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Flame-NIR+ Spectrometer



Compact, High-sensitivity NIR Spectrometer

The Flame-NIR+ combines a compact, high-performance optical bench with an uncooled InGaAs array detector for spectral response from 970-1700 nm. The Flame-NIR+ has better sensitivity and a wider spectral range than comparable spectrometers. This allows users to detect weaker levels of NIR light at lower limits of detection and with shorter integration times.



At a Glance

Wavelength range: 970-1700 nm

Resolution: ~10.0 nm (FWHM, 25 μ m slit)

SNR: 6000:1 (single acquisition)

Dynamic range: 6000:1 (single acquisition)

Thermal stability: 0.08 nm/ $^{\circ}$ C
(over 670 nm range)

Scan rate (maximum): ~400 Hz*

Power: 5V USB

Size: 89.1 mm x 63.3 mm x 31.9 mm

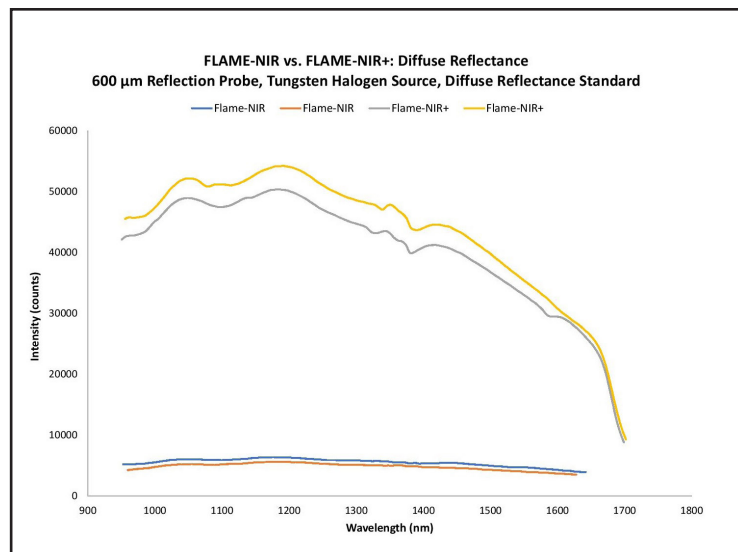
Weight: 265 g

*When used with a standard, non-real time computer OS.



Versatile, Affordable NIR for Food, Pharma and More

Flame-NIR+ offers enhanced sensitivity from 970-1700 nm, and is ideal for identifying and characterizing various samples.



Raw reflectance spectra of PTFE show increased sensitivity with Flame-NIR+.

Food & Agriculture	<ul style="list-style-type: none"> Freshness and sweetness of fruits and vegetables Fat and protein content of meat Quality parameters of seeds and grains
Life Sciences & Pharmaceuticals	<ul style="list-style-type: none"> Identification of pharmaceutical ingredients Portable diagnostics for blood glucose and blood flow
Chemical & Commodity Manufacturing	<ul style="list-style-type: none"> Chemometric modeling for QC in hydrocarbons extraction and processing Identification of various types and colors of plastics in recycling

Flame-NIR+ Features and Benefits

Features	Benefits
Small yet rugged design	Its small size – just 89.1 mm x 63.3 mm x 31.9 mm – makes Flame-NIR+ ideal for integrating into portable and handheld systems. With no moving parts, the spectrometer holds up well in demanding environments.
High sensitivity	Flame-NIR+ has up to 6x increased sensitivity compared with earlier models, offering lower limits of detection and allowing for shorter integration times.
Low unit to unit variability	Precision alignment and assembly techniques have reduced unit to unit variance in almost every aspect, including uncalibrated sensitivity.
Low power	Drawing <250 mA at 5V, Flame-NIR+ can be powered almost anywhere –and integrated into other devices and industrial process control environments.



Flame High-Performance Spectrometer



High Thermal Stability and Great Repeatability in a Robust Package

Flame is assembled using precision manufacturing techniques that help deliver high thermal stability and low unit to unit variation — without compromising the versatility of Ocean Insight modular spectrometers. Features such as interchangeable slits, indicator LEDs and simple device connectors deliver more freedom and less frustration with setups. Flame is available in custom and preconfigured versions for applications across the UV-Visible and Vis-NIR, as well as for irradiance measurements and chemistry-lab use.



At a Glance

Range: 190-1100 nm

Resolution: From 0.1 nm (FWHM)

SNR: 250:1 (single acquisition)

Dynamic range: 1300:1 (single acquisition)

Thermal stability: 0.02 nm/° C (650 nm range), 0.06 pixels/° C

Integration time: 1 ms – 65 s

Power: 5V USB

Size: 88.9 x 63.5 x 31.9 mm

(34.4 mm with feet);

3.5 x 2.5 x 1.26" (1.35" with feet)

Weight: 265 g (0.58 lb.)

Scan rate (maximum): ~400 Hz*

**When used with a standard, non-real time computer OS.*

Sensing Solutions for a Safer, Cleaner, Healthier World

We know it can be a challenge to get a spectroscopic measurement right the very first time. It's why you can configure the Flame for your specific application needs, with user-interchangeable slits to adjust for different requirements. It's also why we make our spectrometers available with the industry's most extensive range of modular light sources, fiber optics and sampling accessories for use within or outside of the lab. Small, rugged and easy to integrate, the Flame spectrometer is the ideal choice for researchers and business customers who are leveraging the power of light to build a safer, cleaner, healthier world.

The Applications That Matter, the Features You Need

FEATURE	BEST FOR	EXAMPLE APPS
User Interchangeable Slits	Users who wish to vary resolution and throughput during measurements, or switch from absorbance to fluorescence in minutes	Life science and other labs using a wide variety of biological samples
Indicator LEDs	Convenient visual reference for spectrometer operation and status	Teaching and general lab use
Thermal Stability	Applications that require repeatable results in industrial and other environments with varying temperatures and conditions	LED binning and light metrology, process monitoring
Reduced Unit to Unit Variation	OEM applications and other measurement needs where users benefit from low variance	Manufacturers of analytical instrumentation
Configurability	Optimizing your spectrometer for application-specific requirements; adjusting range, throughput and resolution and adding features such as filters as required	Laser characterization, low signal fluorescence and optimizing for specific absorbance bands
Plug & Play Operation	Users that want the convenience of simple, fast operation via the micro USB connection; lets users take the measurement to the sample	Remote sensing measurements in the field, including air and water quality monitoring and solar irradiance
Ease of Integration	OEMs and developers who need to integrate a spectrometer as part of a system via USB or RS-232	Engineering labs, developers, OEM manufacturers; works with LabVIEW and other design platforms