



### Available Measurement Ranges

LSA 2R	VIS	330 – 1180 nm
LSA	Standard	330 – 1180 nm
	UV-I	248 – 1180 nm
	UV-II	192 – 800 nm
	UV-II / VIS	192 – 1180 nm
LSA	VIS / IR-I	330 – 1750 nm
	IR-II <sup>1)</sup>	IR: 1000 – 2250 nm + VIS: 500 – 1000 nm

### Absolute Accuracy <sup>2)</sup>

LSA 2R	330 – 420 nm	2 pm
	420 – 1180 nm	3 GHz
LSA Standard / UV	192 – 330 nm <sup>3)</sup>	6 pm
	330 – 390 nm	3 pm
	390 – 1180 nm	6 GHz
	Quick coupling accuracy <sup>3)</sup>	20 GHz
LSA VIS / IR-I	VIS: 330 – 420 nm	6 pm
	VIS: 420 – 1060 nm	6 GHz
	IR-I: 1060 – 1750 nm	25 GHz
LSA IR-II	IR-II: 1000 – 2250 nm	25 GHz
	VIS: 500 – 1000 nm	60 GHz

1) Measurements in the range from 500 – 1000 nm are possible but with limited absolute accuracy as specified.

2) According to 3 $\sigma$  criterion.

3) With 50  $\mu$ m multi mode fiber.



### Wavelength Deviation Sensitivity/Measurement Resolution

LSA 2R	330 – 420 nm	1 pm
	420 – 1180 nm	1.5 GHz
LSA Standard / UV	192 – 330 nm <sup>3)</sup>	5 pm
	330 – 420 nm	3 pm
	420 – 1180 nm	3 GHz
LSA VIS / IR-I	VIS: 330 – 420 nm	3 pm
	VIS: 420 – 1060 nm	6 GHz
	IR-I: 1060 – 1750 nm	12 GHz
LSA IR-II	IR-II: 1000 – 2250 nm	12 GHz
	VIS: 500 – 1000 nm	30 GHz

### Resolving Power and Spectral Resolution

#### Use of singlemode fiber

Resolving Power ( $\lambda/\Delta\lambda$ ) <sup>4)</sup> | Spectral resolution  $\Delta\lambda$  @1000 nm

#### Use of multimode fiber <sup>5)</sup>

Resolving Power ( $\lambda/\Delta\lambda$ )

LSA 2R		40000	0.025 nm	20000
LSA Standard / UV		20000	0.05 nm	10000
LSA VIS / IR-I	VIS: 330 – 1060 nm	20000	0.05 nm	10000
	IR-I: 1060 – 1750 nm	4000	0.25 nm	2000
LSA IR-II	IR-II: 1000 – 2250 nm	2800	0.36 nm	2000
	VIS: 500 – 1000 nm	2000	0.5 nm	1000

3) With 50  $\mu$ m multi mode fiber.

4) Spectral resolution  $\Delta\lambda = \lambda / R$ ; R = resolving power. Assuming that two features are resolved if they are separated by more than the FWHM of the instrument response function.

5) Please use 50  $\mu$ m MM fibers. Please do not use fibers with core diameter > 50  $\mu$ m.



### Linewidth Estimation Accuracy<sup>6)</sup>

LSA 2R		4 GHz
LSA Standard / UV		7 GHz
LSA VIS / IR-I	VIS: 330 – 420 nm	3 pm
	VIS: 420 – 1060 nm	7 GHz
	IR-I: 1060 – 1750 nm	40 GHz
LSA IR-II	IR-II: 1000 – 2250 nm	60 GHz
	VIS: 500 – 1000 nm	70 GHz

### Maximum Linewidth

LSA 2R	0.6 THz (FWHM)
LSA Standard / UV, LSA VIS / IR-I, LSA IR-II	1.5 THz (FWHM)

Customization to measure broader sources on request.

### Measurement Speed<sup>7)</sup>

LSA Standard / UV, LSA VIS / IR-I, LSA IR-II	Data Acquisition	500 Hz
	Wavelength and spectrum calculation	300 Hz
	Wavelength and spectrum calculation with live display	100 Hz
LSA 2R VIS	Data Acquisition, Wavelength and spectrum calculation	60 Hz

6) With the use of singlemode fibers. Not better than 15% of the linewidth.  
The algorithm assumes that the laser lineshape is given by a Lorentzian.

7) Depending on PC hardware and settings. Without autocalibration usage.



### Minimum Required Input Energy and Power<sup>8)</sup>

LSA Standard, LSA 2R		0.0001 – 0.04 $\mu\text{J}$ (or $\mu\text{W}$ )
LSA UV-I, LSA UV-II, LSA UV-II/VIS		0.0001 – 0.1 $\mu\text{J}$ (or $\mu\text{W}$ )
LSA VIS / IR-I	VIS: 330 – 1060 nm	0.0001 – 0.04 $\mu\text{J}$
	IR-I: 1060 – 1750 nm	0.02 – 2 $\mu\text{J}$
LSA IR-II		0.02 – 2 $\mu\text{J}$

### Diffraction Grating, Free Spectral Range<sup>9)</sup>

LSA 2R	2.3 THz
LSA Standard / UV, LSA VIS / IR-I, LSA IR-II	~5.4 THz

### Coupling Fiber and Connector

Single mode fiber set, 50  $\mu\text{m}$  MM fiber  
Use of single mode fiber recommended  
FC/PC connector at the spectrometer required

### Calibration

LSA Standard / UV, LSA VIS / IR-I	Internal calibration source , calibration period $\leq$ 1 month
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### Warm-up Time

No warm-up time under constant ambient conditions. Otherwise until thermal and air pressure equilibrium is reached

8) The cw power interpretation in [ $\mu\text{W}$ ] compares to an exposure of 1s (generally the energy needs to be divided by the exposure time to obtain the required power).

9) Custom FSR on request.

10) e.g. SLR-1532.



Spectrometers  
LSA Series



HighFinesse  
The Standard of Accuracy



Ångström

### Dimensions L × W × H

325 × 180 × 77 mm

### Weight

2.8 kg

### Interface

High-speed USB 2.0 connection

### Power Supply

Power consumption < 2.3 W, supply directly via USB cable; LSA IR-II: external power supply included

### Further Information

For further technical information, application examples, diagrams and for customisation of the Spectrometers please contact:

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