Spectrometer Optical Module

Article Overview

A spectrometer optical module is a compact, integratable unit combining optical elements and detectors to perform precise spectral measurements for various analytical applications.

Overview

A spectrometer optical module is a self-contained unit that integrates photosensors, optical elements, and sometimes light sources to simplify complex optical designs and enable accurate spectral measurements. These modules are designed for absorbance, fluorescence, and other optical spectroscopy applications, allowing for compact, robust, and easily integratable solutions in analytical instruments or OEM systems (Hamamatsu) .

Components and Design

Typical components of a spectrometer optical module include:

o Excitation light sources (e.g., LEDs for fluorescence modules)
o Photodetectors (Si photodiodes, CCDs, EMCCDs, or InGaAs arrays)
o Optical elements such as beam splitters, filters, and lenses
o Signal processing circuits for converting optical signals into electrical data Some modules, like Hamamatsu's C16028-01, allow simultaneous measurement at multiple wavelengths, while others, such as the C13398 series, support absorbance measurements with high blocking performance and low noise .

Types of Spectrometer Modules
o Compact OEM Modules: Designed for integration into instruments with minimal footprint, offering high thermal stability and robust performance. ZEISS MMS and MCS series cover UV-NIR ranges from 190-2500 nm with high resolution (

Optical spectrometers (often simply called "spectrometers"), in particular, show the intensity of light as a function of wavelength or of

Modular spectrometer is also called fiber optic spectrometer, micro spectrometer. Optosky provides complete lines of miniature

Our technologies include Optical Emission Spectroscopy (Arc/Spark OES), Inductively Coupled Plasma Optical Emission

Spectrometer Optical Module

Spectrometer Modules ZEISS MCS Series Flexible High-Performance Spectrometer MCS UV-NIR has

ZEISS MMS Module sind miniaturisierte Spektrometer für den Spektralbereich von 195 - 1100 nm, die sich ideal für mobile, Prozess-

A demonstration module with a built-in MEMS-FPI spectrum sensor and near infrared light source measured the reflection spectrum

Our grating products today include phase masks, telecom gratings, pulse compression gratings and

A centimetre-scale convolutional spectrometer offers high performance, low cost and ~500-nm bandwidth. The system

This article explores MPS optical module solutions to meet the design requirements of high-speed optical communication as well as

Explore the working principles, structures, and performance metrics of optical modules, essential components of

Our optical gratings and spectrometer modules offer the performance, quality and flexibility

No single component will dominate production costs, but a fully featured high-precision optical spectrometer is like

Explore OEM spectrometer modules and optical benches for UV-Vis, NIR, and Raman applications, designed for

ZEISS Spektrometer-Module sind für die Belastungen der Prozesskontrolle ausgelegt. Die idealen

Edmund Optics offers a range of optical spectrometers and compatible accessories. Our selection includes

Shop Avantes spectrometers covering UV, VIS, and NIR ranges -- compact, modular, and built for precision measurement.

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