Instrument Systems
KONICA MINOLTA Group

CAS 125-HR

High speed high resolution array spectrometer

Key features at a glance

- Ultra high optical resolution down to 0.09 nm (FWHM)
- Very short integration times down to 10 µs
- 4096 pixels CMOS sensor with thermal stabilization
- Recipe mode for ultrafast measurement sequences
- Max. scan rate of 1900 scans/s

The CAS 125-HR extends the CAS 125 series of spectroradiometers from Instrument Systems for applications that require enhanced spectral resolution. The CAS 125-HR is well suited for wavelength characterization of narrow band emitters, e.g. laser diodes or monochromatic light sources. The novel recipe mode significantly increases productivity in time-critical high-throughput application.

\\ VERY HIGH SPECTRAL RESOLUTION

Depending on the configuration of the CAS 125-HR spectrometer ultra high optical resolution down to 0.09 nm (FWHM) is possible at a data point interval of 0.023 nm. The design of the industry proven crossed Czerny-Turner spectrograph guarantees maximum optical precision.

\\ VERSATILE IN APPLICATION

Unique technical innovations integrated in the CAS 125 result in a higher level of reliability and speed. A thermal stabilization of the sensor ensures independent operation from changing environmental conditions. The economic design with a robust housing and smaller footprint is specially designed for the demanding conditions experienced in 24/7 operation.

The new CAS 125 satisfies the high requirements on accuracy and versatiltiy from high-volume production applications to diverse laboratory tasks.

\\ EXTENSIVE SOFT- & HARDWARE PACKAGE

The CAS 125 is equipped with Ethernet interface and hardware trigger. The integrated density filter wheel and the dark-current shutter additionally facilitate fully automated measurements over an extremely broad detector signal range. A software development kit (SDK) with DLL driver allows fast and easy integration of the CAS 125 into production environment. In addition, SpecWin Pro and SpecWin Light provide an extensive range of spectral analysis tools and hardware interfaces for diverse laboratory tasks.

\\ ULTRAFAST MEASUREMENT SEQUENCES

The SDK enables the merging of several thousand measurements into combined recipes, which are loaded onto the CAS 125-HR upon execution. The subsequent measurements are carried out step-by-step in an hardware-triggered mode avoiding long communication times with the computer between successive measurements. In this way, several thousands of measurements can be carried with minimum delay time, which drastically enhances the units-per-hour in production environments.

The software module MultiTrack allows maximum scan rates of up to 1900 scan/s, ideal suited for investigation of short optical phenomena, e.g. warm up behavior of LEDs or laser diodes.

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\\ TECHNICAL SPECIFICATIONS

CAS 125-HR High Resolution Array Spectrometer	
Model	**941**
Spectral range	902 – 982 nm
Detector [1]	CMOS
Number of pixels	4096
Spectral resolution 25 µm slit width	0.09 nm
Data point interval	0.023 nm
Wavelength accuracy	± 0.05 nm
Integration time	10 µs – 10 sec
Shortest duration SOT to EOT [2]	540 µs
SOT to SOT (Recipe Mode) [2]	1060 µs
Max. scan rate [2]	1900 scans/sec
Dynamic range [3]	3000:1
Non-Linearity	< ±0.6 %
Sensitivity	
Measuring range Radiant flux [4]	0.56 mW – 2.6 MW
Spectrograph	
Focal length, f number	Approx. 120 mm, f/3.5, plane reflection grating
Grating	1800 lines/mm
Slit	Standard: 25 µm
Filter wheel / shutter	Max. 7 slots for density filters OD 0.5 – 2 Position monitoring with encoder
Electrical data	
AD converter	16 bit resolution
PC interface	Ethernet
Triggering	Input: TTL ascending slope; output: 2 TTL outputs
Miscellaneous	
Dimensions (H x W x D)	136.5 mm x 233 mm x 325 mm
External power supply	Wide-range input 100 VAC to 240 VAC 50/60 Hz
Device power supply	24 Vdc
Power consumption	36 VA
Ambient temperature	15 – 35 °C; relative humidity 70 % max., non-condensing
Weight	6.6 kg
Valid standards	In conformity with CE (2014/30/EU, 2011/65/EU, 2012/19/EU), FCC Part15B, KC

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[1] Sensor with thermal stabilization
[2] Depends on integration time, device settings and performance of operating computer / system.
[3] Single acquisition with 1ms integration time.
[4] Applies to a signal-to-noise ratio of 10:1. Measured with integrating sphere ISP100. Upper limit calculated.

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