NeoSpectra Puck – NIR Spectrometer

The NeoSpectra Puck is a plug and play, compact and portable Near-InfraRed (NIR) spectrometer. The NeoSpectra Puck allows researchers, application developers, and others to quickly apply NeoSpectra spectroscopy solutions to an array of target applications. It enables homogenous material identification, qualification, and quantification at the point of need. The system operates by measuring the spectral response of the light absorbed by the material of interest in the 1,350 – 2,550 nm spectral range. The system interfaces with a computer running Spectro MOST software or can be operated via software SDK and is designed for applications where reflectance or transflectance measurements are suitable. The NeoSpectra Puck core technology is based on semiconductor Micro Electromechanical Systems (MEMS) microfabrication techniques promising unprecedented economies of scale, robustness, and consistency between sensors. With its unique features of size, cost, and scalability it can enable new usage models for different application areas.

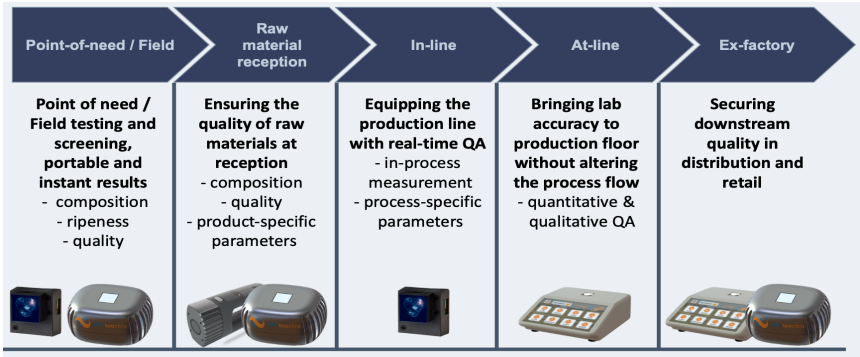
Features

- Smallest FT-IR spectrometer solution
- Built-in illumination for reflectance or transflectance sampling
- Connection to PC for viewing and saving spectra
- Wide spectral ranges in the extended NIR (λ: 1,350 – 2,550 nm) enables wider range of applications
- Low power consumption (PC powered)
- Easy to use and operate
- Software for collecting & viewing spectra as well as software SDK for lab automation

Sample Applications

The NeoSpectra Puck enable the creation of instant, accurate and cost-effective material analysis solutions for a variety of homogeneous solid or liquid samples in different application areas including:

- Food analysis: Milk composition and adulteration, flour analysis
- Agriculture: Processed feed analysis
- Pharmaceutical: Classification and quantification of raw ingredients
- Polymers: Plastic sorting, thin film analysis
- Fabrics: Classification of textiles, fabric treatment
- Other R&D applications



Specifications

Parameter	Conditions	Value
Wavelength Range	PSD[1]> max PSD/10	1,350 - 2,550 nm
Resolution	At λ=1,550 nm, FWHM criterion	16 nm
		66.6 cm^{-1}
Typical SNR[2] (rms)	2 s Scan time, @λ = 2,350 nm,	2,000:1
Temperature	Operation	23 : 104 ºF (-5 : 40 ºC)
Wavelength Accuracy	@λ = 1,400 nm; temperature < 40ºC	± 1.5 nm
Wavelength Repeatability	@λ = 1,400 nm; absorbance level = 0.5 A.U., Resolution: 16 nm	± 0.15 nm
Dimensions		4 x 3.2 x 1.8 inch (10 x 8 x 4.5 cm)
Weight		1.2 lbs (550 g)
Power	3A (USB-C to A) included	USB-C connector
Connectivity	USB-C to A included	USB-C connector
Bulb lifetime	(Continuous operation)	> 10,000 hrs
Diameter of collected light beam		0.1 inch (2.5-3 mm)

[1] PSD: Power Spectral Density – Single beam spectrum
[2] SNR is calculated from the root mean square noise (Nrms) , which is the standard deviation of 100 consecutive 100% lines at each wavelength. $SNR=1Nrms$

Software Specifications

USB to Windows PC & SpectroMOST® software. Cloud connectivity with NeoSpectra Platform.

Connectivity

Bluetooth, WiFi, USB C