

FI-RXMI100

FI-RXMI100 Handheld FTIR Analyser

A handheld FTIR analyser, under 4.5 kg, for fast and accurate identification of unknown compounds on site. A 7-inch touch screen, an automatic diamond-ATR press and one-button software measure, search the library and save the result; the library holds more than 40,000 spectra, including more than 2,500 drugs.

Best for: Police, customs and border control, first responders and hazmat teams: drugs, new psychoactive substances, explosives and hazardous chemicals.



< 4.5 kg Weight	1 cm⁻¹ Resolution, better than
> 40,000 Library spectra	4 h Battery runtime

Overview

The FI-RXMI100 is a field instrument for fast, accurate identification of unknown compounds: compact, light and rugged. It works in all kinds of outdoor situations — incident scenes, explosions and fires, hazardous-chemical leaks, medical and sanitary contamination, disaster relief by chemical-defence units, port emergencies, criminal investigation and drug enforcement, and customs inspections — and for identifying unknown substances in the laboratory.

It brings the speed, accuracy and intelligence of FTIR into a handheld unit with high spectral resolution, low power consumption, low weight and small size, ready for first-response sampling.

The design is clean and simple: a large touch screen, a fully automatic ATR press and a comfortable grip. The pure diamond crystal is set in a passivated stainless-steel plate and withstands strong acids and bases and hard rock, for solids, powders, fibres, liquids and pastes. Liquids and pastes are measured without the press; for other samples, a small amount goes onto the crystal and the press lowers automatically, applying the same pressure every time.

One-button software opens on the acquisition screen at start-up, runs the ATR measurement, searches the library and shows the best match, all automatically. Mixture analysis uses mathematical algorithms: set the number of components, run successive searches on the spectrum and get the relative proportion of each component. Results can be saved, archived or printed at any time without manual steps.

The standard infrared library holds more than 10,000 hazardous chemicals, organic compounds, narcotics and explosives: common drugs, precursor chemicals, psychotropic and narcotic drugs, new psychoactive substances and other controlled drugs, cutting agents and diluents, and explosives. Users can also build their own libraries quickly to keep extending what the analyser recognises.

Features

- One-button, fully automatic measure, evaluate and save
- Fully automatic press with a pure diamond ATR crystal, for drugs and corrosive samples such as sulfuric, hydrochloric and nitric acid
- Fast spectral analysis and mixture analysis; optimised algorithms identify mixtures more effectively
- Library covers common drugs, precursor chemicals, fentanyl, synthetic cannabinoids, synthetic cathinones and other new psychoactive and controlled substances, plus cutting agents and diluents, explosives and hazardous chemicals

- Automatic spectrum saving and time-stamping, automatic subtraction of diamond and CO₂ bands, automatic reports for export or printing
- Wi-Fi and Bluetooth for data transfer and management
- Battery level and charge or discharge status shown on the panel in real time

Specifications

Spectrometer	
Spectral range	5000–500 cm ⁻¹
Spectral resolution	Better than 1 cm ⁻¹
Wavenumber accuracy	Better than 0.01 cm ⁻¹
Interferometer	High-stability cube-corner interferometer, permanently aligned, service life over 10 years
Beamsplitter	Moisture-resistant ZnSe for the mid-infrared, for long-term field work
Detector	Moisture-resistant, high-sensitivity DLaTGS with built-in ADC
IR source	Long-life mid-infrared ceramic source
Laser	Solid-state laser, service life over 10 years
ATR	Press controlled automatically by the software; pure diamond crystal — wear-resistant, corrosion-resistant, easy to clean; fast measurement of solids and liquids
Sealed, desiccated optics	Sealed against moisture; internal temperature and humidity shown in real time with an automatic humidity alarm; regenerable screw-in desiccant tube in the base plate

Operation and software	
Display	7-inch touch screen with standard data and charging ports; wireless and Bluetooth transfer; built-in camera; Windows 10; no assembly on site, ready at switch-on
Touch-screen operation	7-inch touch screen with a standard USB Type-C data port and charging port
Fully automatic operation	Opens on the acquisition screen at start-up; ATR measurement, library search and best match run automatically; one click saves the result or writes it to a Word document
Software	One-button measure, evaluate and save; infrared measurement, spectral pre-processing, fast spectral comparison, user-built reference libraries, quantitative analysis, automatic subtraction of diamond and CO ₂ bands, intelligent spectrum identification, automatic report generation and printing
Interface	Integrated screens for acquisition, image, mixture analysis, report and settings; after acquisition the report screen shows the sample photo and the spectral result; results saved as images or as a PDF report
Mixture search	Successive spectral stripping with mathematical algorithms finds the main components of a mixture; the number of subtractions is settable; a synthesised spectrum is compared with the measured one to verify the result; relative proportion of each component given as a semi-quantitative reference
Library	More than 40,000 spectra, including precursor chemicals, cannabinoids, fentanyl, new psychoactive substances and hazardous chemicals; more than 2,500 drug spectra

Power and environment	
Battery	Built-in rechargeable Li-ion battery, 4 hours of continuous operation; can run from an external 36 V vehicle battery
Charging	100–240 V AC, 50–60 Hz; powers both the FTIR unit and the tablet; external charging port and main power switch
Dimensions	26 × 16.3 × 12.8 cm, including the automatic press
Weight	< 4.5 kg
Operating temperature	–10 to +40 °C
Storage temperature	–20 to +55 °C

Detectable substances (partial list)

More than 2,500 drugs can be detected.

Class	Examples
Common drugs	Methamphetamine, heroin, ketamine, cocaine hydrochloride, cocaine base, ecstasy, cough syrup, cannabinol and others
Precursor chemicals	NPP, 4-ANPP, P-2-P (1-phenyl-2-propanone), piperonal, ephedrine, MEK (methyl ethyl ketone) and others
Fentanyls	Fentanyl, sufentanil, remifentanil, carfentanil, ocfentanil, acetylfentanyl, isobutyrylfentanyl, valeryl fentanyl, thiofentanyl, furanylfentanyl and others — more than 60
Synthetic cannabinoids	UR-144, AB-CHMINACA, PB-22, JWH-200, JWH-081, AM-694 and others — more than 120
Synthetic cathinones	Cathinone, methcathinone, ethcathinone, 4-chloromethcathinone, 4-bromoethcathinone, 4-CDMC and others — 125
Phenethylamines	2-Fluoroamphetamine, 3-methoxymethamphetamine, 4-chloroamphetamine, 2C-B, 25I-NB4OMe, 5-APB and others — more than 80
Tryptamines	Methyltryptamine, 5-MeO-AMT, 5-MeO-DMT and others — 23
Others	Fluoroketamine, 3-MeO-PCP, 3-FPM, diclazepam, flualprazolam, etizolam, isopropylphenidate, benzylpiperazine, 2-aminoindane and others
Explosives	Black powder, ammonium nitrate explosives, TNT, RDX, PETN and others

Applications

- Police, customs, border control and transport: on-site screening of controlled goods, smuggled samples and other suspicious items
- Rapid detection of drugs, new psychoactive substances and other controlled substances, explosives and hazardous chemicals
- Direct measurement of lumps, solid powders, liquids, films, corrosive samples and transparent or translucent samples

Request a quotation

Tell us what you measure and we will configure the FI-RXMI100 — sampling accessories, detector and libraries — for it.

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