



# 700 FTIR Fourier Transform Infrared Analyzer



The 700 Series FTIR Analyzer delivers fast, accurate analysis of virtually any gas that has an infrared absorption spectrum

## Features

- Proven, rugged interferometer with gold Mirrors
- No liquid nitrogen required
- 0.8 Wave number ( $\text{cm}^{-1}$ ) resolution
- Heated sample cell ( 50° or 191° C)
- Internal, rack mount, desktop PC or laptop controlled with fully automated Opus spectroscopy software
- High Sensitivity with 10.2 meter optical path
- Low cost of acquisition and operation

## Applications

- Process control
- Combustion efficiency
- Stack gases (CEM/MACT)
- VOC abatement/scrubber efficiency
- Agricultural emissions
- Pharmaceutical
- Semiconductor
- Vehicle emissions
- CO<sub>2</sub> purity
- Ammonia slip
- Gas purity
- Greenhouse gases
- Biomass/landfill gas

## Options

- Analog output module
- Heated sampler
- Intelligent multi-point sampler, heated or unheated
- Data logging software

California Analytical Instruments

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www.gasanalyzers.com



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## Gases Analyzed

- Carbon Dioxide
- Nitric Oxide
- Sulfur Dioxide
- Hydrogen Chloride
- Methane
- Butane
- Ethanol
- Propylene
- Acetylene
- Dichloroethylene
- Methyl Ethyl Ketone
- Sulfur Hexafluoride
- Phosgene
- Carbon Monoxide
- Nitrogen Dioxide
- Nitrous Oxide
- Propane
- Ethene
- Ethylene
- Toluene
- Chloroform
- Ethyl Benzene
- Perchloroethylene
- R134A
- Ethylene oxide
- More available contact CAI for other

## Technology

The 700 Series FTIR is based on Fourier Transform Infra-red Spectroscopy. Nonsymmetrical gas phase molecules absorb IR light which in turn causes 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  $\text{cm}^{-1}$ . The IR radiation is split in a Michelson Interferometer where half of the light passes through to a fixed mirror and the other half is reflected towards a moving mirror.

The two beams recombine and pass through a gas cell where the sample absorbs light at molecule specific frequencies. The remaining light is measured with a DTGS detector and Fourier transformed to convert from time domain to frequency domain producing a single beam spectrum which is ratioed with a baseline spectrum and produces an absorbance spectrum. This absorbance spectrum is quantified with chemometrics to produce a concentration value.

## Specifications

**Analysis Method:** Fourier Transform Infra-red (FTIR)

**Components:** Multiple Gases

**Interferometer:** Rocksolid™, Permanent Alignment,

High Stability with Cube Corner Reflectors and Non-wearing Bearing for Long Life

**Detector Type:** DTGS

**Ranges:** From ppb to percent level (Gas blend dependent)

**Response Time:** From approximately 20 seconds to 5 minutes depending on sensitivity

**Spectral Resolution:** 0.8  $\text{cm}^{-1}$  to 128  $\text{cm}^{-1}$

**Spectral Range:** 4300-600  $\text{cm}^{-1}$

**Scan Time:** 1-300 Seconds

**Control:** PC, Windows XP or higher

**Sample Flow:** Typically 0.2 to 5 lpm

**Ambient Temperature:** 5° to 40°C

**Ambient Humidity:** Less than 80% RH (Non-condensing)

**Gas cell:** 316 Stainless Steel (50°C to 191°C)

Volume: 550 cc, Effective Pathlength: 10.2 meters

Windows: ZnSe, others available, O-rings: Parafluor

**Power Requirements:** 115/230 (+/- 10%) VAC; 50/60Hz,

**Dimensions:** 10.5Hx19"Wx28"D

**Weight:** Approximately 90 lbs.

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