

Recommended Small Spectrometer



AI Overview

Small spectrometers are compact, portable devices designed for real-time spectral analysis in laboratory, industrial, and field applications. Types of Small Spectrometers

Mini-spectrometers are compact polychromators with integrated optical systems, image sensors, and driver circuits, allowing on-site real-time measurements. They cover ultraviolet to near-infrared ranges and can include ultra-small spectrometer heads without driver circuits for custom integration (Hamamatsu).

Portable and handheld spectrophotometers are designed for color measurement and quality control in various industries. They can measure reflective, textured, or glossy surfaces using sphere or multi-angle geometries, making them ideal for field technicians and laboratory use (X-Rite).

Compact CMOS spectrometers like Thorlabs' CCT series offer fiber-coupled input, wide spectral ranges (200–1000 nm), sub-nanometer resolution, and synchronization capabilities for precise timing applications such as laser-induced spectroscopy.

Portable XRF and LIBS analyzers provide elemental analysis in the field, with devices like Malvern Panalytical's Epsilon 1 and SciAps PowerHouse X offering real-time, lab-quality results for geological, environmental, and industrial applications.

Key Features

- Spectral Range:** Varies from UV to NIR (200–2500 nm depending on the model)
- Resolution:** From sub-nanometer to a few nanometers
- Portability:** Lightweight, handheld, or benchtop sizes
- Integration:** Fiber-optic compatible, USB or wireless connectivity
- Applications:** Color measurement, material identification, elemental analysis, quality control, and research

Applications

- Laboratory Research:** Real-time spectral analysis, fiber-based optical systems, and photonic testing
- Industrial Quality Control:** Color verification, metamerism detection, and pass/fail measurements
- Field Analysis:** Geological surveys, environmental monitoring, and on-site elemental testing
- Educational Use:** Compact spectrometers are suitable for teaching spectroscopy principles and exper...

Article Content

Multifunctional compact spectrometers • SOL instruments

SOL instruments presents compact and easy-in-use two-channel spectrometers SL40 Duo and S150 Duo. The SL40 Duo model is a small-size spectrum analyzer comprising two independent

Small Wonder: Mini Spectrometer Packs the Power of ...

A new miniature spectrometer combines cutting-edge technology with affordability, offering high precision in fields such as astronomy and health diagnostics. This device promises to

Miniature Spectrometers

Miniature spectrometers discriminate the wavelength based on the position the light hits at the detector array allowing the full spectrum to be obtained with a single acquisition.

A simple state-of-the-art spectrometer for student labs: Cost-efficient ...

The result is a state-of-the-art spectrometer, built from commercially available components, which balances pedagogical simplicity with the potential for a wide range of

Miniature Spectrometers

Resolution defines the spectrometers " ability to resolve the smallest adjacent wavelength peaks, which is directly related to the slit width, grating and the pixel

Miniature Spectrometer

The MSP1000 miniature spectrometer (MiniSpec) is a compact, fibre-coupled spectrometer suitable for common laboratory tasks. By using the latest

Amazon Best Sellers: Best Lab Spectrometers

Discover the best Lab Spectrometers in Best Sellers. Find the top 100 most popular items in Amazon Industrial & Scientific Best Sellers.

SPECTRUMMATE: A Low-cost Spectrometer for Small Telescopes

This project presents the development and implementation of a compact spectrometer, named SPECTRUMMATE, tailored for small telescopes. Small telescopes offer several advantages:

Selection guide / Mini-spectrometers

What are mini-spectrometers? Mini-spectrometers are small spectrometers (polychromators) with an integrated optical system, image sensor, and driver circuit. They are portable devices that make

AvaSpec-Mini

Our AvaSpec-Mini2048CL is equipped with a 2048 pixel CMOS detector. This small spectrometer is suited for integration into OEM or handheld devices.

Microspectrometer | Microspectrometers | Hamamatsu Photonics

Find Hamamatsu's product range of small components like highly sensitive photomultipliers, photodiodes as well as micro-spectrometers and mini-spectrometer

Best Lab Spectrophotometers of 2026

What are the best lab spectrophotometers products in 2026? We analyzed 1,600 lab spectrophotometers reviews to do the research for you.

Small Volume Spectrophotometers

Microvolume spectrophotometers, also referred to as low volume, small volume or nano-spectrophotometers, have the capacity to measure volumes in the range of

Quick Review: The Little Garden Spectrometer | Gough's Tech Zone

Not having the inclination to build, I am thankful to have discovered Lao Kang's Little Garden Spectrometer. Available from AliExpress for AU\$120 or so, this is a fully-built unit similar to

Microspectrometers: Spectroscopy Solutions for Modern Applications

Discover the world of microspectrometers - compact, high-performance spectrometers that deliver laboratory-grade results in a small footprint.

Mini-spectrometer micro series C12666MA | Hamamatsu Photonics

The C12666MA is an ultra-compact (Finger-tip size) spectrometer head developed based on our MEMS and image sensor technologies. The adoption of a newly designed optical system has achieved a

What is Mini-spectrometer? | Mini-spectrometers

What is Mini-spectrometer? Mini-spectrometers are small spectrometers (polychromators) with an integrated optical system, image sensor, and driver circuit. They are portable devices that

Low Cost NIR Spectrometer

Micro spectrometer with small structure size. It uses a 256-pixel InGaAs linear array detector and integrates a reliable CCD installation and heat dissipation method

Buyer's Guide: Portable Spectrometers | Labcompare

Specifications like spectral range, resolution and limits of detection are common sense considerations for any spectrometer purchase, and this

Tiny spectrometers

Optical spectrometers are essential equipment used in industry and research laboratories to characterize and identify material samples by analysing the material's wavelength

Small Spectrometers, Big Performance: Solutions for System Integration

Systems developers seeking high performing compact spectrometers can rely on the new near-infrared (NIR) Bullet range from OTO Photonics. OTO Photonics, has a twenty-year track record of developing

Product Review: Spectrometers get small. | Analytical Chemistry

Miniature spectrometers rival benchtop instruments Product Review: Spectrometers get small. Miniature spectrometers rival benchtop instruments James P. Smith

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