

## 785nm Laser Deep Cooling Raman Analyzer Process Instruments Single Channel

Our Product Introduction

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### 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
- Power Consumption: 50 W
- Detection Accuracy: 0.01%
- Highlight: **raman analyzer process instruments Single Channel**



## Product Description

### 785nm Laboratory Online Process Raman Spectroscopic Analyzer

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.

The JINSP RS2000, 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 RS2000's ability to provide detailed, immediate feedback on these reactions allows researchers and engineers to make informed

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.

#### Advantages:

Fast: Results provided within seconds

In-situ: No sampling required

Universal: Multi-specification detection accessories compatible with different reactors

Intuitive: Real-time display of multi-component trend changes such as raw materials and products.

Intelligent: Supports self-optimizing offline modeling and fully automatic online modeling.

#### 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;<br>2. Data Analysis: Capable of processing data through smoothing, peak finding, noise reduction, baseline subtraction, difference spectra, etc;<br>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   |
| 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

### 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

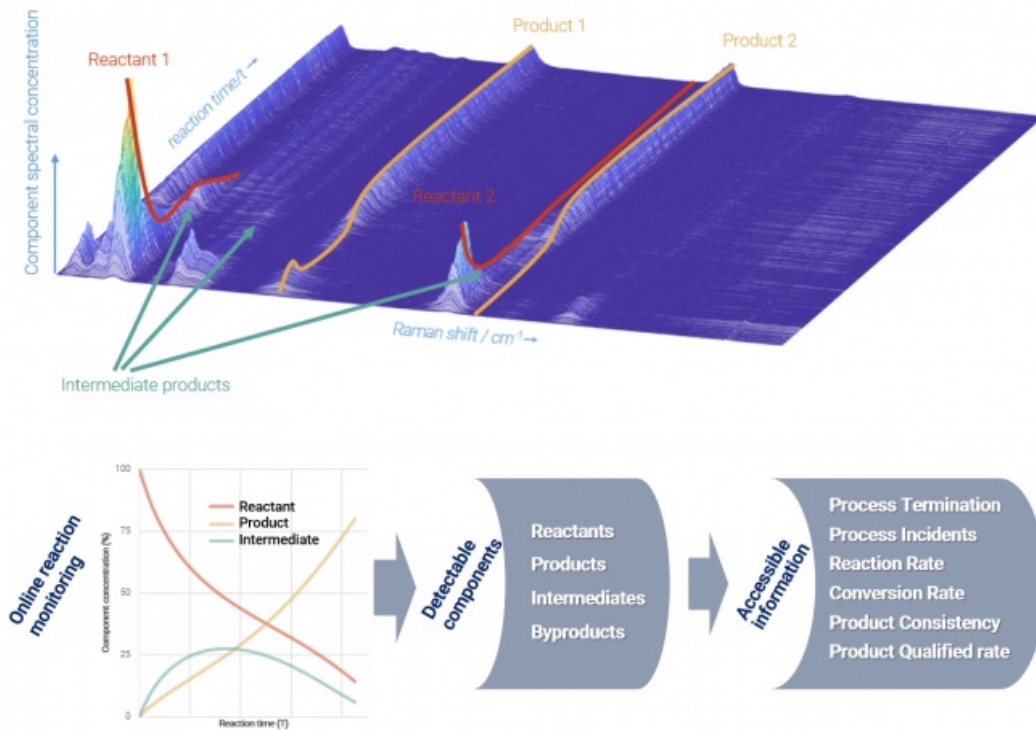
A certain ultra-low temperature nitrification reaction

Research on o-xylene nitration reaction process

### Eg: Analysis and Research of Reaction Intermediates/Unstable Components/Fast Reactions

Short-lived and unstable reaction intermediates undergo rapid changes after sampling, making offline detection ineffective for analyzing such components. However, online monitoring allows in-situ real-time monitoring without affecting the reaction system itself, enabling observation of changes in intermediates and unstable components.

**Typical users:** Experts and scholars in universities and research institutes who are interested in the study of reaction intermediates.





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.



## 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 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.

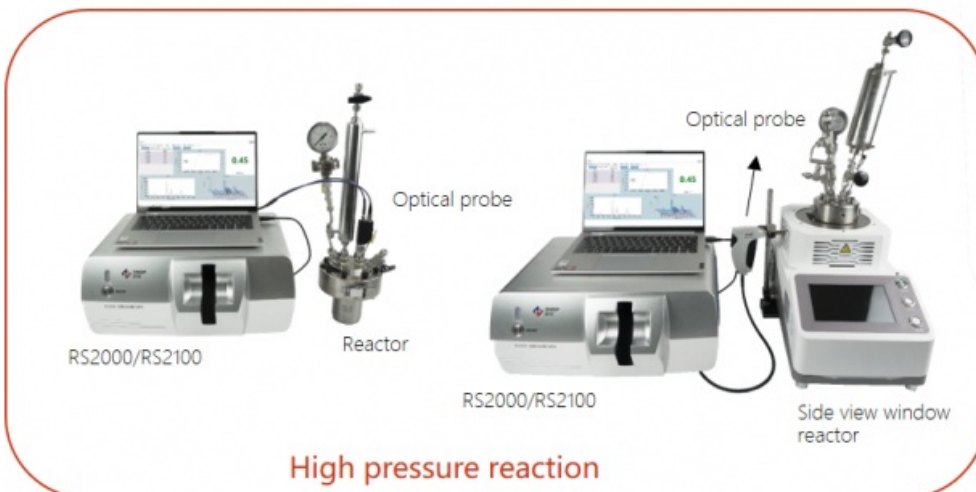
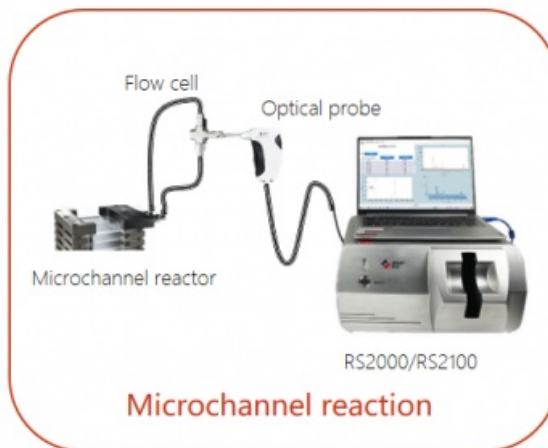
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### Usage models:

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.





#### 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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