

IR850 FT-IR Gas Analyzer

FT-IR Analyzer for Organized Emission Monitoring of Stationary Sources

Coal-fired power, steel, cement, waste-to-energy and more — reliable VOC results even in hot, humid, corrosive flue gas



01

MULTI-GAS BY DESIGN

Up to 50 gases per scan with 200+ calibrated compounds — new gases are added by software, no hardware changes.

02

CORROSIVE-GAS PROOF

Anti-corrosion coated chamber and mirror walls plus $\geq 180^{\circ}\text{C}$ full heating withstand high-temperature, high-humidity flue gas.

03

PORTABLE & FIELD-READY

Backpack-carried analyzer with portable full-heating sampling system for on-site checks at any stationary source.

04

SOFTWARE THAT WORKS

Real-time multi-component display in ppm or mg/m^3 , automatic dry/wet correction and one-click help for service.

KEY FEATURES

- DTGS detector, no cooling required
- Moisture-proof beam splitter window material
- Wavenumber range $500\text{--}5000\text{ cm}^{-1}$
- Sample chamber heating $\geq 180^{\circ}\text{C}$, constant temperature
- Total optical path length ≥ 4.5 meters
- Sample gas chamber volume < 1.0 liter
- Anti-corrosion coatings on chamber & mirror walls
- Scanning frequency ≥ 5 times/second
- Spectral resolution 4 cm^{-1} , 1 cm^{-1} optional
- ppm-% sensitivity, 200+ calibrated models



FT-IR ANALYTICAL CORE

500–5000 cm^{-1} range at 4 cm^{-1} resolution (1 cm^{-1} optional); ≥ 5 scans per second with ppm–% sensitivity.

HEATED SAMPLE CHAMBER

$\geq 180^\circ\text{C}$ constant-temperature heating; $< 1.0\text{L}$ chamber volume; $\geq 4.5\text{m}$ total optical path length.

ANTI-CORROSION CONSTRUCTION

Inner walls of the sample chamber and mirrors carry anti-corrosion coatings against hot, humid and corrosive gases.

FULL-HEATING SAMPLING CHAIN

Probe, guiding tube, sampling device, pump and chamber all heated $\geq 180^\circ\text{C}$; flow $\geq 1.8\text{ L/min}$, pump suction $\geq 80\text{ kPa}$.

INTUITIVE ANALYSIS SOFTWARE

Real-time display of interferometer, source intensity and chamber temperature; multi-component results in ppm or mg/m^3 ; Excel export.

CORE TECHNOLOGIES

Engineered for continuous emission monitoring in harsh industrial environments

01

FT-IR ANALYTICAL CORE

- Wavenumber 500–5000 cm^{-1}
- Resolution 4 cm^{-1} , 1 cm^{-1} optional
- Scanning ≥ 5 times / second
- DTGS detector, no cooling required
- Moisture-proof beam splitter window

02

HEATED & CORROSION-PROOF

- $\geq 180^\circ\text{C}$ constant-temperature heating
- $\geq 4.5\text{m}$ total optical path length
- $< 1.0\text{L}$ sample chamber volume
- Anti-corrosion chamber & mirror coatings
- Three-stage (0.5–5) μm dust filtration

03

SOFTWARE & DATA

- Real-time instrument status monitoring
- Multi-component simultaneous display
- ppm / mg/m^3 , dry / wet correction
- P&T compensation, interference correction
- Excel export, spectral replay

PERFORMANCE PROOF



Proven On-Site at Stationary Sources

Deployed for organized emission monitoring at coal-fired power, steel, cement and waste-to-energy plants — including VOC components in high-temperature, high-humidity and corrosive flue gas, with errors within $\pm 5\%$ relative ($\pm 3\text{ }\mu\text{mol/mol abs.}$ $\leq 60\text{ }\mu\text{mol/mol}$).

Reference: FT-IR8500 specification · SO_2 0–2000 ppm to CO_2 0–90% calibrated · $\geq 180^\circ\text{C}$ full-heating chain

APPLICATION AREAS

COAL-FIRED POWER

Organized flue gas emission monitoring at power plants

STEEL MILLS

High-temperature process gas organized emission monitoring

CEMENT WORKS

Kiln flue gas organized emission monitoring

WASTE-TO-ENERGY

Corrosive flue gas and VOC emission monitoring

VOCS IN FLUE GAS

VOC components in hot, humid, corrosive flue gas

ORGANIZED EMISSIONS

All organized stationary-source emission monitoring

ANALYTICAL PERFORMANCE

Measuring Principle	Fourier Transform Infrared (FT-IR)
Wavenumber Range	500–5000 cm ⁻¹
Spectral Resolution	4 cm ⁻¹ , 1 cm ⁻¹ (optional)
Detector	DTGS, no cooling required
Beam Splitter	Moisture-proof window material
Scan Rate	≥5 scans / second
Optical Path Length	≥4.5 meters
Sample Chamber Volume	<1.0 liter
Chamber Heating	≥180°C, constant temperature
Sensitivity	ppm–%
Multigas Capability	Up to 50 gases per scan
Calibrated Library	200+ compounds, expandable ranges
Qualitative Library	40 compounds (qual. / semi-quant.)

MEASUREMENT PERFORMANCE

Error — CO ₂ (indication / system)	±5% relative
Error >60 μmol/mol (indication / system)	±5% relative
Error ≤60 μmol/mol (indication / system)	±3 μmol/mol absolute
Zero Drift	±3%
Span Drift	±3%
Flow Rate Variation	≤±2.0% F.S.
Ambient Temperature	≤±5.0% F.S.
Supply Voltage Variation	≤±2.0% F.S.

SOFTWARE FUNCTIONS

Real-Time Monitoring	Interferometer, source, chamber temp.
Multi-Component Display	All target gases simultaneously
Units & Correction	ppm / mg/m ³ , dry / wet basis
Data Logging	User intervals, hourly/daily avg.
Export & Service	Excel export, replay, one-click help

PERFORMANCE HIGHLIGHTS

500–5000

cm⁻¹ wavenumber range

50 Gases

Simultaneous quantification per scan

200+

Calibrated compound models

≥5 /s

Scans per second

≥180°C

Full-chain sample heating

FACTORY CALIBRATION RANGES

SO ₂	0–2000 ppm	NO	0–500 ppm
NO ₂	0–500 ppm	CO	0–5000 ppm
CO ₂	0–90%	NH ₃	0–500 ppm
HCl	0–200 ppm	H ₂ O	0–30%
N ₂ O	0–500 ppm	CH ₄	0–2000 ppm
C ₂ H ₆	0–100 ppm	C ₃ H ₈	0–100 ppm
HF	0–100 ppm	Benzene	0–100 ppm
Toluene	0–100 ppm	Ethylbenzene	0–100 ppm
Xylene	0–100 ppm		

HEATED SAMPLING SYSTEM

Heating Temperature	≥180°C, constant control
Sampling Flow Rate	≥1.8 L/min
Pump Suction Force	≥80 kPa
Dust Filtration	Three-stage, (0.5–5)μm, non-adsorbing
Heating Probe	≥1m, ≥180°C, front dust filter
Heating Guiding Tube	≥5m/≥1m, ≥180°C, temp. display

FLUE GAS PRETREATMENT SYSTEM

Cooling	Two-stage, ≥80 NL/h, ≤30 min
Gas Conditioning	Inlet ≤180°C; dew point ≤5°C; 0.1μm, L=50mm
Exhaust	3.3 NL/min; –5000 Pa at 1 L/min
Flow Meters	Exhaust 25–250; instrument 10–100 NL/h
Probe & Line	≥1m probe; ≥3m heating line; ≤2μm filter
Acid & Power	H ₃ PO ₄ 20–80%; pump 1–5 rpm; 220V 300W