

Спектрорадиометры CAS 120B-HR

Технические характеристики

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CAS 120B-HR Array Spectrometer

High-resolution spectroradiometer for the characterization of narrow-band emission sources, e.g. VCSEL



Introduction

CAS 120B-HR array spectroradiometer with a high spectral resolution of 0.12 nm and short integration times as low as 4 ms

The design of the recently introduced HR versions of the CAS 120 series was specially geared to the measurement of narrow-band emission sources such as laser diodes (also VCSEL). Extremely high spectral resolution of up to 0.12 nm half-band width and particularly short integration times as low as 4 ms permit rapid testing in the lab and production. Temporal measurements of laser diodes with a pulsed operating mode in the nanosecond range are also possible in an extended setup with a photodiode.

Main fields of application

In the price-sensitive mass production of laser diodes, e.g. VCSEL, the high-resolution CAS 120B-HR array spectroradiometer is an efficient measurement solution for 24/7 operation. Its configuration provides for high mechanical stability, accompanied by the shortest integration times. Compared to established measurement techniques, it thus guarantees larger throughput volumes and superior reliability, particularly in harsh production environments.

Features

- High-resolution measurements of up to 0.12 nm half-band width and 0.05 nm data point interval
- Integration times as short as 4 ms
- Powerful and attractively priced for production and laboratory
- Integrated density filter wheel for a broad measurable intensity range

Typical applications:

In-process inspection for laser diode mass production

The mass production of laser diodes – in particular VCSEL – calls for fast and at the same time

precise and comparable in-process inspection in which every single laser diode is individually tested. Measurement solutions on the basis of a high-resolution array spectroradiometer such as the CAS 120B-HR are ideal for this. The fixed configuration of the optical components ensures high mechanical stability and thus high repeat accuracy of the optical measurement.

The spectrum is captured by means of an array detector in a single shot. This enables integration times of only a few milliseconds and thus very high throughput volumes or short cycle times for measurements. The spectral qualification of pulsed laser diodes is also possible with the CAS 120B-HR. Because the CAS 120B-HR – like all spectroradiometers from Instrument Systems – is absolutely calibrated, it also delivers the power rating as a direct result of measurement, so that no additional photodiode is required for power measurement.

Specifications

Technical Data CAS 120B-HR

CAS 120B-HR	
Spectral range	800 – 1000 nm
Detector	Back-thinned, back-illuminated CCD
Number of pixels	2048 x 16
Grating	1800 lines/mm
Measuring range (typical)	80 nm
Spectral resolution (typical)	0.12 nm
Data point interval (typical)	0.05 nm
Wavelength accuracy	± 0.05 nm
Integration time	4 ms – 20 s
Dynamic range of sensor	6300:1
Linearity	< ± 0.6%

Spectrograph

Focal length, luminous intensity, grating	approx. 120 mm, f/ 3.5, plane reflection grating
Filter wheel / shutter	Available density filters: OD 0,5 / 1 / 1,5 / 2 / 2,5

Electrical data

AD converter	16-bit resolution
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PC interface	USB 2.0
Triggering	Input: 1 TTL input with ascending slope Output: 2 software-controlled TTL outputs / 1 TTL output with flash pulse
Noise floor	± 400 values or $\pm 2.5\%$
Miscellaneous	
Dimensions (H, W, T)	147 mm x 343 mm x 317 mm
Power supply	Wide range input 100 - 240 VAC, 50/60 Hz
Ambient temperature	15 – 35 °C; relative humidity 70% max., non-condensing
Weight	approx. 7 kg
Applicable standards	Satisfies EN 61010-1:2002-08 (safety requirements applicable to electric devices for measurement, control and laboratory use)

Accessories

The CAS 120B-HR models cover several narrow measuring ranges between 800 and 1000 nm and are suitable for all typical measurement scenarios and narrowband light sources.

Accessories for VCSEL measurement in the laboratory

- Integrating spheres of the ISP series
- SpecWin Pro software package
- SDK programming interface

Accessories for the VCSEL production test

- Integrating spheres of the ISP series
- Calibration LEDs of the ACS series
- SDK programming interface

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