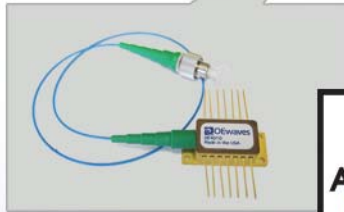


Ultra-Narrow Linewidth Laser Module

Whispering Gallery Mode Micro-Resonator Enabled Laser



2011 Prism Award Winner in the category of Other Light Source.

OEwaves Ultra-Narrow Linewidth Laser Module, houses proprietary driver/controller, and the OEwaves laser source which is based on a high quality factor (Q) Whispering Gallery Mode (WGM) micro-resonator. The module offers super-fine instantaneous and dynamic optical spectral linewidth of less than **300Hz** and ultra-low phase/frequency noise in a small form factor. The laser is scalable to a variety of wavelengths in C and L bands.

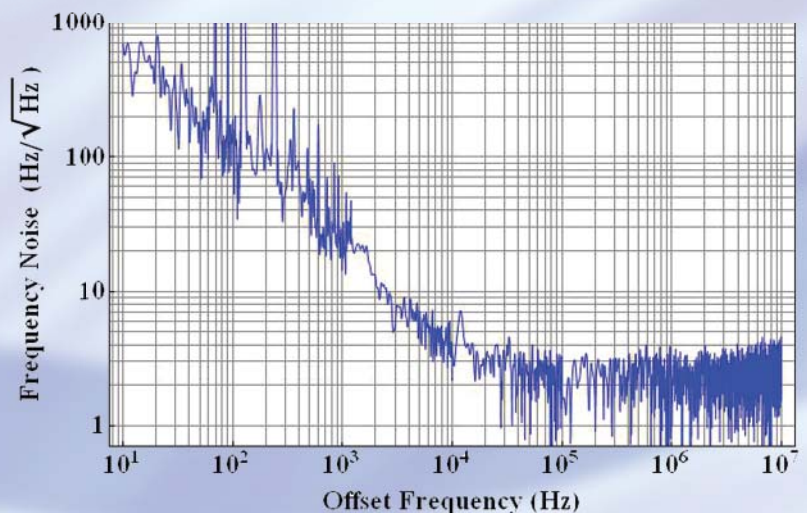
Features

- Ultra-Narrow Instantaneous & Dynamic Laser Linewidth
- Ultra-Low Phase/Frequency Noise
- C & L Band Wavelength Support
- Wide Thermal Tuning Range
- Low Frequency Modulation Capability
- Low Vibration Sensitivity
- Low Residual Amplitude Modulation
- Wavelength Stability
- Wide Operating Case Temperature
- Compact Package
- Integrated Driver/Controller
- USB or RS232 Control Interface

Applications

- LIDAR
- B-OTDR Temperature and Strain Sensing
- Optical Metrology and Spectroscopy
- Acoustic Sensing
- Oil and Gas Exploration
- Leak Detection and Monitoring
- Interferometric Optical Sensing
- Coherent Communication
- Test and Measurement

The unique technology of the OEwaves Ultra-Narrow Linewidth Laser Module leverages the self-injection locking of a suitable commercially available laser diode via a resonant optical feedback from a high-Q WGM micro-resonator. Its monolithically integrated approach along with micro-scale mass and volume make the laser virtually insensitive to environmental vibrations. The laser is available with either an SMF or PM pigtail fiber, suitable for a broad range of sensing, monitoring, and metrology applications where high resolution, high precision, and absolute accuracy are required.



Specifications

Parameter	OE4020	Notes
Wavelength	C-Band L-Band	Single Mode CW
Instantaneous Linewidth	300 Hz	Lorentzian; 10 us
Dynamic Linewidth	300 Hz	
Output Power	+10 mW	At center wavelength
Frequency Noise	100 Hz/rt(Hz) 20 Hz/rt(Hz) 3 Hz/rt(Hz)	100 Hz Offset 1 kHz Offset 100 kHz Offset
Allan Deviation	8×10^{-10} @ 1 s	At constant case temperature.
Frequency Stability	+/-15 MHz/day	At constant case temperature.
Thermal Tuning Range	2 nm 50 GHz	Full Coverage Mode Hop Free
Thermal Tuning Rate	1 GHz/s	
Side-Mode Suppression Ratio	50 dB	Min
RIN	-150 dBc/Hz	10 MHz
Operating Temp. Range	0° - +70° C	Case
Storage Temp. Range	-30° - +80° C	Case
Monitor/Control Interface	USB	
Package	2 1/2" x 4 1/2" x 7/8"	Subject to change
Fiber Pigtail	PM	PANDA
Optical Connector	FC/APC	
Options		
Fiber Pigtail	SMF	
Connector	FC/PC, SC/APC	
Monitor/Control Interface	RS232 External Control Module	OEwaves' external adapter is required. Via USB
Thermal Tuning Range	10 GHz/s	Center wavelength only.
OEM Version	Butterfly Package	Contact factory for details.

Laser Safety: This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR) 1040 and is classified as FDA/CDRH Class 3b laser product.



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Note:

These specifications are subject to change without notice. Unless otherwise noted, all specifications in this document are to be treated as "typical."

This product line is covered by one or more of the following U.S. patents: 6,871,025; 6,879,752; 7,248,763; 7,356,214; 7,440,651; 7,630,471; 7,869,472; 7,929,651; 7,991,025. Other patents pending.
 ECCN: 6A995.b.1

