

Recommended Monochromators for Spectrophotometers

Article Overview

For UV/Vis spectrophotometry, Czerny-Turner grating monochromators are generally recommended due to their high resolution, low stray light, and compatibility with CCD detectors.

Types of Monochromators

1. Czerny-Turner Monochromators This is the most widely used design in modern spectrophotometers. It employs two concave mirrors (collimating and focusing) and a planar diffraction grating to disperse light. The configuration provides a flat focal plane suitable for CCD detectors, high spectral resolution, and reduced stray light, making it ideal for precise UV/Vis measurements and fluorescence excitation applications . 2. Prism Monochromators Prism-based monochromators offer high light throughput and low stray light. They are advantageous for very weak signals or broad tuning ranges because they avoid higher-order diffraction issues. However, their spectral resolution is lower than grating types, and dispersion is nonlinear, which can reduce accuracy at longer wavelengths . 3. Double Monochromators Double monochromators consist of two monochromators in series, providing superior stray light rejection (up to 10^{-9}). They are particularly useful in Raman spectroscopy or applications requiring extremely low background light .

Dispersive Elements

- Diffraction Gratings: Most modern spectrophotometers use gratings due to consist...

Article Content

Jun 08, 2026

What Is a Monochromator? Types, Function, and Spectrographs ...

Monochromators are an essential part of many spectrometers, important for a range of applications. This article describes what a

Nov 10, 2025

Monochromators Selection Guide: Types, Features, Applications

Additional features to consider when choosing monochromators are nitrogen-purging abilities, vacuum capabilities, and fiber optic

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Monochromators & Spectrographs — Comprehensive Guide

Monochromators and spectrographs are ubiquitous in photonics. They serve as wavelength selectors in spectrophotometers and

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Buyer's Guide: Monochromators for UV/Vis Spectrophotometry

Buyer's Guide: Monochromators for UV/Vis Spectrophotometry The monochromator is an important component of the UV/Vis

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Monochromators, spectrometers, optical systems for spectroscopy

McPherson spectrometers, monochromators, spectrographs, and optical systems for science applications at commercial, university

May 27, 2026

Spectrometers Monochromators and Spectrographs

We make instruments from short focal length, high-throughput spectrographs to long focal length, high-resolution monochromators,

Feb 06, 2026

Spectrometers Monochromators and Spectrographs

Spectrometers, Spectrographs and Monochromators HORIBA offers the market's highest quality spectrometers, monochromators

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Characteristics of Single and Double Monochromator UV-VIS ...

Two types of UV-VIS Spectrophotometers are available: the single monochromator type and the double monochromator type. As the

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Monochromators : Shimadzu (Europe)

Typical mountings used in spectrophotometers are the Littrow mount, Czerny-Turner mount, and concave mounts such as the Seya

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Spectrometers and Monochromators FAQs

Frequently asked questions about Spectrometers and Monochromators answered by the Fluorescence experts at HORIBA Scientific

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What is a monochromator and how does it work in optical spectroscopy?

Introduction to Monochromators In the world of optical spectroscopy, a monochromator is an essential device used to

Dec 20, 2025

Monochromators

Shimadzu spectrophotometers normally achieve satisfactory resolution and light intensity for concentration measurements on

Dec 31, 2025

Optical Monochromator | Precision, Flexibility & Control

Explore the precision and flexibility of optical monochromators in spectroscopy, their

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Monochromators & Spectrographs — Comprehensive Guide

Complete guide to monochromators and spectrographs — Czerny-Turner design, diffraction gratings, dispersion, resolution, étendue,

May 27, 2026

Monochromators in Spectroscopy: Selecting Specific Wavelengths for ...

In advanced monochromators, motorized controls provide further precision and assist in optimal wavelength selection.

Jan 08, 2026

1.3B: Monochromators

This decreases the signal-to-noise ratio and raises the detection limit for the species being analyzed. This page titled 1.3B:

Aug 28, 2025

Monochromators : Shimadzu Scientific Instruments

Fundamental of UV-Vis: Monochromators The prism and diffraction grating are typical dispersive elements. Table 1 shows their

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Buyer's Guide: Monochromators for UV/Vis Spectrophotometry

Certain monochromator features, such as the type of mounting and dispersive element used, can have an impact on

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Monochromators

This buyer's guide for monochromators provides technical background, comparison of major types, selection criteria, and an

Mar 14, 2026

Monochromators | PPTX

The document presents a detailed overview of monochromators, including their definition, principles, types (prism and diffraction

Oct 12, 2025

Monochromators & Spectrographs — Abridged Guide

Quick-reference guide to monochromators and spectrographs — grating equation, dispersion, bandpass, étendue, stray light, and

Aug 25, 2025

Monochromators and Spectrophotometer.ppt

This document discusses optoelectronic devices including spectrophotometers and monochromators. It describes the key

May 03, 2026

Monochromators : Shimadzu (Europe)

Shimadzu spectrophotometers normally achieve satisfactory resolution and light intensity for concentration measurements on

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Monochromator

Monochromator A monochromator provides a wavelength selection option in microplate readers,

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