

Spectrometer Scanner



AI Overview

Scanning spectrometers measure wavelength-dependent properties by sequentially analyzing light across a spectral range, often using movable optical components. Overview of Scanning Spectrometers A scanning spectrometer is an instrument designed to measure the spectral properties of light or materials by sequentially scanning through wavelengths rather than capturing all wavelengths simultaneously. This is typically achieved using a diffraction grating or prism that disperses light, combined with a movable element such as a rotating grating or MEMS scanning mirror to select specific wavelengths for detection. The detected signal is then recorded as a function of wavelength, producing a spectrum. Types and Configurations UV-Vis Scanning Spectrophotometers: These instruments illuminate a sample with quasi-monochromatic light and measure transmittance, absorbance, or reflectance as the wavelength is scanned. They are widely used in chemistry and biology for analyzing solutions or solid samples. Scanning Mirror Micro Spectrometers (SMMS): Compact devices using MEMS mirrors to scan light across a diffraction grating, suitable for near-infrared (NIR) applications up to 2500 nm. These are designed for field applications, offering a cost-effective alternative to bench-top instruments. Czerny-Turner Scanning Spectrometers: A common optical design where light is collimated, diffracted, and then scanned across a detector using a movable mirror or grating, providing high spectral resolution. Advantages and Considerations High Spectral Resolution: Scanning spectrometers can achieve very fine wavelength discrimination, especially when combined with narrow-linewidth lasers. Flexibility: They can cover a wide spectral range by adjusting the scanning mechanism, unlike fixed-array detectors that are limited to a specific range. Compact and Modular Designs: Modern MEMS-based scanning spectrometers are small, portable, and suitable for in-field measurements. Trade-offs: Scanning requires seq...

Article Content

Spectrophotometers – scanning, single-beam, dual

How does a scanning spectrophotometer work? A scanning spectrophotometer illuminates a sample with quasi-monochromatic light of a variable wavelength,

Imaging spectrometer

Example imaging spectrometer types include: filtered camera, whiskbroom scanner, pushbroom scanner, integral field spectrograph (or related dimensional reformatting techniques), wedge imaging

SIW – NeoSpectra-Scanner – MountainPhotonics

Da der NeoSpectra-Scanner einen sehr breiten NIR-Spektralbereich von 1.350 nm – 2.500 nm abdeckt, wird eine sehr gute Analyse des Messguts gewährleistet. Der

Raman spectrometers

Our portfolio of Raman spectroscopy instrumentation includes handheld Raman spectrometers for in-field use, benchtop Raman spectrometers for

Spectrometer

Spectrometer An XPS spectrometer A spectrometer (/ spɛk'trɒmɪtər /) is a scientific instrument used to separate and measure spectral components of a physical phenomenon. Spectrometer is a broad

Imaging spectrometer

Imaging spectrometers are used specifically for the purpose of measuring the spectral content of light and electromagnetic light. The spectral data gathered is used to give the operator insight into the

Portable & Handheld Spectrophotometers | Learn More

A portable spectrophotometer is a valuable tool for capturing color data on a variety of surfaces on a printing press, in a lab, on a loading dock, or anywhere else

Spectrometers – scanning, spectrographs,

A scanning spectrometer often uses a single photodetector and measures different wavelengths sequentially by scanning a dispersive element or a slit. A

UV-VIS-NIR Scanning Spectrometer

Scanning spectrometer can rapidly scan a range of wavelengths and record light intensity at each wavelength. Input and output ports of the spectrometer are fitted with precise micrometer controlled

MIR8035 FT-IR Spectrometer Scanners

The MIR8035™ FT-IR Spectrometer Scanner has been designed for routine analytical applications for an FT-IR spectrometer as well as non-traditional applications where modular design is required for

SCiO Mini: Handheld NIR Analyzer | SCiO

Our patented optical head is just a few millimeters in size, providing sensitivity and accuracy comparable to top bench spectrometers. With low power consumption and zero warm-up time, it performs

Solid Scanner

Solid Scanner develops industrial spectroscopy systems and portable NIR spectrometers for material identification, quality control, and industrial sensing

Spectrometry: Industrial & Scientific

Online shopping for Spectrophotometers - Spectrometry from a great selection at Industrial & Scientific Store.

Nix Spectro 2 Spectrophotometer

The Nix Spectro 2 Unparalleled accuracy and consistent data With 1 recorded scan per second, the Nix Spectro 2 has 31 channels across UV and the visible

SpectroDrive Auto Scanning Spectrophotometer | Techkon

Enhance pressroom efficiency with SpectroDrive, an automated scanning spectrophotometer that measures color bars swiftly and accurately.

Spectrometer for Mid-IR, NIR, IR, VIS and UV

Whether you need fast scan rates for adjustment or high resolution, combined with convenient measurement control and data processing – waveScan is the ideal solution.

nir-spectrometer

NeoSpectra Scanner is the Only Portable NIR Spectrometer That Delivers Benchtop's Accuracy at 10x Lower Cost! Various Materials Analysis for Both Labs & In-Field Thanks to the Widest NIR Spectral

Si-Ware Systems | For a World That Makes More Sense

Explore how Si-Ware Systems goes beyond product supply and integration—we design, produce, and deliver sensing technologies tailored to real-world needs.

NeoSpectra Moved from Si-Ware Systems to BUCHI | May 2025

As of May 2025, NeoSpectra has officially become part of BUCHI a global leader in laboratory and process technologies.

Spectro 1 Mobile Spectrophotometer with Dock

Acting as a spectrometer, colorimeter, and paint scanner in one, it instantly identifies and matches colors on flat surfaces, making it ideal for contractors, designers,

Spectrometers | PASCO

A spectrometer is a device that allows scientists to dissect light into its constituent colors, akin to separating the vibrant hues of a rainbow. By precisely dispersing the light, spectrometers provide a

Array vs. Scanning Spectrophotometers — Pros and Cons | White Paper

Discover the pros and cons of array and scanning spectrophotometers for your lab. Our white paper provides in-depth insights to help you make the best decision for your analytical needs.

SIW - NeoSpectra-Scanner - Mountain Photonics

NeoSpectra™-Scanner - portable NIR handheld spectrometer The robust handheld scanner offers a complete solution for material analysis via near-infrared spectroscopy. Since the NeoSpectra

Handheld XRF Spectrometers for Elemental Analysis | Bruker

Handheld X-Ray Fluorescence (XRF) analyzers have the capability to quantify or qualify nearly any element - from Magnesium to Uranium.

NIRvascan™ Handheld NIR Spectrometer | Portable

A handheld NIR spectrometer can detect the spectral signatures of gray mold. The technique can also be used in the identification of plant species and the

Contact Us

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