

## 4 Channel High Applicability Raman Spectroscopy Machine For Chemical Industry

Our Product Introduction

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### Basic Information

- Place of Origin: CHINA
- Brand Name: JINSP
- Certification: CE ISO9001
- Model Number: RS2100HPAT-4
- Minimum Order Quantity: 1
- Price: Negotiable
- Packaging Details: Customized Packaging
- Delivery Time: 90-120 working days
- Payment Terms: TT
- Supply Ability: 20 PCS/90-120 days



### Product Specification

- Laser Wavelength: 1064nm
- Wavelength Accuracy: 0.2nm
- Wavelength Stability: 0.01nm
- Power Supply: 900W (Max) 500W (Typical Running)
- Number Of Detection Channels: Four-channel Switching Detection
- Explosion Protection Rating (Main Unit): Ex Db Eb Ib Pzc C T4 Gc / Ex Ib Pzc Tb C
- Detection Accuracy: 0.01%
- Operating Temperature: -20 ~ 50
- Highlight: **High Applicability Raman Spectroscopy Machine**  
**, 4 Channel Raman Spectroscopy Machine,**  
**4 Channel raman spectroscopy equipment**



## Product Description

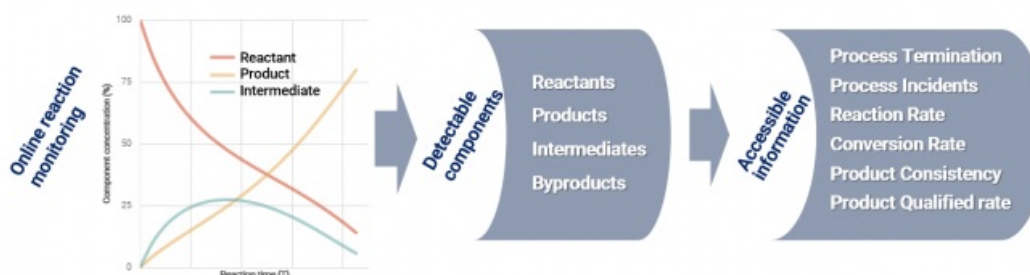
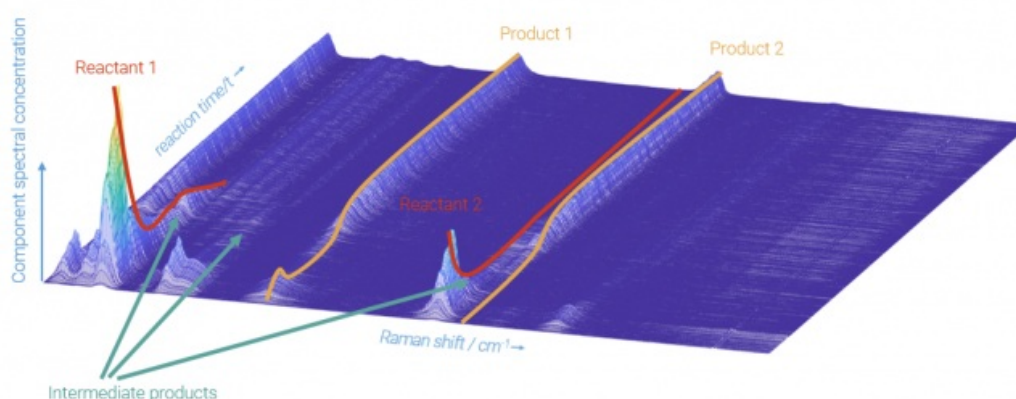
1064nm Laser Four Channel High Applicability High Sensitivity Industrial Process Online Raman Spectroscopy Analyzer

### Product Description:

The production processes in chemical, pharmaceutical, and materials engineering require continuous analysis and monitoring of components. JINSP provides on-site, online monitoring solutions for production, enabling in-situ, real-time, continuous, and rapid online monitoring of the content of various components in reactions. This helps to determine the reaction endpoint and to indicate abnormalities in the reaction.

JINSP® RS2100HPAT-4 online Raman analyzers offer a cutting-edge solution for in situ, real-time, and continuous monitoring and analysis of chemical compositions within various production environments. These advanced analyzers are specifically designed to provide precise and reliable data on the fly, ensuring that operators have up-to-the-minute insights into their chemical processes.

The RS2100HPAT-4 analyzers are particularly well-suited for monitoring hazardous chemical processes that involve critical reactions such as nitration, chlorination, fluorination, hydrogenation, and diazotization. These processes are often challenging due to the high risks involved, and the ability to monitor them in real-time can significantly enhance safety and operational efficiency.



### Technical Highlights:

- **In situ:** This innovative approach eliminates the need for sampling, thereby avoiding any potential contact with hazardous samples that could pose a risk to human health or the environment. By conducting measurements directly at the location of interest, it ensures a higher level of safety and accuracy in the data collected.
- **Real-time results:** The system is designed to deliver instantaneous results, providing data within mere seconds. This rapid response capability ensures that decisions can be made promptly, enhancing overall operational efficiency and minimizing downtime.
- **Continuous monitoring:** The technology enables uninterrupted monitoring throughout the entire process. This ensures that any changes or anomalies are detected immediately, allowing for real-time adjustments and interventions, thereby maintaining optimal conditions and preventing potential issues.
- **Intelligent:** The system is equipped with advanced analytical capabilities that automatically provide detailed results. By leveraging cutting-edge algorithms and machine learning techniques, it interprets complex data and presents it in an easily understandable format, reducing the need for manual analysis and human error.
- **Internet connectivity:** The device is connected to the internet, ensuring that the results are communicated to the central control system in a timely manner. This feature enables remote monitoring and management, allowing for quick

dissemination of information and coordinated responses across different locations, ultimately improving the overall efficiency and effectiveness of the operation.



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	1064nm
Sample Type	Liquid
Number of detection channels	Four-channel switching detection
Chamber dimension	600 mm(width)× 400 mm(depth)× 900 mm(height)
Device dimension	900 mm(width)× 400 mm(depth)× 1300 mm(height)
Explosion Protection Rating (Main Unit)	Ex db eb ib pzc C T4 Gc / Ex ib pzc tb C T130°C Dc
Operating temperature	-20 ~ +50
Thermostat	Three-level temperature control system design can operate stably for a long time in an environment of -20 ~ 50 , and is suitable for online monitoring environments in different factories
Connectivity	RS485 and RJ45 network ports provide Mod Bus protocol, can be adapted to many types of industrial control systems, and can feedback results to the control system.

Probe	One standard 5 m non-immersed fiber optic probe (PR100)
% Relative humidity	0~90%RH
Power supply	900 W (Max) 500 W (Typical running)
Pre-heating time	60 min

## Applications:

### Li-ion battery industry

Research on the synthesis process of bis(fluoro sulfonyl)amide

### Biopharmaceutical industry

Quality Control in Biofermentation Engineering

### Fine chemical industry

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

### For example: Product quality/Consistency Control in Large-Scale Production

In the large-scale production of chemical/biochemical processes, ensuring the consistency of product quality requires batch-by-batch or real-time analysis and testing of reaction products. Online monitoring technology can automatically check the quality control of 100% of batches due to its speed and continuity advantages. In contrast, offline detection techniques, frequently depend on sampling inspections, which expose non-sampled products to potential quality risks as a consequence of their intricate procedures and delayed outcomes.

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



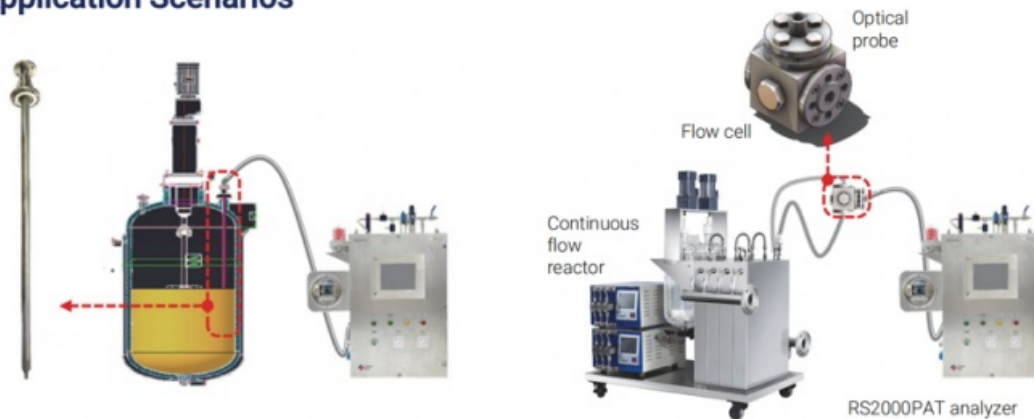
## Usage models:

The RS2100HPAT-4, a versatile instrument designed for extensive use in industrial settings, offers two distinct methods for integration into large-scale production processes. The first method involves the utilization of an industrial immersion long probe, which is specifically engineered to plunge deep beneath the liquid surface of the reaction system. This probe is adept at penetrating the depths to monitor and analyze the various reaction components in real-time. This approach is particularly well-suited for applications within kettle-type batch reactors, where the ability to reach deep into the reaction mixture is crucial for accurate monitoring and control of the chemical processes taking place.

The second method of employing the RS2100HPAT-4 involves the use of a flow cell, which allows for the bypass connection of a probe for online monitoring. This setup is ideal for continuous flow reactors and other types of reaction vessels where the flow of materials is ongoing. By integrating the flow cell into the system, the instrument can provide continuous, real-time data on the reaction components as the materials flow through the reactor. This method ensures that any changes or adjustments needed during the reaction process can be made promptly, optimizing the efficiency and outcome of the chemical reactions.

Both methods of using the RS2100HPAT-4 cater to different types of reactors and production needs, making it a flexible and indispensable tool for industries that require precise monitoring and control over their chemical processes. Whether it's for batch or continuous flow systems, this instrument is equipped to deliver reliable and accurate data, ensuring that production goals are met with the highest standards of quality and efficiency.

## Application Scenarios



### 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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