



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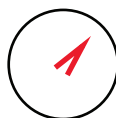
# HIGH-PRECISION EXTERNAL CAVITY DIODE LASERS FROM UV TO IR

## KEY FEATURES



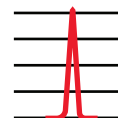
### Wide Wavelength Coverage

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 Defect Centers
- Quantum Networking
- Optical Clocks
- Precision Spectroscopy
- Qubit Transduction

## 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<br>Free-space: Circular, 1 mm FW @ 1/e <sup>2</sup> diameter   |
| Typical output beam polarization                       | Fiber-coupled: > 18 dB PER<br>Free-space: Linear > 20 dB PER  |
| Optical isolation                                      | 30 - 35 dB (integrated)   |
| Power supply   | 100 - 240 VAC (50/60 Hz)  |
| Power consumption                                      | 24VDC: < 18 W (12 W typ); AC: < 37 W  |
| Interface  | Ethernet and USB 2.0/3.0 networking<br>Analog servo control outputs<br>Windows® 10/11 GUI and full SDK<br>(supports Python® / C++ / LabView®) |
| Environmental temperature                              | 15 - 30°C (operating)<br>-40 - 70°C (storage / transport)   |
| Environmental humidity                                 | 95% non-condensing  |

## PHYSICAL CHARACTERISTICS

|                                     |   |
|-------------------------------------|---|
| Dimensions laser head (H × W × D)   | 8.7 × 4.8 × 2.3 inches (222 × 121 × 58 mm)  |
| Weight laser head                   | 7 lb (3.3 kg)                               |
| Dimensions control unit (H × W × D) | 13.5 × 8.1 × 2.5 inches (343 × 206 × 64 mm) |
| Weight control unit                 | 3 lb (1.4 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** (mW) |
|------------------------------|------------------------|----------|
| 369, 399                     | Yb+, Yb                | 7        |
| 405, 413, 480                | Sr+, Rb                | 20       |
| 493                          | Ba+                    | 25       |
| 511, 553                     | Cs                     | 50       |
| 614, 619                     | Ba+, SnV               | 20       |
| 689, 698                     | Sr                     | 4        |
| 737                          | SiV                    | 10       |
| 762, 767, 770, 776, 780, 795 | Rb, K                  | 30       |
| 814                          | Li                     | 40       |
| 852                          | Cs                     | 50       |
| 894, 917, 935, 1033          | Cs, Yb+, Sr+, Cs (Ryd) | 70       |
| 987                          | Ba+                    | 85       |
| 1020                         | Rb (Ryd)               | 80       |
| 1038                         | Cs                     | 60       |
| 1107, 1131                   | Ba+, SnV               | 75       |
| 1500                         | Ba+                    | 40       |
| 1731, 1762                   | Ba+                    | 10       |

\*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

†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-6-2025

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