

Measurement of Sugar and Moisture in Fruits by 900nm - 2500nm Near-Infrared Spectrometer

Our Product Introduction

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Basic Information

- Place of Origin: CHINA
- Brand Name: JINSP
- Certification: ISO9001
- Model Number: SR100N17 SR100N25
- Minimum Order Quantity: 1
- Price: Negotiable
- Packaging Details: International Shipping Package
- Delivery Time: 30-40 working days
- Payment Terms: T/T, Western Union
- Supply Ability: 200PCS/30-40 working days



Product Specification

- Measurement Range: 900nm~2500nm
- Wavelength Repeatability: ± 0.05 Nm
- Type: Refrigerated Linear Array InGaAs
- Sensing Area: 12.8mm*0.5mm
- Entrance Slit Width: 5 μ m, 10 μ m, 25 μ m, 50 μ m (customizable)
- Incident Light Interface: SMA905 Fiber Interface, Free Space



More Images



Product Description

Measurement of Sugar and Moisture in Fruits by Near-Infrared Spectrometers

Near-infrared spectroscopy technology, as a rapid and non-destructive detection method, has been widely applied in the quality inspection of fruits. This technology, by measuring the spectral characteristics of fruits in the near-infrared light region, can achieve rapid and non-destructive detection of various components inside fruits (such as sugars, acidity, moisture, etc.), providing a scientific basis for the quality assessment, grading, storage and processing of fruits.

JINSP SR100N17 and SR100N25 near-infrared refrigerated spectrometers are versatile instruments with applications spanning a broad wavelength range of 0.9 to 1.7 μ m or 0.9 to 2.5 μ m, respectively. These spectrometers are equipped with integrated light filters that effectively screen out visible light and remove high-order modes. Additionally, they feature acooled 512-pixels area array InGaAs sensor, ensuring high resolution and minimal stray of light. These spectrometers are suitable for detecting near-infrared spectra through transmission, reflection, or absorption methods.

Technical Specifications:

	Performance Indicators	SR100N17	SR100N25
Detector	Type	Refrigerated linear array InGaAs	
	Effective Pixel	512	
	Pixel Size	25 μ m*500 μ m	
	Sensing Area	12.8mm*0.5mm	
Optical Parameters	Wavelength Range	900-1700nm	900-2500nm
	Optical Resolution	3.1nm(@25 μ m)	6.3nm(@25 μ m)
	Optical Design	F/4 cross-type	
	Numerical Aperture	0.14	
	Focal Length	100mm	
	Entrance Slit Width	5 μ m ,10 μ m ,25 μ m ,50 μ m (customizable)	
	Incident Light Interface	SMA905 fiber interface, free space	
Electrical Parameters	Integration Time	1ms-12s	1ms-200ms
	Data Output Interface	USB2.0, UART	
	ADC Bit Depth	16-bit	
	Power Supply	DC4.9 to 5.1V(type @5V)	
	Operating Current	3A	
	Operating Temperature	10°C~40°C	
	Storage Temperature	-20°C~60°C	
	Operating Humidity	90%RH (no condensation)	
Physical Parameters	Dimensions	178mm*123mm*49mm	
	Weight	1.2kg	

Measurement Principle:

The NIR band covers the range of 780nm to 2500nm, and the light absorption phenomenon triggers the vibrational response of molecules. These molecular vibrations then generate spectral data, and the specific characteristics of the spectra are closely related to the chemical composition of the sample. In the NIR spectral analysis of agricultural product samples, relatively broad peaks can often be observed, which is attributed to the frequency doubling and combined vibration effects produced by the organic functional groups (such as chemical bonds like C-H, O-H, N-H, etc.) that are commonly present in the samples during vibration. Therefore, NIR spectroscopy can not only reflect the chemical characteristics of the sample, but also reveal the existence information of multiple components, providing strong technical support for the quality analysis of agricultural products.

Measurement Method:

Near-infrared reflection detection method: It is suitable for detecting information on the surface of fruit peels, such as color and luster, but not for internal quality detection.

Near-infrared transmission detection method: Theoretically, it is applicable to transparent or semi-transparent samples and cannot penetrate fruits. It is less used in practical applications.

Near-infrared diffuse reflection detection method: It is a measurement method between reflection and transmission, suitable for opaque, solid and semi-solid samples. The obtained spectral information can reflect the characteristics of the internal structure of fruits and is widely used in the detection of internal qualities of fruits (such as sugar content, acidity, etc.).

Applications:

Quality assessment: Predict quality parameters such as firmness, sweetness, and acidity of fruits.

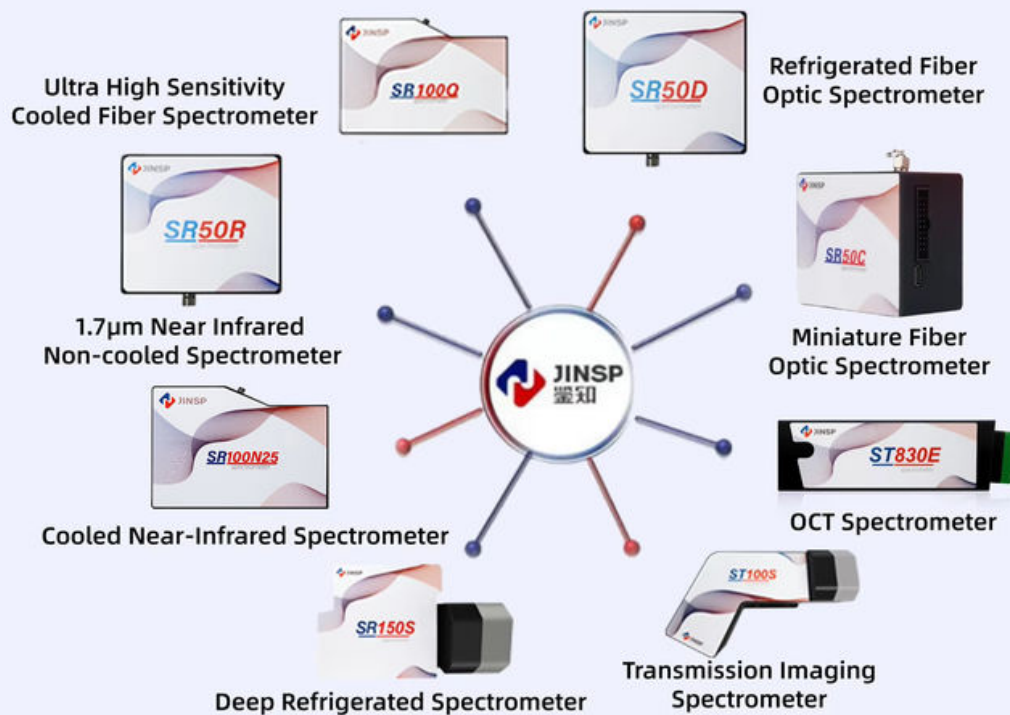
Classification and identification: Distinguish and identify the types of different fruits.

Functional fruit evaluation and screening: It can be used to evaluate and screen functional fruits rich in special components.

Disease monitoring: It can quickly diagnose diseases such as citrus Huanglongbing and provide early warnings for disease prevention and control.



Spectrometer Series



Company Profile and Exhibition:

JINSP Company Limited originates from Tsinghua University and has 17 years of experience in developing spectroscopic technology. As a leading supplier of spectroscopic technology, JINSP Technology offers over twenty spectroscopic products across various fields, including pharmaceutical and chemical industries, public security, customs, and fiber optic spectrometers. Our products are available nationwide and are exported to over 30 countries, with cumulative sales exceeding 3,000 units.

Our products mostly include:

- UV VIS NIR fiber optic spectrometers;
- Desktop/portable, online Raman analyzers for laboratory or industrial liquid & gas analysis;
- On-site rapid detectors/identifiers based on Raman technology for drugs, liquid, food safety, explosive & hazardous materials, pharmaceutical industry etc;

Company Profile



Exhibition



Certifications



FAQ

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

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

Q: Can you offer an operation training?

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

Q: What's your website?

A: You can visit: www.jinsptech.com

Q: What about your quality assurance?

A: 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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