0086 16601757347
inquiry@yukelab.com
www.yukelab.com
0086 021 59570209

# FTIR-861 FTIR Spectrometer


The **FTIR-861** Fourier Transform Infrared Spectrometer, developed and manufactured by YUKE, represents a new generation of domestic FTIR instruments featuring independent intellectual property rights. It is characterized by its ease of operation, stable performance, long service life, and low maintenance costs. The company's infrared spectrometer products are currently widely utilized across diverse fields, including disease control and prevention, pharmaceuticals, fundamental scientific research, fine chemicals, electronics and electrical engineering, petrochemicals and metallurgy, and third-party testing services. As an indispensable analytical and testing tool for both laboratory research and industrial production, the FTIR-861 serves as a powerful assistant to help you elevate your analytical testing capabilities.

**Product Features:**

**1. **Brand-New Architectural Design with Real-Time, Precise Monitoring****

Through a real-time temperature and humidity control system, the interferometer and beam splitter undergo dynamic digital monitoring. The instrument's internal optical components and sensitive electrical components are housed in separate, isolated compartments. Each compartment's internal working temperature and humidity are monitored independently. This temperature monitoring ensures that the light source and electrical components operate within their optimal thermal environment (maintained below 50°C) at all times. Similarly, humidity monitoring ensures that the optical components and sensitive electrical components remain within their optimal humidity environment (maintained below 50%) at all times.



SHANGHAI YUKE INDUSTRY CO. ,LTD
ROOM 1022,SOUTH DISTRICT, No.5616 CAOAN ROAD, ANTING TOWN, JIADING DISTRICT,SHANGHAI

0086 16601757347
inquiry@yukelab.com
www.yukelab.com
0086 021 59570209

**2. **High-Performance Interferometer Module Design****

While retaining the inherent stability advantages of the corner-cube interferometer design, the optical system has undergone extensive optimization. As a result, the FTIR-861 achieves a Signal-to-Noise Ratio (SNR) improvement of over 65% compared to the FTIR-761 model, thereby better meeting practical application requirements for the detection of weak signals.

**3. **Upgraded Spectral Resolution Capabilities****

A high-speed DSP floating-point PID control system for the moving mirror—coupled with low-damping linear guide rails—enables the instrument to achieve spectral resolution superior to that of the FTIR-761 infrared spectrometer.

**4. **Multi-Layer Moisture Protection Design****

Featuring a desiccant cartridge structure with significantly increased capacity, the design substantially reduces the frequency with which the desiccant needs to be replaced.

Furthermore, the interferometer and detector feature a superior moisture-proofing design, effectively shielding the infrared spectrometer's optical and detection systems from interference and corrosion caused by external moisture and harmful gases.

**Specifications**

| | |
|---|---|
| Wavenumber Range | 7800 ~ 350 cm-1 |
| Resolution | Better than 0.75.0cm-1 |
| Signal Noise Ratio | ⩾55000：1 ( resolution 4cm-1; sample and background scan for 1 min 2100cm-1) |
| Detector | High resolution DLATGS detector |
| Beamsplitter | Coated KBr |
| Light Source | Featuring an optimized design utilizing an imported, high-intensity, long-life, air-cooled infrared source, the background energy level has been increased by up to 60% compared to the FTIR-761. This significantly enhances infrared radiation energy in both the low- and high-frequency regions, resulting in a more balanced energy distribution across the entire spectral range (7800–350 $cm^{-1}$). |
| Interferometer | The design of the three-dimensional retroreflector interferometer—integrated with imported precision guide rails to facilitate the movement of the moving retroreflector—effectively eliminates errors caused by mirror tilt and serves to suppress thermal effects. Simultaneously, this design maximizes the instrument's |

0086 16601757347
inquiry@yukelab.com
www.yukelab.com
0086 021 59570209

| | |
|---|---|
| | intrinsic measurement efficiency (repeatability) and precision. |
| Atlas Library | Provides 220,000 standard spectra of the most common inorganic substances, organic substances, and polymers. |
| Moisture-proof design | Featuring six major moisture-proofing designs—including superior moisture protection for the interferometer and detector—the system effectively safeguards the infrared spectrometer's optical and detection systems, thereby shielding them from interference and corrosion caused by external moisture and harmful gases. |
| Application Scenarios | Transmission: Powder Pellets, Liquid Films<br><br>Reflection: ATR (ZnSe/Ge/Diamond) |
| Electromagnetic Interference Immunity | The instrument features a built-in EMC electromagnetic radiation shielding module. |
| Electronic System | A/D converter of 24 bits at 500MHz, USB 2.0 |
| Power | 110-220V AC, 50-60Hz |
| wejght | 14kg |

**Parts included**

| No. | Description | Qty |
|---|---|---|
| 1 | Spectrometer | 1 |
| 2 | Power Supply | 1 |
| 3 | Dust Cover | 1 |
| 4 | USB Cable | 1 |
| 5 | Power Cord | 1 |
| 6 | Screw Driver, 150x6mm | 1 |
| 7 | Allen Wrench, 2.5mm | 1 |



SHANGHAI YUKE INDUSTRY CO. ,LTD
ROOM 1022,SOUTH DISTRICT, No.5616 CAOAN ROAD, ANTING TOWN, JIADING DISTRICT,SHANGHAI

| | | |
|---|---|---|
| 8 | Replacement Desiccant | 1 |
| 9 | Polystyrene Film | 1 |
| 10 | Software CD | 1 |
| 11 | User Manual | 1 copy |

**Optional accessories**

Above are some of the usual accessories, there are more things to meet the further use.

**For the pharmaceutical industry solutions**

Compression method is a traditional method of infrared spectroscopy, only thinner, agate mortar, tablet press and tablet press can be sample preparation, is a simple and easy way.

| Item | Accessories | Description | Mode |
|---|---|---|---|
| 1 | Pressed Powder | Solid powder sample preparation package （These include tablet presses, special molds for tablet pressing, agate grinding utensils and potassium bromide spectroscopic purity） | DF-4B<br>HF-12<br>HW-3-2<br>HF-2B |

A blank sheet made of potassium bromide or potassium chloride was used to record the spectra. The baseline should be about 75% transmittance. Except for 3440cm-1 and 1630cm-1, there was a certain absorption peak due to residual or attached water. The area should not exhibit an absorption band greater than 3% transmittance.

**(1) solid powder compression method - operating procedures**

① the amount of test products: about 1.0 ~ 1.5mg (drying);

② the amount of thinner: about 200 ~ 300mg (drying);

③ grinding process: full grinding (no obvious particles is appropriate);

④ Preparation of the sample: into the tablet mold, even paved, under normal pressure or vacuum production (excluding air and moisture), close the hydraulic valve, pressurized to 8 ~ 10MPa, standing 10-15s, pressed into pieces;

⑤ for the test piece requirements: visual inspection should be uniform and transparent, no obvious particles.

**(2) Note on the tablet method**

① samples and diluent preparation before the need for drying (to prevent the impact of

water);
② samples and potassium bromide to be grinding evenly (to prevent the scattering phenomenon);
③ compression molding after the need to slow decompression (to prevent the film cracks);
④ mold used after the first use of alcohol cotton wipe clean, and then clean, dry soft paper or soft cloth wipe clean (to prevent the mold rust);
⑤ For chlorine-containing samples, the use of potassium chloride tablet for comparison test; if the spectrum is completely consistent with the use of potassium bromide tablet, such as the spectrum is inconsistent, you must use potassium chloride tablet (to prevent ion exchange).

**(3) Membrane method - liquid sample**

Liquid samples such as various types of oil or ethanol qualitative analysis, just a small amount of stainless steel shovel to take a small amount of sample coated with potassium bromide window can be measured.

**Conditions of Use**

Ambient temperature: 16 ℃ ~ 25 ℃;
Humidity range: 20% to 50%;
Power supply: AC100V ~ 240V, 47Hz ~ 63Hz 1.2A, good grounding;



**SHANGHAI YUKE INDUSTRY CO. ,LTD**
ROOM 1022,SOUTH DISTRICT, No.5616 CAOAN ROAD, ANTING TOWN, JIADING DISTRICT,SHANGHAI