sample handling accessories
- Low Flow
- System integration

CE

Conforms to UL STD 61010-1, Certified to CAN/CSA C22.2 STD No. 610610.1

U.S. EPA COMPLIANCE
40 CFR PART 1065

ECE 49-06 Compliant

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7000 FTIR Analyzer

The 7000 FTIR Analyzer is based on Fourier Transform Infrared Spectroscopy. Nonsymmetrical gas-phase molecules absorb IR light, causing the molecular bonds to stretch, bend or rotate. This absorption is used to measure and quantify several chemical components simultaneously.

An IR source emits radiation in the range of 7500 to 375 cm–1. The IR radiation is split in an interferometer, where the light is split toward two moving corner-cube mirrors. The two beams recombine and pass through a 10.2-meter multi-reflection gas cell where the sample absorbs light at molecule-specific frequencies. The remaining light is measured with an MCT detector and Fourier transformed to convert from the time domain to the frequency domain. This produces a single-beam spectrum that is ratioed with a baseline spectrum, producing an absorbance spectrum. The absorbance spectrum is quantified with PLS chemometrics to produce a concentration value.

SOFTWARE

The 7000 FTIR uses a combination of Symbion software and OPUS software. Symbion software includes RTM (Real Time Monitor) and QT Builder (Quant Builder). RTM is used to rapidly scan and output data a 1 Hz or greater for many components. RTM has enhanced capability to display a live spectrum with color-coded analysis regions and includes the ability to see a live residual for each component.

The software is very customizable to allow many types of outputs and calculations. QT Builder is an automated quant method builder that can build, optimize and analyze quant methods. OPUS software is used to analyze spectra with exceptional ease. It allows all common spectral analysis tools to be used on multiple spectra at the same time.

TECHNICAL SPECIFICATIONS

Interferometer	Rocksolid,™ permanent alignment, high stability with cube corner reflectors and non-wear bearing for long life
Detector Type	MCT-A
Response Time	From approximately <1 second to 5 minutes, depending upon sensitivity
Spectral Resolution	0.5 cm–1 to 128 cm–1
Spectral Range	305-7500 cm–1
Control	PC, Windows XP or higher
Sample Flow	Typically 0.2 to 5 lpm
Ambient Temperature	5° to 40°C
Ambient Humidity	Less than 90% RH (non-condensing)
Power Requirements	115 VAC/60Hz or 230 VAC/50Hz
Dimensions (HxWxD)	10.5 x 19 x 28 (In.) 267x483x712 mm
Weight	Approximately 127 lbs. (57.6 kg)
GAS CELL	
Construction	Carbon Material @ 205 C; 95 to 100% Efficiency
Volume	Ultraviolet Lamp
Effective Path Length	Dry Air less than 0.01 ppm NO_x at 350 cc/Min. @ 25 psig (Dew Point < -10°C)
Mirrors	Manual/Remote/Auto Cycle
Windows	Voltage, Current, RS-232 AK Protocol, TCP/IP MODBUS and AK Protocol
O-Rings	15 Assignable Contact Closures
Inlet/Outlet Connections	Temperature, Pressure, EPC Volt %, and Flow
Purge Fittings	3” x 5” LED

GASES

Carbon Dioxide	Nitrous Oxide	Moisture	Toluene	Formaldehyde
Carbon Monoxide	Hydrogen Chloride	Ethane	Acetylene	Sulfur Hexafluoride
Nitric Oxide	Ammonia	Ethanol	Chloroform Dichloroethylene	Phosgene
Nitrogen Dioxide	Methane	Ethylene	Ethyl Benzene	Vinyl Chloride
Sulfur Dioxide	Propane	Propylene	Methyl Ethyl Ketone	R134A

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