

Technical Data
Wavelength Meter
WS8 Series



HighFinesse
Laser and Electronic Systems

		WS8	WS8-2
Measurement range	Standard (330 – 1180 nm)	■	■
	UV-I (248 – 1180 nm)	□	□
	UV-II (192 – 800 nm)	□	□
	VIS / IR (330 – 1750 nm)	□	□
	VIS / IR-II (500 – 2250 nm)	□	□
	IR-I (630 – 1750 nm)	■	□
	IR-II (1000 – 2250 nm)	□	□
Absolute accuracy ¹⁾	IR-III (1400 – 11000 nm)	□	□
	192 – 330 nm ²⁾	0.1	0.1
	330 – 420 nm	0.01	0.01
	420 – 1100 nm	10 ⁻³⁾	2 ⁴⁾
	1100 – 2250 nm	10 ⁻³⁾	-
Quick coupling accuracy (with multi mode fiber)		100	100
Wavelength deviation sensitivity/Measurement resolution ⁶⁾		2	0.5
Linewidth option	Accuracy ⁷⁾	100	100
Measurement speed ⁸⁾		500 (IR: 1200)	500 (IR: 1200)
	Standard	0.08 – 60	0.08 – 60
Required input energy and power ⁹⁾	UV-I	-	-
	UV-II	-	-
	IR-I	8 – 800	-
	IR-II ¹⁰⁾	-	-
	IR-III	-	-
Fizeau interferometers ¹¹⁾		2/20	2/20
Calibration		Stabilized HeNe laser or any other well known laser source $\Delta v < 3$ MHz	SLR-780 or any well known laser source $\Delta v < 1$ MHz
Recommended calibration period		≤ 1 hour	≤ 2 minutes
Warm-up time		> 30 minutes	
Dimensions L × W × H		360 × 200 × 120	360 × 200 × 120
Weight		6.4	6.4
Interface		High-speed USB 2.0 connection	
Power supply		Power consumption < 2.3 W, power provided directly via USB cable; IR-II, IR-III: external power supply included; IR-I and WSU via USB or external power supply possible	

1) According to 3 σ criterion 2) With multi mode fiber 3) ± 200 nm around calibration wavelength 4) ± 2 nm around calibration wavelength 5) 200 MHz for WS6-200 IR-III

6) Only for standard range 7) Not better than 5% of the linewidth. 8) Depending on PC hardware and settings. Highspeed models up to 50 kHz available

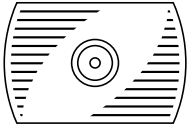
9) The CW power interpretation in [μ W] compares to an exposure of 1s (generally the energy needs to be divided by the exposure time to obtain the required power)

10) μ J interpretation for pulsed lasers. CW signals need more power in [μ W] since the exposure is limited at IR-II devices

11) Values for fine/wide-mode 12) For IR devices: 32/32 13) For IR-I and IR-II devices: 16/16, for IR-III devices: 8/80

14) IR-III: external reference required, e.g. SLR-1532 15) IR-devices: external calibration source needed, e.g. SLR-1532

16) IR-II: > 30 min. warm-up, or until ambient equilibrium



Upgrade Options
Wavelength Meter
WS8 Series



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MC

In order to measure the frequencies of more than just one laser at a time, an opto-mechanical switch is used. The combination of our highspeed wavelength meters with one of the quickest fiber switches (MEMS) available allows up to eight channels to be measured almost simultaneously. Exposure time and other parameters can be defined independently for each light source. You can choose between singlemode or multimode fiber switches, depending on the required accuracy level of your measurements.

PID

With the PID option it is possible to stabilize the frequency of a laser connected to the wavemeter using a software based proportional-integral-derivative controller (PID controller). Unlike analog PID stabilizations, the PID option provides software based signal processing, allowing the laser to be stabilized to a specific user defined frequency. This makes it extremely useful in experiments where the laser frequency has to be actively regulated or varied to fit changing experimental conditions, such as laser cooling, atomic detection, trapping and spectroscopy. Combined with the MC option the wavemeter can be used to stabilize multiple lasers simultaneously. The regulation speed and quality and absolute accuracy match the measurement speed, relative accuracy and absolute accuracy of the wavemeter respectively. The measurement speed is not affected by the regulation.

TTL

Usually all wavelength meters detect and measure pulsed signals automatically. This option allows the user to trigger pulsed measurements externally. The TTL option

guarantees synchronization between pulsed excitation and measurement. It provides low-noise, pollution-free signals when measuring pulsed signals with low duty cycles.

L

The linewidth estimation of a singlemode laser source is performed by a special algorithm which eliminates the interferometer's instrument response function. The algorithm enables the estimation of the linewidth several times better than the spectral resolution of the instrument.

D

The diffraction grating option allows the analysis of emission spectrum to an accuracy of 6 GHz, for laser sources with broad emission. The software automatically searches the spectral section where the laser emission line is located and displays it on the screen. In combination with the additional Fizeau interferometer array this allows wide range applications with a single device.

CAL

Standard HighFinesse wavelength meters up to an absolute accuracy of 60 MHz feature auto-calibration via an integrated calibration source. This guarantees the accuracy and stability of measurements with our wavemeters. For the higher accuracies we offer a variety of frequency stabilized, narrow linewidth, laser sources with up to ± 10 kHz frequency stability for different applications.



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