

Micro NIR Spectrometer

IR2110

Features

- High integration
- Real-time analysis
- IP65/67
- Rich software features
- Easy installation and maintenance, cost-effective

Application

Pharmaceutical

- Granulation
- Fluidized Bed Drying
- Content Uniformity

Food and Feed Manufacturing

- Fat
- Moisture Content
- Protein
- Fiber

Industrial Processing

- Polymers
- Reaction Monitoring
- Petrochemicals

Description

The IR2110, developed by Optosky, is a cutting-edge Micro NIR Spectrometer that excels in near-infrared spectroscopy analysis. This compact and robust device employs indium gallium arsenide (InGaAs) diode array technology for immersion sampling, enabling real-time and accurate detection of spectral information from reaction vessels. Its integration capability with factory systems enhances operational efficiency.

The Micro NIR Spectrometer is known for its exceptional analytical accuracy, speed, and user-friendly design. It finds diverse applications across various industries, including food safety, where it can quantitatively assess fat, moisture, protein, and fiber content. Additionally, it is invaluable in pharmaceuticals and chemicals for evaluating uniformity and polymer properties. As industry trends move towards real-time analysis and quality control, the Micro NIR Spectrometer is



1. Parameter

Parameter	Specification
Light Source	Dual integrated vacuum tungsten lamp
Light Source Lifespan	> 40,000 hours
Illumination Geometry	Flood lighting / 0-degree observation
Aperture	2.5 × 3.0 mm
Sampling Distance	0-15 mm from the window
Spectral Element	Linear variable filter (LVF)
Detector	128-element InGaAs diode array
Pixel Size / Pitch	30 μm × 250 μm / 50 μm
Wavelength Range	950-1650 nm
Pixel Spacing	6.2 nm (within 950-1650 nm range)
Spectral Bandwidth (FWHM)	< 1.25% of center wavelength (1% typical)
Resolution at 1000 nm	< 12.5 nm
ADC	16-bit
Dynamic Range	1000:1
Measurement Time (typical)	0.25-0.5 seconds
Sampling Integration Time	Min 10 μs; max limited by dark signal
Host Interface	USB 2.0
Weight	318 g (368 g with window)
Dimensions	945 × 69 mm
Power Supply	USB powered (< 500 mA @ 5V)
Data Formats	TXT, CSV, SPC
Operating System	Windows 10/11
Operating Environment	0-40°C (non-condensing)
Enclosure Material	Stainless steel / aluminum alloy, IP67 rated

2. Working principle

In the near-infrared spectral region, the absorption of near-infrared light occurs due to the stretching vibrations of high-energy hydrogen-containing groups, such as N-H, O-H, and C-H, present in the organic matter of the tested substance. This principle can be utilized for quantitative analysis of the corresponding substances. The instrument directs light emitted from the source onto the sample, and the diffusely reflected light from the sample is collected and measured by the detector.

3. System composition



The instrument has been designed with high operational flexibility to adapt to a variety of new detection conditions, allowing it to be integrated on a variety of different flange bases.