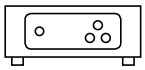


Linewidth Analyzer

LWA-1k 780

HighFinesse
Laser and Electronic Systems

Wavelength range

780 – 1020 nm

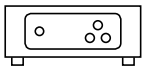
Required input power [1)]

1 – 10 mW

Input power stability

5 %

1) Best performance with maximum input power. Noise sensitivity scales inversly with input power.



Linewidth Analyzer

LWA-1k 780

HighFinesse
Laser and Electronic Systems

Analyzer Unit

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

Spectral and frequency noise specifications

Optical frequency resolution	8 kHz
Frequency noise bandwidth	10 Hz – 10 MHz
Frequency noise sensitivity	< 50 Hz/√Hz – 10 MHz/√Hz
Intrinsic linewidth range [3)]	< 8 kHz
Effective linewidth [2)] range (β-separation)	< 20 kHz – 10 MHz
Relative intensity noise limit	−150 dB/Hz

Lineshape specifications

Effective linewidth [2)] range (FWHM)	< 20 kHz – 4 MHz
Optical frequency resolution	20 kHz
Dynamic range	50 dB

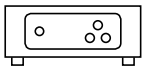
Miscellaneous

Interface	USB 2.0 Type B
Analog Output / error signal [4)]	BNC ± 7.5 (50 Ω) ± 15 (high impedance) V, single ended
Cutoff (highpass filter)	10 Hz, 1 kHz, 10 kHz, 100 kHz
Dimensions	220 mm × 334 mm × 96 mm
Weight	8 kg

2) Effective linewidth: Combination of intrinsic linewidth and additional broadening mechanisms (thermal, electronical 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 Hz^2/Hz) times π (rule of thumb). This value is most commonly denoted as “laser linewidth” by laser manufacturer.

4) Linewidth reduction/control: Analog output as error signal for use in combination with PID controller (not included) for frequency noise or RIN reduction.



Linewidth Analyzer

LWA-1k 780

HighFinesse
Laser and Electronic Systems

Digitizer Unit

Sample rate	62.5 (max.) Sa/s
Resolution	16 bits
Acquisition time	0.1 (typ.) s
Evaluation time	< 1 (typ.) s

Miscellaneous

Communication	USB 3.0 type B
Dimensions	210 mm × 200 mm × 74 mm
Weight	2 kg

Software

Operating system	Microsoft® Windows® (7 – 10), 64 Bit
CPU (minimum)	Intel® Core™ i5 or equivalent
Memory (minimum)	8 GB
Graphical Evaluation options	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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