



# PureLight Stretto Diode Laser

Discover the groundbreaking Stretto laser system, a key member of the PureLight family, offering advanced, high-performance, narrow-linewidth photonic solutions in ultraviolet (UV), Visible, and Near-Infrared (NIR). Drawing inspiration from the musical term 'stretto,' which signifies the intricate overlap and succession of musical parts, this innovative tunable laser is synonymous with precision and accuracy.

## Adaptable to Extreme Conditions

Leveraging Daylight's core commitment to quality of light and high performance, Stretto is not just any external-cavity diode laser (ECDL). It is a rugged, compact, and lightweight photonic

solution, engineered to withstand extreme conditions. Unlike typical ECDLs, Stretto excels in environments that challenge other lasers, setting a new standard in rugged narrow-linewidth laser technology. Specifically, all Stretto lasers are:

- **Hermetically Sealed:** Ideal for humid, dusty, or vacuum-compatible applications
- **Shock and Vibration Resistant:** Remains locked to optical references while withstanding 150g shock pulses and extreme vibration scenarios.

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# HIGH-PRECISION EXTERNAL CAVITY DIODE LASERS FROM UV TO IR

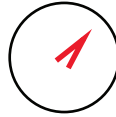


## KEY FEATURES



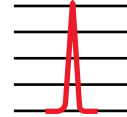
### Wide Wavelength Coverage

From 369 nm to 1800 nm, with free-space or fiber-coupled option



### Superior Frequency Tuning

Offering mode-hop-free tuning beyond 50 GHz, sustained over challenging environmental conditions



### Ultra-Narrow Linewidth

Achieving a free-running linewidth of 100 kHz and closed-loop linewidth of < 1 kHz

## APPLICATIONS

- Quantum Computing
- Quantum Sensing
- Quantum Timing
- Precision Spectroscopy

## SPECIFICATIONS

Wavelength coverage	369 - 1800 nm
Typical power	10 - 300 mW (model dependent)
Typical mode-hop free tuning range	≥ 50 GHz
Typical free-running linewidth (5 μs integration time)	100 kHz FWHM
Typical output beam characteristics	Fiber-coupled: SM/PM fiber Free-space: Circular, 1 mm FW @ 1/e <sup>2</sup> diameter
Typical output beam polarization	Fiber-coupled: > 18 dB PER Free-space: Linear > 20 dB PER
Optical isolation	30 - 35 dB (integrated)
Power supply	100 - 240 VAC (50/60 Hz)
Power consumption	Typ. < 35 W
Interface	Ethernet and USB 2.0/3.0 networking Analog servo control outputs Windows® 10/11 GUI and full SDK (supports Python® / C++ / LabView®)
Environmental temperature	15 - 30°C (operating) -40 - 70°C (storage / transport)
Environmental humidity	95% non-condensing

## PHYSICAL CHARACTERISTICS

Dimensions laser head (H × W × D)	8.8 × 4.8 × 2.3 inches (220 × 120 × 58 mm)
Weight laser head	7 lb (3.2 kg)
Dimensions control unit (H × W × D)	11.5 × 7 × 2.3 inches (290 × 180 × 58 mm)
Weight control unit	1 lb (0.4 kg)

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[daylightsolutions.com/products/stretto](https://daylightsolutions.com/products/stretto)

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## EXAMPLE WAVELENGTHS AND TYPICAL POWER OUTPUT

$\lambda^*$ (nm)	Target	P <sup>**</sup> (mW)
369, 399	Yb+, Yb	10 <sup>†</sup>
405, 413, 480, 493	Sr+, Ba+, Rb	20
511, 553, 614	Cs, Ba+	50
619	SnV	5
689, 698	Sr	4
737	SiV	5
762, 767, 770, 776, 780	Rb, K	20
814	Sr	40
852	Cs, Yb+	30
894, 935, 1038	Cs	60
1270	Cs	50

\*Wavelength must be specified to nearest  $\pm 2$  GHz at time of order (as frequency or vacuum wavelength)

\*\*Fiber-coupled output (nominal); free-space output power higher

<sup>†</sup>Only available as free-space variant

Optical isolation > 30 dB typical for all wavelengths listed



COMPLIES WITH 21 CFR 10.40.10 AND 10.40.11 EXCEPT FOR CONFORMANCE WITH IEC 60825-1 Ed. 3., AS DESCRIBED IN LASER NOTICE NO. 56. DATED MAY 8, 2019



VISIBLE OR INVISIBLE LASER RADIATION  
AVOID EXPOSURE TO THE BEAM

REV-3-2024

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