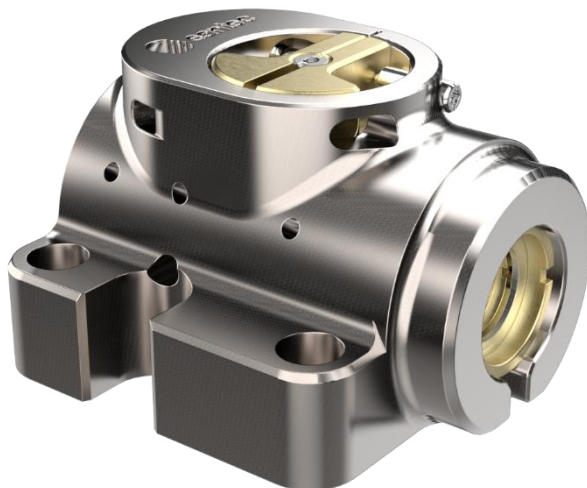




CEL/CEX/CEF Cateye Laser



The Santec 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 Santec electronics, the linewidth can be below 20 kHz. Wavelength coverage includes most of 450 to 530 nm and 630 to 1620 nm, with power up to 250 mW extra-cavity. It is available in an economical compact chassis, or as a larger chassis (CEX) allowing for internal single or double-stage isolator, beam-shaping, and fibre coupling (CEF).

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

Wavelength/frequency

450 – 530 nm; 630 – 1620 nm	Up to 250 mW output power, diode dependent
Linewidth	Typically <100 kHz, configuration dependent
Modulation	20 MHz bandwidth, AC or DC coupled, <20 ns phase delay RF bias tee option: >2.5 GHz bandwidth
Coarse tuning range	Diode dependent; e.g. 776 – 802 nm or 850 – 895 nm (single diode)

Optical

Beam diameter ($1/e^2$)	Typically 0.6 x 0.3 mm; diode-dependent
Polarisation	Vertical linear 100:1 typical (standard diode)

Thermal

TEC	± 14.5 V 3.3A $Q = 23$ W standard
Sensor	NTC 10k Ω standard; AD590, 592 optional
Stability at base	± 1 mK (controller dependent)
Cooling	Water cooling connections optional (usually not required)

Sweep/scan

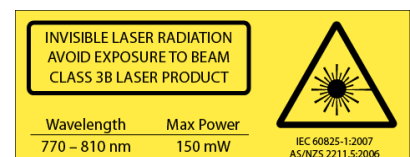
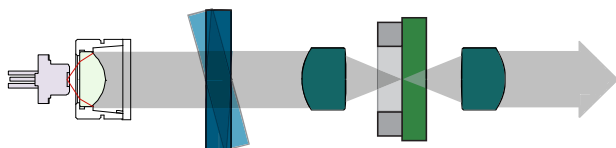
Scan range	20 GHz typical, with Santec controller, diode dependent
Mode-hop free scan	20 GHz typical, with current feed-forward
Piezo	User-replaceable module

Electronics

Protection	Relay, cover interlock connection, reverse diode
Indicator	Laser ON/OFF (LED)
Modulation input	SMA DC to 20MHz or AC 10 kHz to 20 MHz, ground isolated Option: RF bias tee, 16 MHz – 2.5 GHz (lower cutoff optional)
Connector	Santec DLC Diode Laser Controller (single cable connect)

Dimensions

Dimensions	Compact (as shown): 108 x 70 x 86.7 mm (LxWxH), 0.5 kg Extended (CEX/CEF): 240 x 95 x 93 (LxWxH), 1.3 kg
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CEL-C-E/Ver.1.0 CODE-202606-TM-PP-CPY