Laser Spectrum Analyser – LSA

Absolute accuracy: 6000 MHz
Wavelength deviation sensitivity: 1 GHz

The LSA is designed to analyse the multi-line or broadband spectrum of light sources like cw and pulsed lasers, gas discharge lamps, super luminescence diodes, semiconductor laser diodes and LEDs.

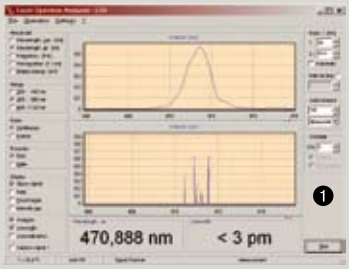
- **Sensitivity: 5 nJ @ 633 nm**
- **Low stage spectral resolution ($\lambda/\Delta\lambda_{FWHM}$): 500**
- **High stage spectral resolution ($\lambda/\Delta\lambda_{FWHM}$): 20000 (SM fiber), 10000 (50 µm fiber)**
- **Max. signal bandwidth: 2 THz**
- **Linewidth measurement accuracy: 10 %**
  Max. linewidth: 1.5 THz
- **Built-in light source for autocalibration**

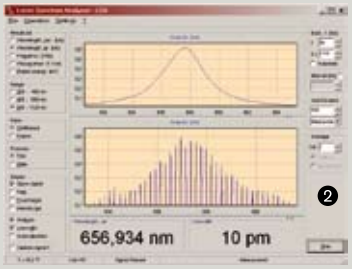
Ångstrom

HighFinesse
Laser and Electronic Systems

Technical Data		Unit	LSA
Measurement range	Standard (330 – 1180 nm)		●
	UV-I (248 – 1180 nm)		●
	UV-II (192 – 800 nm)		●
	UV-II-VIS (192 – 1180 nm)		●
	VIS-IR (330 – 1750 nm)		●
	IR-I (630 – 1750 nm)		●
	IR-II (1000 – 2250 nm)		●
	IR-III (1400 – 11000 nm)		● 7)
Absolute accuracy 4)	192 – 330 nm 1)	pm	6
	330 – 420 nm	pm	3
	420 – 1100 nm	MHz	6000
	IR-I		12000
	IR-II		25000
	IR-III		1 – 5 nm 7)
Quick coupling accuracy (with multi mode fiber)		MHz	20000 2)
Wavelength deviation sensitivity/ Measurement resolution	192 – 330 nm	pm	5
	330 – 420 nm	pm	2
	420 – 1100 nm	MHz	3000
	IR-I		6000
	IR-II		12000
	IR-III	nm	1
Spectral resolution	Standard, UV	Singlemode/ Multimode fiber	20000 / 10000
	IR-I		4000 / 2000
	IR-II		2800 / 2000
	IR-III		15 – 30 nm 7)
Linewidth High stage 2)	Accuracy	GHz	Standard, UV-I: 7000, IR-I: 40 GHz 9), IR-II: 60 GHz, IR-III: 15 % (≥ 200 GHz)
	Max. linewidth	THz	1.5
Measurement speed 5) (depending on PC hardware and settings)	Data acquisition	Hz	500
	Wavelength calculation		60
Required input energy and power	Standard	µJ (or µW) 6)	0.0001 – 0.04
	UV-I, UV-II		0.0001 – 0.1
	IR-I, IR-II		0.02 – 2
	IR-III	mW	1
Diffraction grating	FSR	GHz	~5400 7)
Coupling fiber diameter		µm	50 µm or single mode fiber set
Calibration			Built-in calibration 8)
Calibration period			≤ 1 month
Warm-up time			No warm-up time under constant ambient conditions Otherwise until thermal and air pressure equilibrium is reached.
Dimensions L × W × H		mm	325 × 180 × 77
Weight		kg	2.8
Interface			High-speed USB 2.0 connection
Power supply			Power consumption < 2.3 W, supply directly via USB cable; IR-III: external power supply included; IR-I and WSU via USB or external power supply possible

1) With multi mode fiber 2) Only for standard range 3) But not better than 5 % of the linewidth 4) According to 3σ criterion 5) Without autocalibration usage 6) The cw power interpretation in [µW] compares to an exposure of 1s (generally the energy needs to be divided by the exposure time to obtain the required power) 7) For further information on IR-III devices see separate sheet 8) IR-III: external calibration sources required, e.g. SLR-1532 9) But not better than 10 % of the linewidth





Sample measurements of the Laser Spectrum Analyser

1 Neon discharge lamp: The group of Ne-lines (spontaneous emission) filtered by interference filter. The upper graph represents the spectrum in the first diffraction order, the lower graph represents the 90th order after mathematic analysis.

2 Spectrum of a laser diode right below threshold. Mode spacing 200 pm.

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