

FI-RXF100

FI-RXF100 FTIR Spectrometer

A compact FTIR spectrometer with interchangeable sampling modules. A snap-lock mount keeps the optical path strictly repeatable, so switching between ATR, transmission, reflection and other modes is easy in the lab or on site. Diamond ATR, 7800–350 cm^{-1} with KBr optics, SNR $\geq 50,000:1$, 8 kg.

Best for: Laboratory and field identification — lubricants, gems, narcotics and explosives — and online gas analysis.



7800–350 cm^{-1}

Spectral range, KBr optics

0.9 cm^{-1}

Spectral resolution

$\geq 50,000:1$

Signal-to-noise ratio

8 kg

Main unit weight

Overview

Easy to use, capable, compact and robust: the FI-RXF100 is an infrared spectrometer that anyone can use, anywhere. For accurate, repeatable measurements day after day it uses a practically maintenance-free optical system, and a proven interferometer design gives it outstanding reliability. Its fully integrated, universal sampling makes measurement straightforward, and portable accessories are available, so it suits both the laboratory and field testing.

Sampling modules are interchangeable and lock in with a snap-lock mount that keeps the optical path strictly repeatable, so ATR, transmission, reflection and other measurement modes are easy to switch between.

Features

Hardware

- Ready to measure at switch-on; compact and robust
- Highly shock-resistant cube-corner interferometer, permanently aligned, 10-year service life
- Gold-coated mirrors for higher reflectance and better resistance to oxidation
- High-sensitivity, moisture-resistant detector
- Solid-state laser, highly stable, 10-year service life
- High-energy mid-infrared source: stabilises quickly, long service life
- Pure diamond ATR crystal for hard and corrosive samples such as minerals and sulfuric, hydrochloric and nitric acid
- Quick change between ATR, transmission, reflection and other measurement modes
- Options: fold-out touch tablet on an any-angle stand, carry case, battery and more

Software and libraries

- Intelligent identification of characteristic infrared peak positions for accurate results
- Fast mixture search: mathematical algorithms strip component spectra one after another
- The software synthesises the mixture spectrum to verify the search result and reports the relative proportion of each component
- Peak-position identification and fast spectral comparison, switchable, so the two modes cross-check each other
- Libraries cover organic compounds, inorganics, minerals, drugs and active pharmaceutical ingredients, narcotics, explosives, hazardous chemicals, polymers, packaging materials, calculi, asphalt and composites
- Optimised automatic mixture-analysis algorithm identifies mixtures more effectively

- Alarm function that names the detected substance directly, for follow-up verification by law-enforcement officers
- The software prompts when a new background is due; the background validity period is user-set
- Automatic spectrum saving and time-stamping, automatic subtraction of diamond and CO₂ absorption bands, automatic reports for export or printing
- Wi-Fi and Bluetooth for data transfer and management

Specifications

Optics	
Spectral range	7800–350 cm ⁻¹ with KBr beamsplitter and windows; 5000–500 cm ⁻¹ with moisture-resistant ZnSe beamsplitter and windows
Spectral resolution	0.9 cm ⁻¹
Wavenumber accuracy	≤ 0.005 cm ⁻¹
Signal-to-noise ratio	≥ 50,000:1
Interferometer	High-stability cube-corner interferometer, permanently aligned, service life over 10 years
Beamsplitter	Coated KBr for the mid-infrared, or moisture-resistant ZnSe
Detector	Moisture-resistant, high-sensitivity DLaTGS with built-in ADC
IR source	Long-life mid-infrared ceramic source, operating temperature 1550 K
Sampling and software	
Measurement technique	ATR with a pure diamond crystal — wear-resistant, corrosion-resistant, easy to clean; rotating pressure head for high reproducibility; fast measurement of solids and liquids
Software	Windows 10 processing software: infrared measurement, spectral pre-processing, fast spectral comparison, mixture search, standard peak search, user-built reference libraries, quantitative analysis, automatic subtraction of diamond and CO ₂ bands, intelligent peak identification with alarm, one-click measure-and-evaluate, automatic report generation and printing
Libraries	Professional infrared spectral libraries, configured to the application
System	
Display	Optional: 10-inch touch screen on an any-angle fold-out stand, or a laptop
Data interface	Standard network interface
Power	24 V power adapter as standard. Optional built-in rechargeable high-capacity battery for 4 hours of continuous, standalone operation; can also run from the external adapter or a vehicle battery
Dimensions	310 × 215 × 210 mm (main unit)
Weight	8 kg (main unit)

The FI-RXF100 Series

Model	Description
FI-RXF100-T	Transmission FTIR for solids, liquids and gases
FI-RXF100-ATR	ATR FTIR with diamond, ZnSe or Ge crystals, and flow-cell accessories
FI-RXF100 Plus	Mobile FTIR with a touch tablet, battery and wheeled carry case, for analysis outdoors on site
FI-RXF100-RT	Rotating-transmission analyser for fast quantitative analysis of liquids and oils; can also be configured as a mobile spectrometer

Applications

- Gas analysis: real-time environmental and industrial online gas monitoring, including an established online application for ethylene glycol process gas
- Police, security and drug enforcement: identification of unknown substances such as narcotics and explosives
- Lubricating oils: authenticity checks, raw-material and product quality control, in-service oil testing and telling manufacturers apart
- Gems and jade: testing for museums and cultural heritage, and for the jewellery trade

Request a quotation

Tell us what you measure and we will configure the FI-RXF100 — sampling accessories, detector and libraries — for it.

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