

## Laboratory Chemical Biochemical Raman Analyser For Liquid Reaction Process Analysis

Our Product Introduction

for more products please visit us on [spectralanalyser.com](http://spectralanalyser.com)

### Basic Information

- Place of Origin: CHINA
- Brand Name: JINSP
- Certification: CE
- Model Number: RS2000
- Minimum Order Quantity: 1
- Price: Negotiable
- Packaging Details: Customized Packaging
- Delivery Time: 60-80working days
- Payment Terms: TT
- Supply Ability: 20 PCS/70-90 days



### Product Specification

- Laser Wavelength: 785nm
- Wavelength Accuracy: 0.2nm
- Wavelength Stability: 0.01nm
- Connectivity Interface: USB 2.0
- Output Data Format: Spc Standard Spectrum, Prn, Txt And Other Formats Are Optional
- Communication Protocols: Modbus
- Power Supply: 100 ~ 240 VAC 50 ~ 60 Hz
- Operating Temperature: 0 ~ 40
- Highlight: **Biochemical Raman Analyser,  
Liquid Reaction Analysis Raman Analyser,  
Biochemical Raman Analyzer**





### Product Description:

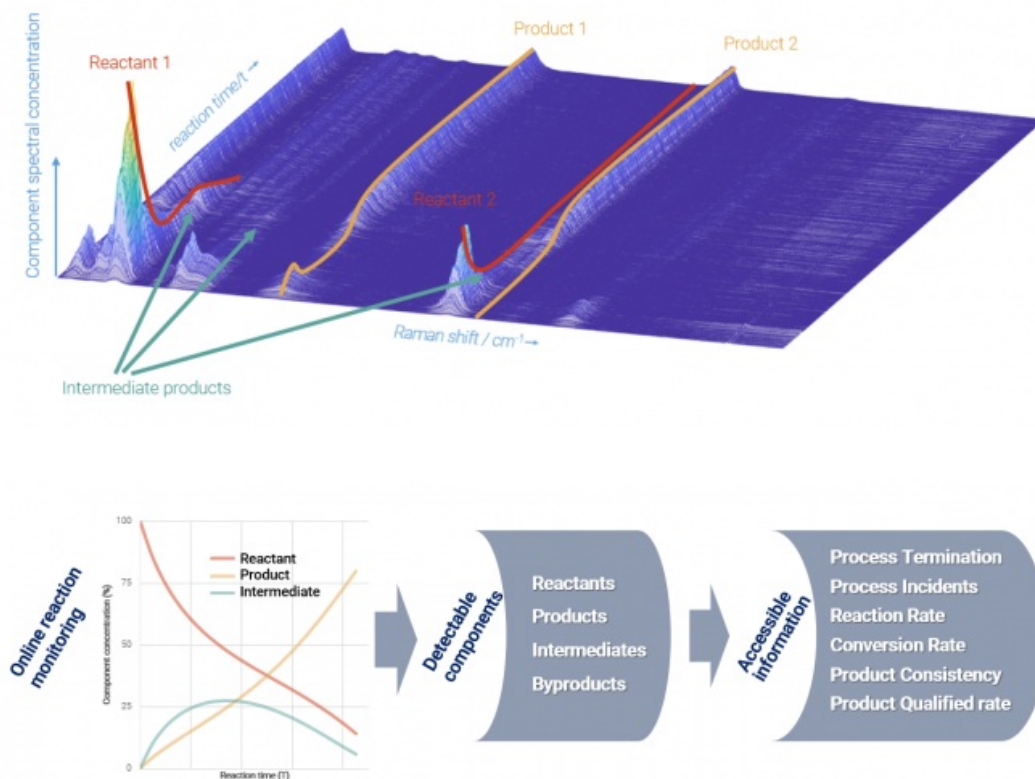
The development and manufacturing processes within the realms of chemistry, pharmaceuticals, and materials science necessitate the precise and quantitative analysis of various components present within the substances being studied. Traditionally, this analytical task has been accomplished through the utilization of offline laboratory analysis techniques. In this conventional approach, samples are meticulously extracted from the production environment and transported to a dedicated laboratory setting. Once there, these samples undergo a rigorous analysis process employing an array of sophisticated instruments. These instruments include, but are not limited to, chromatography systems, mass spectrometers, and nuclear magnetic resonance (NMR) spectroscopy equipment. These analytical tools work in unison to provide comprehensive data regarding the composition and concentration of each individual component within the sample.

However, this traditional method of analysis is not without its drawbacks. The primary limitation lies in the extended duration required for the detection and analysis of the components. This lengthy detection time, coupled with a relatively low sampling frequency, often renders the process inadequate for real-time monitoring purposes. In many industrial applications, the ability to monitor and adjust processes on-the-fly is crucial for maintaining quality control, optimizing production efficiency, and ensuring the safety of both the workforce and the environment. The inherent delays associated with offline laboratory analysis can lead to significant gaps in process monitoring, potentially resulting in suboptimal outcomes and increased risks. Therefore, there is a pressing need for alternative methods that can provide rapid, accurate, and continuous analysis to meet the stringent demands of real-time monitoring in these critical industries.

JINSP provides online monitoring solutions for chemical, pharmaceutical, and material process research and production. It enables in-situ, real-time, continuous, and rapid online monitoring of the content of each component in reactions.

JINSP RS2000 has been used in the field of fine chemicals for reaction mechanism, kinetics, crystal form research, process development and optimization. In particular, it is applicable to dangerous processes such as nitration, chlorination, fluorination, hydrogenation, and diazotization.

RS2000 has also been used in the field of biomedicine, including such biological processes as aseptic biological fermentation, peptide drug synthesis, enzyme catalytic reaction, etc. to control processes accurately.



### Features:

- Working with specially designed Raman probes, can withstand extreme reaction conditions such as strong acid, strong alkali, strong corrosiveness, high temperature, and high pressure.
- Real-time response in seconds, no need to wait, providing analysis results promptly.
- No sampling or sample processing required, in-situ monitoring without interference to the reaction system.
- Continuous monitoring to quickly determine the reaction endpoint and alert for any anomalies.



Can withstand extreme reaction conditions such as strong acid, strong alkali, strong corrosiveness, high temperature, and high pressure



Real-time response in seconds, no need to wait, providing analysis results promptly.



No sampling or sample processing required, in-situ monitoring without interference to the reaction system.



Continuous monitoring to quickly determine the reaction endpoint and alert for any anomalies.

#### Technical Parameters:

Technical Parameter	Value
Product	Online Raman Analyzer
Measurement Type	Raman Spectrometer
Laser wavelength	785nm
Wavelength accuracy	0.2 nm
Wavelength stability	0.01 nm
Sample Type	Liquid
Number of detection channels	1 single channel
Standard Probe	1pc 1.3 m non-immersed fiber optic probe (PR100) and 1pc 5 m immersed probe (PR200-HSGL)
Software functions	1. Online Monitoring: Continuous real-time collection of single-channel signals, providing real-time substance content and trend changes, enabling intelligent analysis of unknown components during the reaction process; 2. Data Analysis: Capable of processing data through smoothing, peak finding, noise reduction, baseline subtraction, difference spectra, etc; 3. Model Establishment: establishes a quantitative model using known content samples and automatically builds a quantitative model based on real-time data collected during the reaction process.
Packing	1pc/package
Packing size	1200x600x450mm



**Applications:****Li-ion battery industry**

Research on the synthesis process of bis(fluorosulfonyl)amide

**Biopharmaceutical industry**

Drug crystal form research and consistency evaluation

Quality Control in Biofermentation Engineering

**Fine chemical industry**

Research on the process of producing furfuryl alcohol by hydrogenation reaction of furfural

Process control of bioenzyme catalytic reactions of nitrile compounds

A certain ultra-low temperature nitrification reaction

Research on o-xylene nitration reaction process

**Eg: Analysis of Chemical Reactions/Biological Processes under extreme conditions**

Under conditions of strong acids, strong alkalis, high temperature, high pressure, strong corrosion, and toxicity, conventional instrument analysis methods may face challenges in sampling or cannot withstand active samples. However, online monitoring optical probes, specially designed to adapt to extreme reaction environments, stand out as the sole solution.

**Typical Users:** Researchers involved in extreme chemical reactions at new material companies, chemical enterprises, and research institutes.

## 1. Analysis of Chemical Reactions/Biological Processes under extreme conditions



Under conditions of strong acids, strong alkalis, high temperature, high pressure, strong corrosion, and toxicity, conventional instrument analysis methods may face challenges in sampling or cannot withstand active

active samples. However, online monitoring optical probes, specially designed to adapt to extreme reaction environments, stand out as the sole solution.

**Typical Users:** Researchers involved in extreme chemical reactions at new material companies, chemical enterprises, and research institutes.

## 2. Research and Analysis on Intermediate Reaction Components/Unstable



Short-lived and unstable reaction intermediates undergo rapid post-sampling changes, making offline detection inadequate for such components. In contrast,



real-time, in-situ monitoring through online analysis has

no impact on the reaction system and can effectively capture changes in intermediates and unstable components.

Typical Users: Experts and scholars from universities and research institutes interested in the study of reaction intermediates.

---

### 3. Time-Critical Research and Development in Chemical/Bio-processes



In research and development with tight timelines, emphasizing time costs in chemical and bioprocess development, online monitoring provides real-time and continuous data results. It promptly

reveals reaction mechanisms, and big data assists R&D personnel in understanding the reaction process, significantly accelerating the development cycle. Traditional offline detection provides limited information with delayed results, leading to lower R&D efficiency.

Typical Users: Process development professionals in pharmaceutical and biopharmaceutical companies; R&D personnel in new materials and chemical industries.

---

### 4. Timely Intervention in Chemical Reactions /Biological Processes with Reaction Anomalies or Endpoints



In chemical reactions and biological processes such as biofermentation and enzyme-catalyzed reactions, the activity of cells and enzymes is susceptible to the influence of relevant components in the system.

Therefore, real-time monitoring of abnormal concentrations of these components and timely intervention are crucial for maintaining efficient reactions. Online monitoring provides



maintaining efficient reactions. Online monitoring provides real-time information about the components, while offline detection, due to delayed results and limited sampling frequency, may miss the intervention time window, leading to reaction anomalies. Typical Users: Research and production personnel in biofermentation companies, pharmaceutical/chemical companies involved in enzyme-catalyzed reactions, and enterprises engaged in the research and synthesis of peptides and protein drugs.

---

## 5. Product quality/Consistency Control in Large-Scale Production

In the large-scale production of chemical and biological processes, ensuring the consistency of product quality requires batch-by-batch or real-time analysis and testing of reaction products. Online monitoring technology, with its advantages of speed and continuity, can automate quality control for 100% of batch products. In contrast, offline detection technology, due to its complex processes and delayed results, often relies on sampling, posing quality risks for products not sampled.

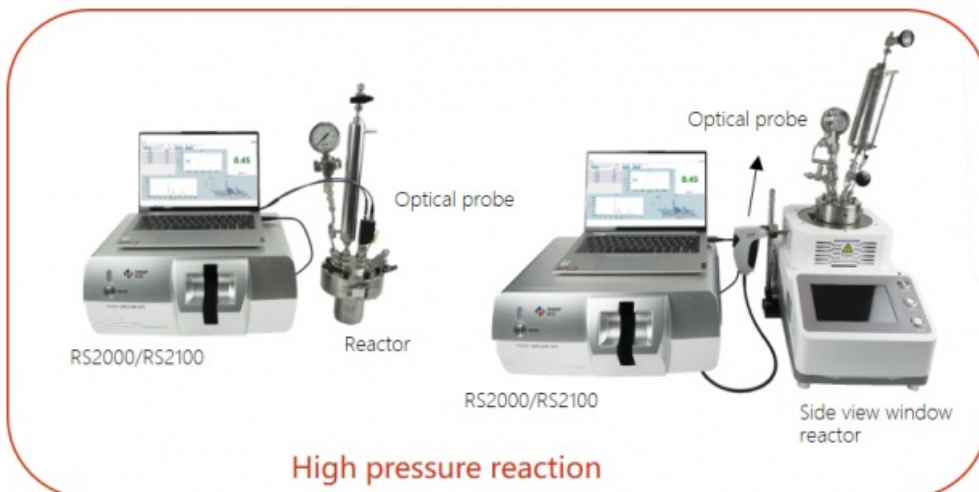
Typical Users: Process production personnel in pharmaceutical and biopharmaceutical companies; production personnel in new materials and chemical companies.

---

### Usage models:

RS2000 has three usage modes in the laboratory, and each mode requires different accessories.

1. The first mode uses an immersed long probe that goes deep down to the liquid level of the reaction system to monitor each reaction component. Depending on the reaction vessel, reaction conditions, and system, different specifications of probes are configured.
2. The second mode involves using a flow cell to connect a bypass probe for online monitoring, which is suitable for reactors like microchannel reactors. Various probes are configured based on the specific reaction vessel and conditions.
3. The third mode utilizes an optical probe directly aligned with the side window of the reaction vessel for reaction monitoring.



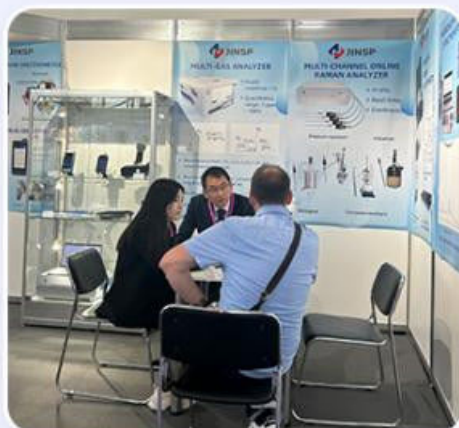
JINSP Company Limited has won the National Science and Technology Commission's Scientific and Technological Achievement Appraisal Certificate and the China Patent Excellence Award, and related products have been obtained has won authoritative awards such as the Geneva International Invention Award, the Beijing New Technology and New Product Certificate, and the "Innovation Achievement Award" of the Zhu Liangyi Analytical Instrument Innovation Award. In addition, JINSP participated in the drafting of several national and international standards, including participating in the drafting of an international standard as the only participating unit in China IEC 63085 International Standard: System of spectral identification of liquids in transparent or semitransparent containers; Drafting of two national standards: GB/T 41086-2021 "General Technical Requirements for Safety Inspection Equipment for Hazardous Chemicals Based on Raman Spectroscopy", GB/T 40219-2021 "General Specification for Raman Spectrometer".



# Company Profile



# Exhibition



# Certifications



FAQ:

Q1: This is the first time I use it, is it easy to operate?

A1: We will send you a manual and guide video in English, it can teach you how to operate the spectrometer. Also, our technicians will offer professional technical operation meetings.

**Q2: Can you offer an operation training?**

A2: Your technicians can come to our factory for training. Jinsp engineers can go to your place for local support ( installation, training, debugging, maintenance ).

**Q3: How to receive the best price in the shortest time?**

A3: When you send us an inquiry, please kindly offer details with wavelength, detector, effective pixels, focal length, and so on. We will send you a quotation with details soon to your email.

**Q4: If the spectrometer has a problem in my place, what could I do?**

A4: The spectrometer has a one-year warranty. If it breaks down, our technician will figure out what the problem maybe, according to the client's feedback. We can repair for free within one year warranty.

**Q5: What about quality assurance?**

A5: We have a quality inspection team. All goods will go through quality inspection before shipment. We can send you pictures for inspection.



JINSP JINSP Company Ltd.



8618620854039



phoebeyu@jinsptech.com



spectralanalyser.com

21st Floor, Building D, Tsinghua Tongfang Science and Technology Plaza, Haidian District, Beijing China