Light Sources

Wavelength-Swept Laser – λ-Sweep™

The WSL-1000 is a high-speed swept laser source for fiber sensor and OCT applications. The laser's wavelength can be swept at a frequency of up to 16 kHz across a spectral range of up to 150 nm, with an output optical power of up to 20 mW. The device outputs two λ-trigger (TTL) signals to indicate the exact starting and ending wavelengths of each wavelength sweep. In combination with a sweep profile lookup table, this allows the absolute frequency or wavelength of the laser to be known at each instant during a wavelength sweep. In addition, a power monitoring output is included to indicate the instantaneous laser output power at each wavelength. The WSL-1000 is also equipped with a built-in variable optical attenuator (VOA). Other laser health parameters, such as laser average power, driving current, and chip temperature, are also provided via digital interfaces. Finally, the laser incorporates automatic polarization optimization to guarantee long term stability. The WSL-1000 is available with either a linearly polarized output (aligned to the slow axis of a PM fiber) or a depolarized output. This combination of features makes it a flexible tool for research in fiber sensing, optical coherence tomography (OCT), or similar applications.

Specifications:

Center Wavelength Range	1060, 1310, 1550 ± 20 nm
Spectral Range @ -10dB Cutoff Point[1]	1310/1550 nm: 100 to 150 nm; 1060 nm: ~ 60 nm, (specify when ordering)
Repetition Rate	1, 5, or 10 kHz standard Up to 16 kHz available
Sweep Average Power[1]	> 10 mW
Static Peak Output Power[1]	> 20 mW
Coherence Length (3 dB)	> 6.5 mm
Signal-to-Spontaneous Emission Noise Ratio[2]	40 dB
Polarization Extinction Ratio (PM Output Option)	> 20 dB
Degree of Polarization (Depolarized Output Option)	< 5%
Optical Connector	FC / APC
Variable Optical Attenuation Range	20 dB
Reference Wavelength Triggers	TTL pulse at start (λ_{min}) and end (λ_{max}) of each sweep
Reference Wavelengths	λ_{min} and λ_{max}, standard or custom values available
Sweep Sync Signal	TTL levels
Instantaneous Power Monitor	Analog, 0 – 3.5 V
Communication Interface	USB, Ethernet, RS-232, and GPIB
Operating Modes	Static wavelength output Swept wavelength output
Display	2 x 20 Character LCD
Power Supply	100 – 240 VAC, 50 – 60 Hz
Operating Temperature	0 to 50 °C
Storage Temperature	-20 to 70 °C
Dimensions	2U, 3/4 of 19" rack width 14" (L) x 14" (W) x 3.5" (H)

Features:

- Polarization stabilized output
- Fast sweep speed (up to 16 kHz)
- High output power (20 mW)
- Sweep start and end trigger (TTL)
- Built-in VOA
- Power monitoring function

Applications:

- Fiber sensor interrogation
- Optical Coherence Tomography (OCT)
- Medical imaging
- Test & measurement
- Spectrum analysis
- R&D

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Notes:
1. Typical values for 1310 nm 10 kHz version. Values may be different at other wavelengths or sweep rates.
2. Measured with static wavelength output.

Ordering Information:

WSL – 1000 – ☐☐ – ☐☐ – ☐☐

Wavelength:	Output Polarization:	Repetition Rate
10 = 1060 nm	LS = linear (slow axis)	e.g. 10 = 10 kHz
13 = 1310 nm	DP = depolarized	
15 = 1550 nm		

Related Product:

WSL-001 p.68 (See WSL-001 page for typical performance data)