

moglabs

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 Litman-Metcalf and Littrow designs.

The CEL is robust, stable, and acoustically inert. In combination with MOGLabs electronics, the linewidth can be well below 100 kHz. Common wavelengths are available including 370nm, 398/399nm, 671nm, 780nm, 795nm, 852nm, 866nm, 895nm and many others, at powers up to 250mW extra-cavity. It is available in an economical compact chassis as shown, or an extended chassis with internal isolator and fibre coupling options.

Features

- Cateye filter design
- Fast piezo feedback
- Precision alignment controls
- Microwave RF modulation input
- Diode protection circuit and relay

Benefits

- High-performance
- Narrow linewidth
- Acoustically inert
- Low frequency noise
- High feedback bandwidth
- Use with MOGLabs Controller or your electronics

Applications

- Laser cooling and trapping
- Bose-Einstein condensation
- Quantum optics: squeezed light
- Electromagnetic transparency and slow light
- Time and frequency standards
- Laser spectroscopy
- Physics teaching labs

Cateye Laser

Specifications CEL v002

Wavelength/frequency

780nm, 852nm, others

Up to 250mW output power, diode dependent

Linewidth

Typically <100kHz, configuration dependent

Modulation

10MHz bandwidth, AC or DC coupled
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/e²)

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

15 GHz typical, with MOGLabs controller, diode dependent

Mode-hop free scan

15 GHz typical, with current feed-forward

Piezo

0 – 150V, >2 μm

Electronics

Protection

Relay, cover interlock connection, reverse diode

Indicator

Laser ON/OFF (LED)

Modulation input

SMA DC to 10MHz or AC 10kHz to 10MHz, ground isolated
Option: RF bias tee, 16MHz – 2.5GHz (lower cutoff optional)

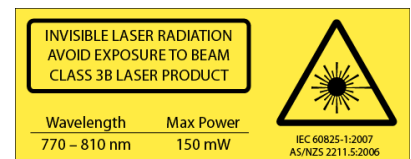
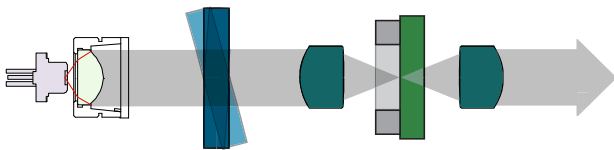
Connector

MOGLabs DLC Diode Laser Controller (single cable connect)

Dimensions

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Compact: 108 x 70 x 83mm (LxWxH), 0.5kg
Extended (as shown): 220 x 95 x 90.5 (LxWxH), 1.3kg



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