

Linewidth Analyzer
LWA-100k Series



HighFinesse
Laser and Electronic Systems

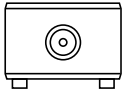
Wavelength range

LWA-100k 400	380 – 430 nm
LWA-100k 500	430 – 660 nm
LWA-100k 750	615 – 885 nm
LWA-100k 980	825 – 1200 nm
LWA-100k 1550	1200 – 1700 nm

Required input power¹⁾

All models	2 – 5 mW
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1) Best performance with maximum input power. Noise sensitivity scales inversly with input power.



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Analyzer Unit

Laser type	CW and single-mode
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Input type	FC/APC fiber
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Broadband mode specification

Optical frequency resolution	2 MHz
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Free spectral range	1 GHz
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Effective linewidth ²⁾ range (FWHM)	2 MHz – 300 MHz
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Spectral and frequency noise specifications

Optical frequency resolution	1 kHz
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Frequency noise bandwidth	100 Hz – 1 MHz
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Frequency noise sensitivity	< 100 Hz/√Hz (@ > 100kHz)
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Intrinsic linewidth range ³⁾	1 kHz – 1 MHz
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Effective linewidth range (β -separation) ²⁾	100 kHz – 1 MHz
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Lineshape specifications

Effective linewidth ²⁾ range (FWHM)	100 kHz – 1 MHz
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Optical frequency resolution	100 kHz
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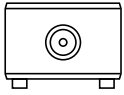
Miscellaneous

Dimensions	150 mm × 280 mm × 79 mm
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Weight	8 kg
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2) Effective linewidth: Combination of intrinsic linewidth and additional broadening mechanisms (thermal, electrical and acoustic noise). Determination by β -separation method (noise density spectrum) or curvefitting procedure (lineshape spectrum).

3) Intrinsic linewidth: Limited by fundamental quantum processes and laser design. Determined by the noise floor (white noise) of the frequency noise spectrum and calculated by: noise density (in Hz²/Hz) times π (rule of thumb). This value is most commonly denoted as “laser linewidth” by laser manufacturer.



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Digitizer Unit

Sample rate	31 M (max.) Sa/s
Resolution	16 bits
Acquisition time	0.1 (typ.) s
Evaluation time	< 1 (typ.) s

Miscellaneous

Communication	Ethernet
Dimensions	357 mm × 112 mm × 145 mm
Weight	8 kg

Software

Operating system	Microsoft® Windows® (7 – 10), 64 Bit
CPU (minimum)	Intel® Core™ i5 or equivalent
Memory (minimum)	8 GB
Ports	Ethernet
Graphical Evaluation options	Broadband spectrum, Frequency noise density graph, lineshape graph, frequency deviation distribution (histogram)

Further Information

For further technical information, application examples, diagrams and for customisation of linewidth analyzers please contact:

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