



CEL Cateye Laser



The MOGLabs Cateye Laser offers a new twist in external cavity diode lasers.

A cateye reflector and ultranarrow filter replace the alignment-sensitive diffraction grating of conventional Littman-Metcalf and Littrow designs.

The CEL is robust, stable, and acoustically inert. In combination with MOGLabs electronics, the linewidth can be below 20 kHz. Wavelength coverage includes most of 450 – 530nm and 630 – 1620nm, with power up to 250mW extra-cavity. It is available in an economical compact chassis, or as a larger chassis allowing for internal single or double-stage isolator, beam-shaping, and fibre coupling.

Features

- Cateye filter design
- Fast piezo feedback
- Self-aligning
- Precision wavelength adjustment

Benefits

- High-performance
- Narrow linewidth
- Acoustically inert
- Very low frequency noise

Applications

- Laser cooling and trapping
- Bose-Einstein condensation
- Trapped ion quantum computing
- Quantum optics: squeezed light
- Electromagnetic transparency and slow light
- Time and frequency standards
- Laser spectroscopy

Cateye Laser

Specifications CEL v002

Wavelength/frequency	
450 – 530nm; 630 – 1620nm	Up to 250mW output power, diode dependent
Linewidth	Typically <100kHz, configuration dependent
Modulation	20MHz bandwidth, AC or DC coupled, <20ns phase delay RF bias tee option: >2.5GHz bandwidth
Coarse tuning range	Diode dependent; e.g. 776nm – 802nm or 850 – 895nm (single diode)
Optical	
Beam diameter (1/e ²)	Typically 0.6 x 0.3mm; diode-dependent
Polarisation	Vertical linear 100:1 typical (standard diode)
Thermal	
TEC	±14.5V 3.3A Q = 23W standard
Sensor	NTC 10kΩ standard; AD590, 592 optional
Stability at base	±1mK (controller dependent)
Cooling	Water cooling connections optional (usually not required)
Sweep/scan	
Scan range	20 GHz typical, with MOGLabs controller, diode dependent
Mode-hop free scan	20 GHz typical, with current feed-forward
Piezo	User-replaceable module
Electronics	
Protection	Relay, cover interlock connection, reverse diode
Indicator	Laser ON/OFF (LED)
Modulation input	SMA DC to 20MHz or AC 10kHz to 20MHz, ground isolated Option: RF bias tee, 16MHz – 2.5GHz (lower cutoff optional)
Connector	MOGLabs DLC Diode Laser Controller (single cable connect)
Dimensions	
Dimensions	Compact: 108 x 70 x 83mm (LxWxH), 0.5kg Extended (as shown): 220 x 95 x 90.5 (LxWxH), 1.3kg

