NIR Spectroscopy for Transmission Reflection and Absorption Methods in Fruit Analysis with JINSP Near-Infrared Spectrometers

Our Product Introduction

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: 5μm,10μm,25μm,50μm (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 (NIR) spectroscopy offers a fast, non-invasive solution for fruit quality analysis. By capturing spectral data in the NIR range, it enables real-time measurement of internal attributes like sugar content, acidity, and moisture. This technology supports efficient fruit grading, storage, and processing with high accuracy.

JINSP SR100N17 and SR100N25 near-infrared refrigerated spectrometers are versatile instruments with applications spanning a broad wavelength range of 0.9 to 1.7μm or 0.9 to 2.5μm, 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	25μm*500μm	
	Sensing Area	12.8mm*0.5mm	
Optical Parameters	Wavelength Range	900-1700nm	900-2500nm
	Optical Resolution	3.1nm(@25μm)	6.3nm(@25μm)
	Optical Design	F/4 cross-type	
	Numerical Aperture	0.14	
	Focal Length	100mm	
	Entrance Slit Width	5μm ,10μm ,25μm ,50μm (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:

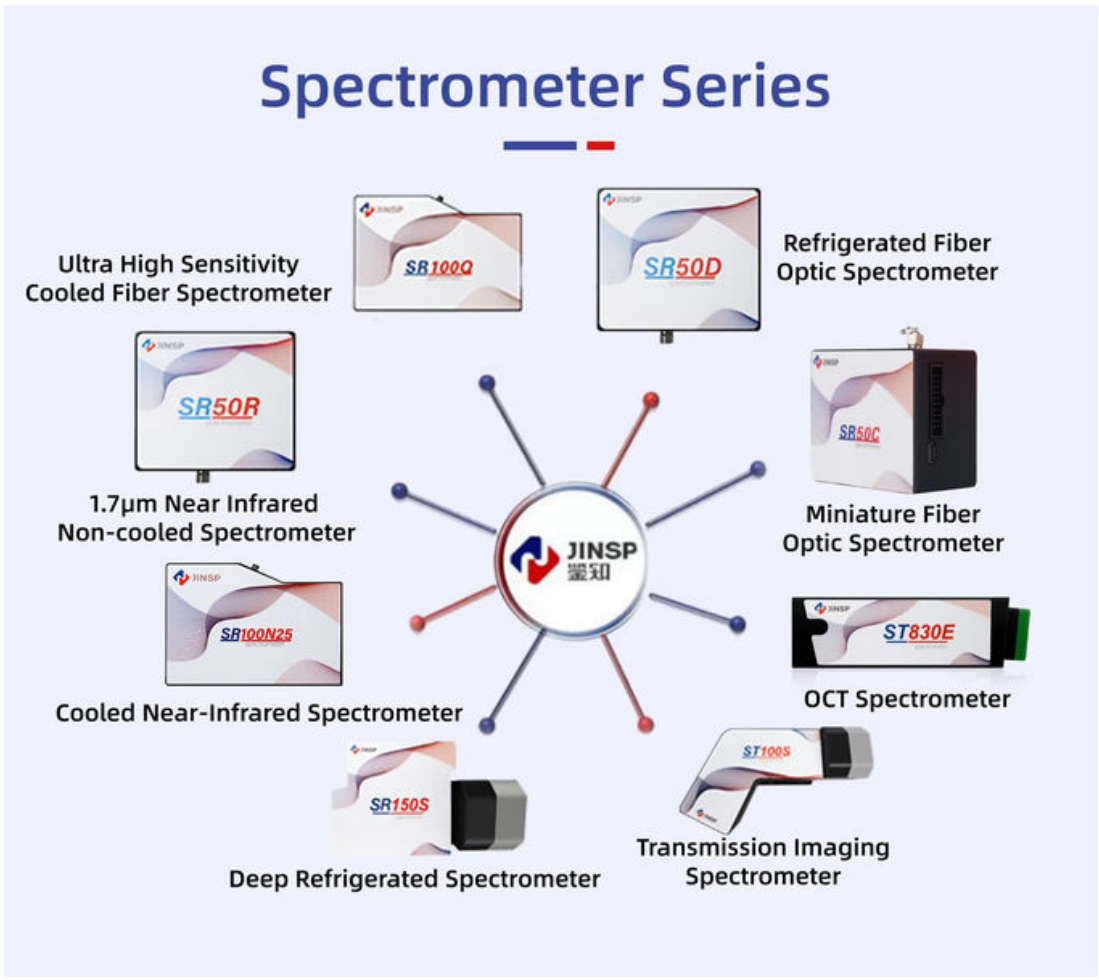
NIR spectroscopy operates within the 780-2500nm range, where molecular vibrations induced by light absorption produce distinct spectral patterns. These patterns, characterized by broad peaks due to overtone and combination bands of functional groups (e.g., C-H, O-H), enable simultaneous detection of multiple components in agricultural samples, supporting comprehensive quality assessment.

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.



Company Profile and Exhibition:

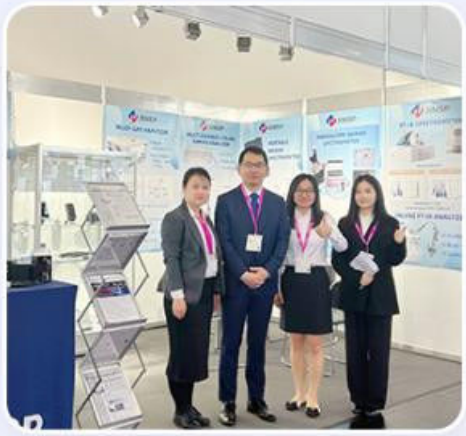
JINSP Company Limited originates from Tsinghua University and has 17 years of experience in developing spectroscopic technology.As a leading supplier of spectroscopic technology, JINSP Technology offers over twenty spectroscopic products across various fields, including pharmaceutical and chemical industries, 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 indutrial 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 vedio in English,it can teach you how to operate the spectrometer.Also our technicians will offer professional tecnical opearation meetings.
Q: Can your offer a operation traning?
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.

JINSP Company Ltd.

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