

## High Sensitivity Raman Spectroscopy Machine 785nm With Modbus Communication

Our Product Introduction

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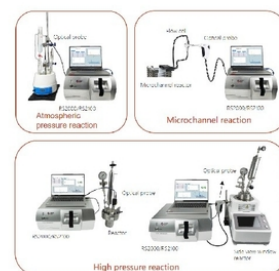
### Basic Information

- Place of Origin: CHINA
- Brand Name: JINSP
- Certification: CE
- Model Number: RS2000T
- 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
- Power Consumption: 50 W
- Detection Accuracy: 0.01%
- Highlight: **High Sensitivity Raman Spectroscopy Machine, Raman Spectroscopy Machine 785nm**



### More Images



## Product Description

### 785nm High Sensitivity Single Channel Laboratory Online Process Raman Spectroscopic Analyzer

JINSP offers comprehensive online monitoring solutions tailored specifically for the chemical, pharmaceutical, and materials processing industries, facilitating research and production activities. These advanced solutions empower users to conduct in-situ, real-time, continuous, and rapid online monitoring of the content of each component within chemical reactions. This ensures precise and efficient control over the reaction processes, enhancing overall productivity and quality.

The JINSP RS2000T, a cutting-edge instrument in JINSP's product line, has been extensively utilized in the realm of fine chemicals. It plays a pivotal role in elucidating reaction mechanisms, studying reaction kinetics, investigating various crystal forms, and optimizing process development. Its applications are particularly noteworthy in the context of hazardous processes, such as nitration, chlorination, fluorination, hydrogenation, and diazotization. These processes often involve highly reactive and potentially dangerous chemicals, making real-time monitoring not just beneficial but essential for safety and efficiency. The RS2000T's ability to provide detailed, immediate feedback on these reactions allows researchers and engineers to make informed decisions quickly, thereby mitigating risks and improving the outcomes of these complex chemical processes.

RS2000T 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.

Chemical/pharmaceutical/materials process development and production requires quantitative analysis of components. Usually, offline laboratory analysis techniques are used, where samples are taken to the laboratory, and instruments such as chromatography, mass spectrometry, and nuclear magnetic resonance spectroscopy are used to give information on the content of each component. The long detection time and low sampling frequency cannot meet many real-time monitoring needs.

#### Advantages:

The advantages of utilizing JINSP's online analytical instrument are manifold and significant, offering a range of benefits that can greatly enhance industrial processes and outcomes. Firstly, this innovative technology is designed to significantly shorten the duration of process development, thereby accelerating the time-to-market for new products. By providing real-time data and insights, it allows for a more efficient and streamlined development process, ensuring that products can be brought to market more quickly than ever before.

Moreover, the implementation of JINSP's online analytical instrument can lead to a substantial enhancement in production efficiency and capacity. By enabling continuous monitoring and analysis of the production process, it allows for the optimization of various parameters, resulting in higher output rates and improved utilization of resources. This not only boosts overall productivity but also ensures that manufacturing processes are running at their peak performance levels.

Another critical benefit is the instrument's ability to enable timely intervention in controlling the reaction process. By providing precise and immediate feedback on the state of ongoing reactions, it allows operators to make informed decisions and adjustments in real-time. This capability is crucial in preventing deviations and ensuring that processes remain within the desired parameters, ultimately leading to more consistent and reliable outcomes.

In addition, the use of JINSP's online analytical instrument can lead to a reduction in product defect rates, thereby minimizing losses associated with substandard products. By continuously monitoring the quality of the output, it allows for the early detection of any issues, enabling corrective actions to be taken before significant quantities of defective products are produced. This not only saves on material costs but also helps maintain the integrity and reputation of the brand.

Furthermore, the instrument is equipped with the capability to provide alarms for abnormal reactions. This feature is essential for ensuring the safety and stability of the production process. By alerting operators to any deviations or anomalies, it allows for prompt responses to potential issues, preventing accidents and minimizing the risk of hazardous situations.

Lastly, the online analytical instrument helps to avoid dangerous on-site sampling. Traditional methods often require personnel to physically collect samples from the production environment, which can expose them to various risks, including chemical hazards and extreme conditions. By eliminating the need for such manual sampling, the instrument not only protects the workforce but also ensures a more consistent and uninterrupted production process.

In summary, JINSP's online analytical instrument offers a comprehensive suite of benefits that can transform industrial processes. From accelerating product development and enhancing production efficiency to ensuring quality control and safety, this technology is a valuable asset for any modern manufacturing operation.

#### 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.
Dimensions	496x312x185mm
Net Weight	≤10 kg
Certifications	CE ISO9001

## 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

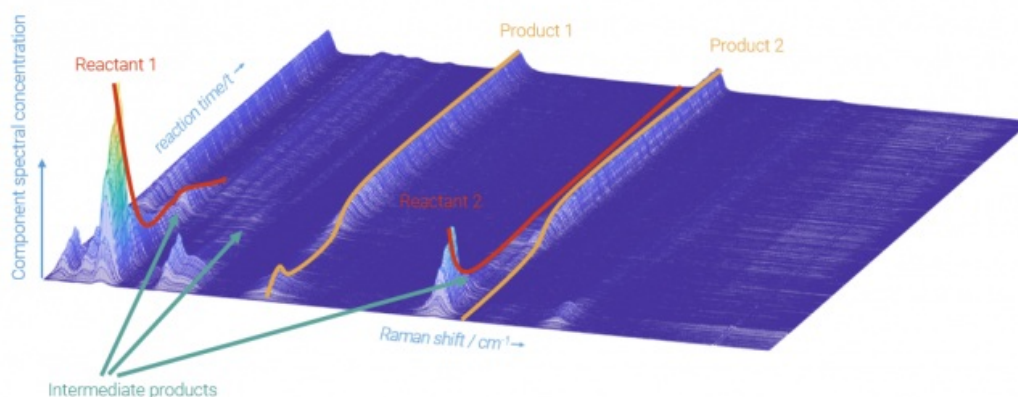
A certain ultra-low temperature nitrification reaction

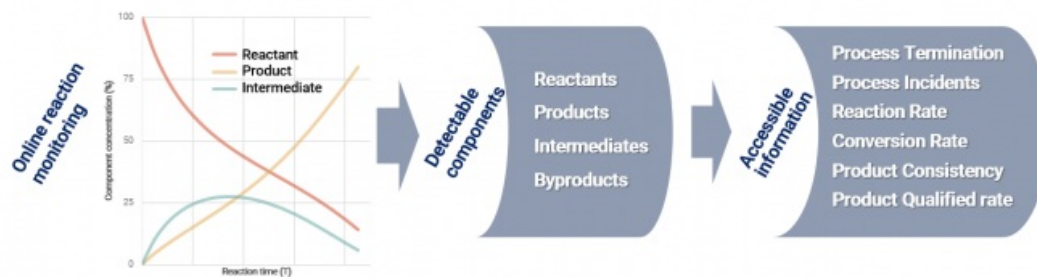
Research on o-xylene nitration reaction process

### Eg: Chemical/Biological Process R&D with Tight Schedules and Emphasis on Time Efficiency

Online monitoring provides real-time continuous data, quickly revealing reaction mechanisms. Big data helps researchers understand the reaction process, significantly accelerating the R&D cycle. Traditional offline detection provides limited information and delayed results, leading to low R&D efficiency.

**Typical users:** Process R&D personnel in pharmaceutical and biopharmaceutical companies; R&D personnel in new materials and chemical companies.







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

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

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

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

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## 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.



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## 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.

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## 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.

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## 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 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.

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## 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.

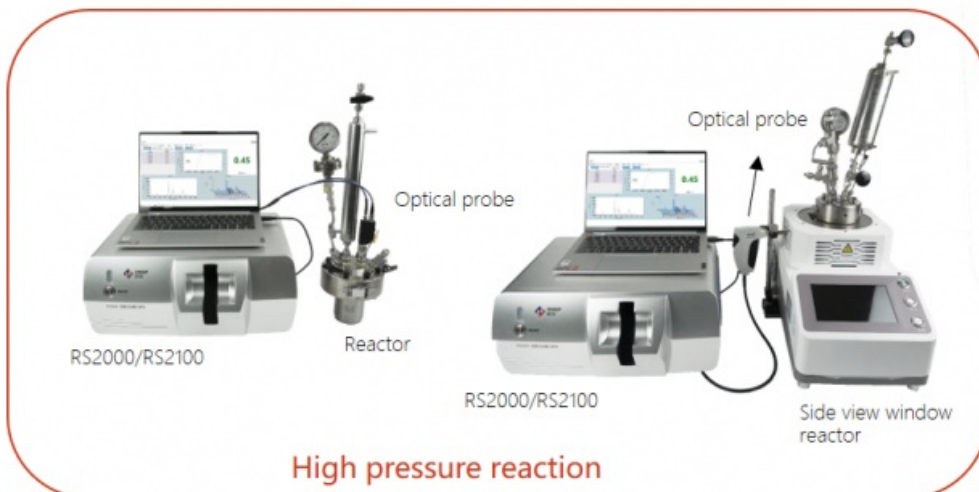
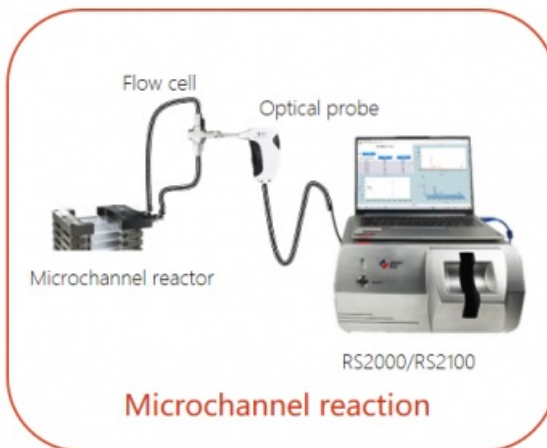
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### Usage models:

RS2000T 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.





## 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.



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