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Compact Irradiance Calibrated Spectrometer

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Product Downloads

General

Note:

Includes:
1 x USB Thumb Drive for Software
1 x USB Type A to Micro B Cable

Physical & Mechanical Properties

Weight (g):

40

Dimensions (mm):
32 x 32 x 21.3

Optical Properties

Spectral Resolution (nm):
<10 @ Center Wavelength

Wavelength Range (nm):
450 - 850 (typical)

Hardware & Interface Connectivity

Power Requirement:
5VDC (USB Powered)

Environmental & Durability Factors

Operating Temperature (°C):
10 - 45

Storage Temperature (°C):
0 - 55

Regulatory Compliance

Certificate of Conformance:
View

Product Details

- Compact 32 x 32 x 21.3mm Form Factor
- Spectral Range of 450 - 850nm with <1.5% Spectral Resolution
- USB Connection for Power and GUI Control

Compact Irradiance Calibrated Spectrometers are designed with a compact, lightweight 32 x 32 x 21.3mm Form Factor for easy system integration or standalone benchtop use via an M4 thread for post mounting. Unlike conventional spectrometers, these devices utilize a novel Mach-Zehnder equivalent crystal array with no gratings, prisms, or moving parts to create an interferogram which, through Fourier Transformation, produces a low-noise spectrum. This spectrometer is calibrated to Helium-Neon (HeNe) laser sources at 543.4 and 632.8nm and a QTH lamp to provide an absolute spectral irradiance measurement in units of $W/m^2/nm$. Compact Irradiance Calibrated Spectrometers feature a spectral range of 450 – 850nm and are ideal for use in spectroscopy applications in the visible to near-infrared (NIR) wavelength range, such as chemical analysis and colorimetry applications. These devices are USB powered via a USB 3.0 locking cable for secure connection and are controlled via an easy-to-use GUI.

This Compact Irradiance Calibrated Spectrometer comes with a USB thumb drive containing the frinGOe software, spectrometer drivers, API reference, and Python example code. The frinGOe software provides a spectrum plot that displays the spectrum of the source as a function of spectral irradiance vs wavelength. This data can be exported either as an individual frame or as a continuous measurement. The Exposure Time can be adjusted manually between 1 and 100ms, with a saturation bar indicating the pixel saturation level. For accurate results and to prevent damage, ensure that the saturation is not at 100%. An Auto Exposure feature can be used to automatically adjust the exposure time such that the maximum sensor saturation is approximately 90%. Additionally, the Number of Averages can be set between 1 and 512 to increase the signal-to-noise ratio (SNR) at the cost of longer measurement time. A Colorimetry frame displays the chromaticity coordinates of the current measurement on a CIE 1976 UCS (uniform chromaticity scale) diagram. This spectrometer can be integrated into existing systems and controlled via Python. Please refer to the API for a list of commands and the included Python code for implementation examples.

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