



Spectrometer Laser Spectrum Analyzer (LSA)



HighFinesse
Laser and Electronic Systems

Available measurement ranges

| | |
|--------------------------|-----------------|
| LSA Standard | 330 – 1180 nm |
| LSA UV-I | 248 – 1180 nm |
| LSA UV-II | 192 – 800 nm |
| LSA VIS / IR | 330 – 1750 nm |
| LSA VIS / IR-II | 500 – 2250 nm |
| LSA IR-I | 630 – 1750 nm |
| LSA IR-II | 1000 – 2250 nm |
| LSA IR-III ¹⁾ | 1400 – 11000 nm |

Absolute accuracy²⁾

| | |
|---|----------------------|
| 192 – 330 nm ³⁾ | 6 pm |
| 330 – 420 nm | 3 pm |
| 420 – 1100 nm | 6 GHz |
| IR-I | 12 GHz |
| IR-II | 25 GHz |
| IR-III | 1 – 5 nm |
| Quick coupling accuracy (with multi mode fiber) | 20 GHz ⁴⁾ |

1) For further information on IR-III devices see the LSA IR-III series datasheet

2) According to 3 σ criterion

3) With multi mode fiber

4) Only for standard range



Wavelength Deviation Sensitivity/Measurement Resolution

| | |
|----------------------------|--------|
| 192 – 330 nm ³⁾ | 5 pm |
| 330 – 420 nm | 3 pm |
| 420 – 1100 nm | 3 GHz |
| IR-I | 6 GHz |
| IR-II | 12 GHz |
| IR-III | 1 nm |

| Resolving Power ($\lambda/\Delta\lambda$) ⁴⁾ | Singlemode | Multimode fiber |
|---|--------------------------|-----------------|
| LSA Standard / LSA UV | 20000 | 10000 |
| LSA IR-I | 4000 | 2000 |
| LSA IR-II | 2800 | 2000 |
| LSA IR-III | 15 – 30 nm ¹⁾ | |

Linewidth Measurement Accuracy ⁵⁾

| | |
|-----------------------|------------------------|
| LSA Standard / LSA UV | 7 GHz |
| LSA IR-I | 40 GHz |
| LSA IR-II | 60 GHz |
| LSA IR-III | 15 % (\geq 200 GHz) |

Maximal Linewidth

1.5 THz

- 1) For further information on IR-III devices see the LSA IR-III series datasheet
- 3) With multi mode fiber
- 4) Spectral resolution $\Delta\lambda = \lambda / R$; R = resolving power. According to Rayleigh criterion.
- 5) But not better than 5% of the linewidth



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Measurement Speed⁶⁾

| | |
|------------------------|--------|
| Data Acquisition | 500 Hz |
| Wavelength Calculation | 60 Hz |
| Spectrum Calculation | 15 Hz |

Required Input Energy and Power⁷⁾

| | |
|---------------------|---|
| LSA Standard | 0.0001 – 0.04 μJ (or μW) |
| LSA UV-I, LSA UV-II | 0.0001 – 0.1 μJ (or μW) |
| LSA IR-I, LSA IR-II | 0.02 – 2 μJ (or μW) |
| LSA IR-III | 1 mW ¹⁾ |

Diffraction Grating

| | |
|-----|----------|
| FSR | ~5.4 THz |
|-----|----------|

Coupling Fiber Diameter

| |
|---|
| 50 μm or single mode fiber set |
|---|

Calibration

| | |
|------------------------------------|----------------|
| Built-in calibration ⁸⁾ | |
| Calibration Period | ≤ 1 month |

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

7) 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)

8) IR-III: external calibration sources required, e.g. SLR-1532



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Warm-up Time

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

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; IR-II & IR-III: external power supply included

Further Information

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

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