VXL™ SERIES
LASER DATASHEET

VEXLUM

SINGLE-FREQUENCY LASER *for enterprise*

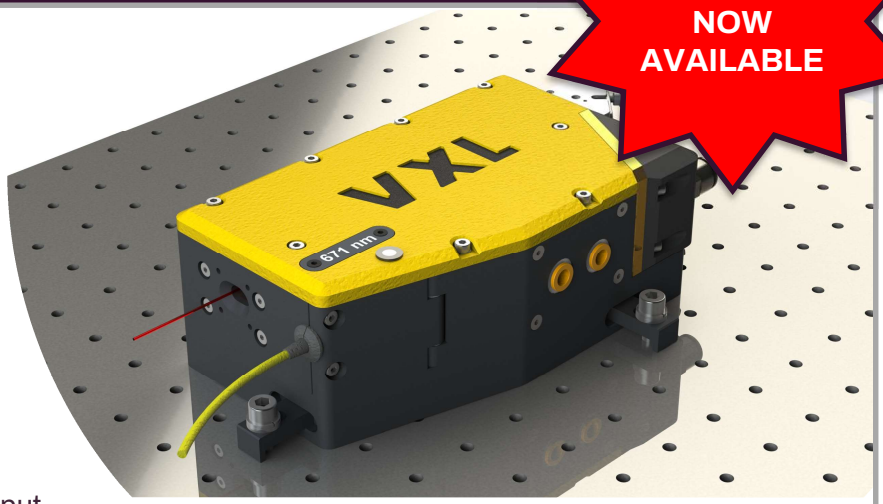
PILOTS NOW AVAILABLE

Features

- High-output power
- Broad-wavelength coverage
- Narrow-linewidth single frequency
- Excellent beam quality

For system integration

- Compact modular design
- Rugged sealed laser cavity
- Unparalled SWaP-C for watt-level output
- Improved system performance
- High fiber coupling efficiency



Vertical-external-cavity surface-emitting laser (VECSEL)
a.k.a. Optically pumped semiconductor laser (OPSL)

	VXL™ SF	VXL™ SHG
Architecture	Direct emitting VECSEL	Intracavity doubled VECSEL
Gain	Optically-pumped semiconductor gain mirror	
Target wavelength[1]	700 – 2150 nm	350 – 800 nm
Free-space output power[2]	0.5 – 10 W with external pump laser	0.01 – 3 W with external pump laser
Coarse tuning[3]	+/- 0.5 nm	+/- 0.25 nm
Mode-hop free tuning range[4]	1 GHz	2 GHz
Free-running linewidth	< 10 kHz (10 µs), < 100 kHz (100 µs)	
Slow modulation (typical)	Piezo on cavity mirror, 10 kHz bandwidth, 50 MHz/V modulation depth	
Fast modulation (optional)	Intra-cavity electro-optical modulator (EOM), 1 MHz bandwidth, 50 kHz/V modulation depth	
RMS RIN (typical, unlocked)	< 0.05 % (10 Hz – 3 MHz)	
Power stability (typical, unlocked)	< 0.1 % (1.5 h)	
Beam quality	$M^2 < 1.1$ TEM_{00}	$M^2 < 1.2$ TEM_{00}
Beam diameter and divergence[5]	Up to 2 mm, up to 5 mrad	
Polarization, linear	Horizontal, p-polarized	Vertical, s-polarized
Secondary output beam	Not applicable	Secondary output of fundamental wavelength (horizontal, p-polarized)
Polarization extinction ratio (PER)	> 20 dB, linear polarization	
Laser head dimensions	176 mm x 102 mm x 65 mm (1.2 L; 2U height requirement)	
Control electronics[6,7]	Improved control unit for CW operation	
Cooling[7]	Air-cooling or water-cooling	

[1] Target wavelength is selected within the wavelength range.
[2] Output power is wavelength dependent. See the next page for typical power levels. Single-stage isolator is recommended for applications with back reflections.
[3] Coarse tuning range is wavelength dependent.
[4] Mode-hop free tuning range corresponds to the laser cavity free-spectral range scanned with piezo voltage control. Larger tuning range can be reached by adjusting other tuning elements simultaneously.
[5] Typical values at the laser exit aperture. Beam diameter = full width at $1/e^2$ level of the beam. Divergence = full mean divergence angle. Values depend on the laser cavity configuration, i.e. the wavelength.
[6] The control unit includes a low noise laser diode driver for the pump laser, and up to 5 cavity element temperature controllers, which can be used for wavelength tuning and power optimization.
[7] The control unit and the standard water-cooling unit are 19" rack mountable. VXL™ can support air-cooling in low output power operation

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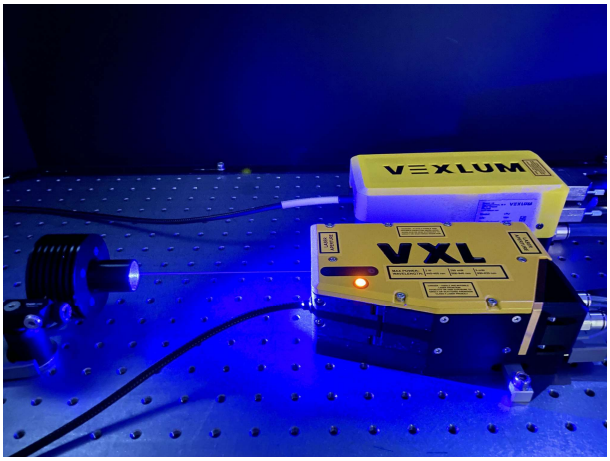
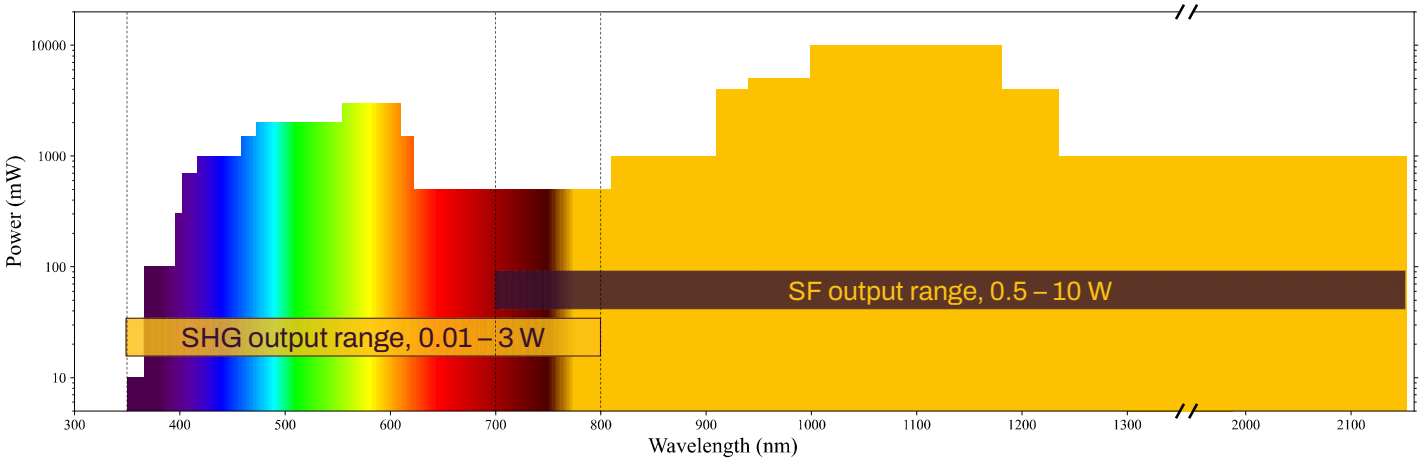
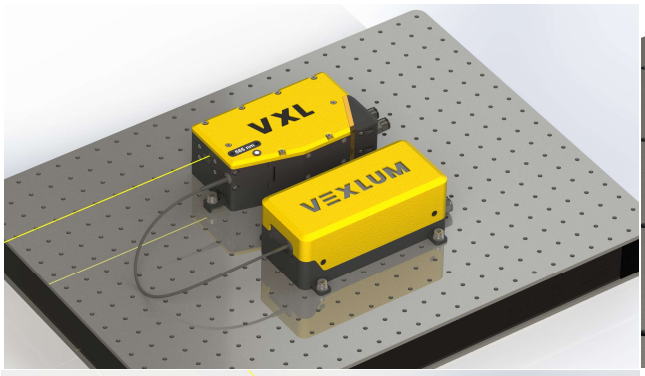
Compact single-frequency laser for system integration

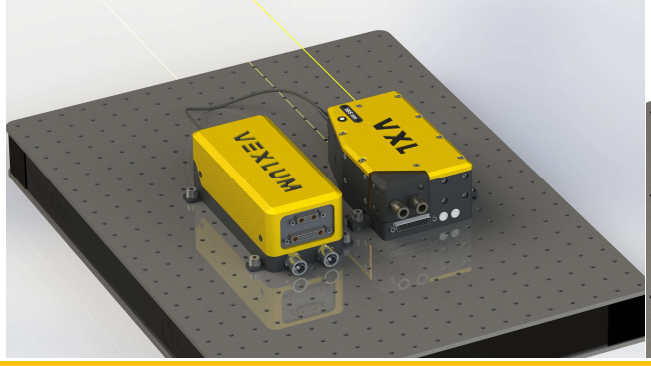


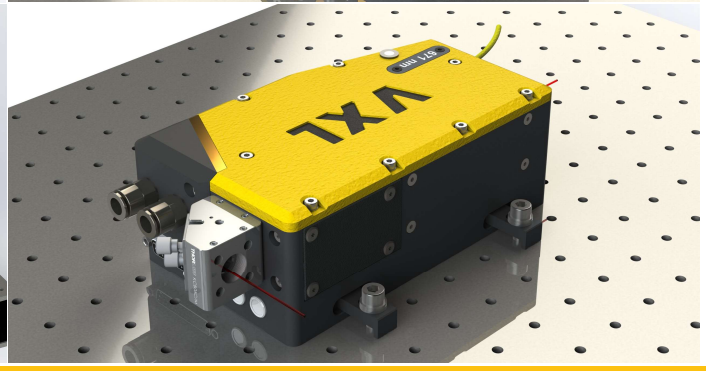
Next generation VECSEL platform

- Designed for system integration and for 24/7 operation
- Reduced system size, weight, power consumption and cost (SWaP-C)
- Modular design for easy and fast servicing with spares
- Fiber-in & fiber-out geometry with remote control for fieldable applications









DANGER – VISIBLE AND/OR INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION CLASS 4 LASER PRODUCT

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