

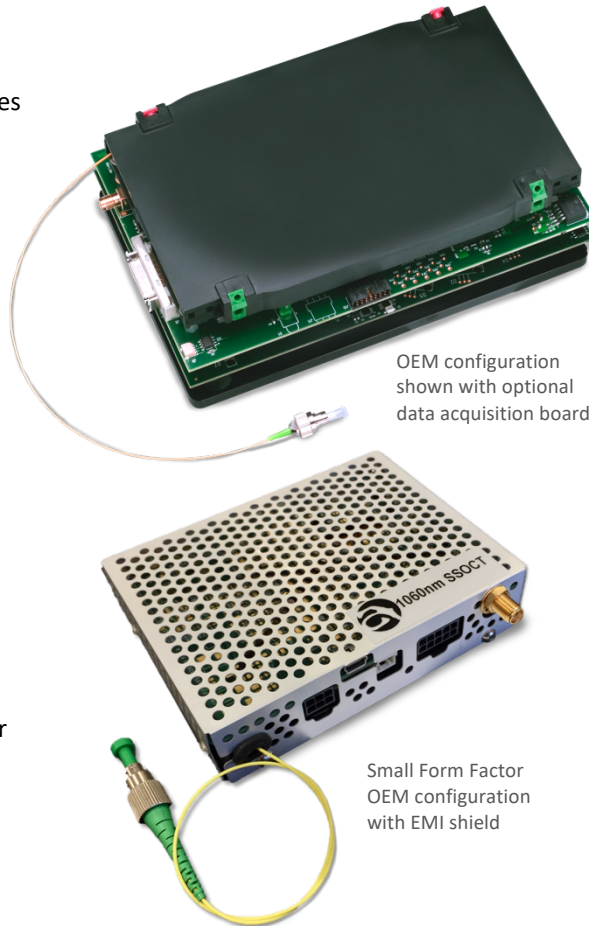
1050 nm High Speed Tunable VCSEL Engines

Leading Edge Performance

The Axsun Tunable VCSEL provides an impressive balance of tuning bandwidth, output power, sweep speed, and coherence length to enable **cutting-edge performance** in next-generation Optical Coherence Tomography (OCT) systems.

Proven Technology

The **Axsun Tunable VCSEL** leverages our proven technology, intellectual property, and volume manufacturing infrastructure to provide a reliable, cost-effective SS-OCT Engine with the highest level of performance. The Axsun VCSEL is a drop-in replacement for our existing SS-OCT Engines.



A Unique Design

Based on our micro-optical integration capabilities and patented MEMS tunable filter, the highly scalable Axsun VCSEL platform will be the **preferred choice** for OCT system vendors in multiple markets.

Reliability & Support

Axsun has shipped more than 15,000 SS-OCT lasers into the Market since 2009. Our products meet rigorous Telcordia qualification standards and are supported by a team with **decades of expertise** in laser and OCT system technology.

Axsun Tunable VCSEL Configurations

Center Wavelength	1050 nm	
Sweep Rate, kHz (bidirectional)	200 (400)	2 to 60
Tuning Range, nm	90	20 to 90
Coherence Length, mm	>100	>100
Average Output Power, mW	>18	>18
Scan Depth in Air, mm	Customizable with Integrated K-clock	
Typical Applications	Retinal Imaging, OCT-Angiography	Anterior Segment Imaging, Optical Biometry, Ranging & LiDAR
Axsun VCSELs can operate at multiple combinations of sweep rate and tuning range to enable a variety of multimodal OCT applications.		

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Features & Available Options

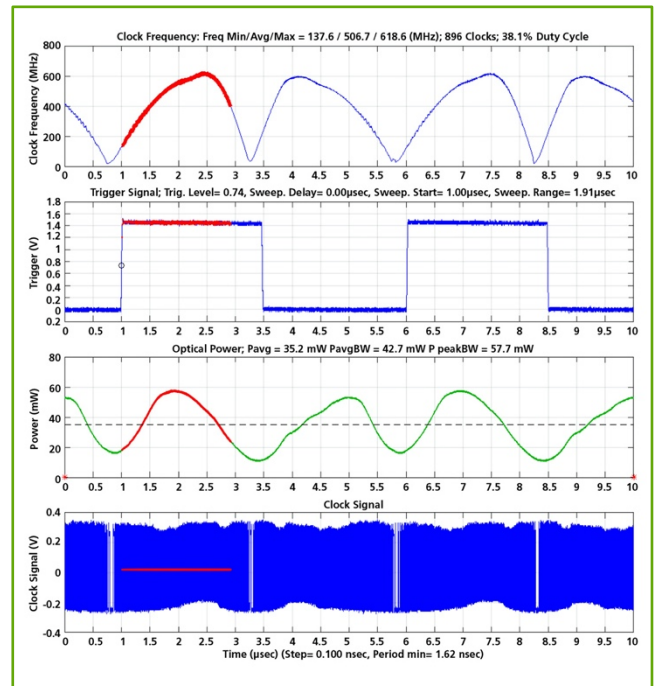
Available in several OEM or Benchtop configurations
Emission control via hardware line or software (Windows XP or later)
Latching hardware-based emission interlock and LED emission indicator
Optional MZI-based k-clock for direct A/D sampling
Phantom sample clock generated during laser fly-back for compatibility with Axsun's and other common third-party data acquisition boards
Programmable k-clock delay to manage time-of-flight difference between k-clock and main OCT interferometers
Optional balanced photoreceivers (single or dual-channel) ⁽¹⁾
Optional 500 MS/s, 12-bit data acquisition board ⁽¹⁾
2-Channel DAQ with 1G Ethernet (Cat 5 cable to PC) or PCIe interface
1-Channel DAQ with CamerLink interface (to PCIe frame grabber)
Optional power monitor ⁽¹⁾
Optional EMI shield ⁽¹⁾

Interface Specifications

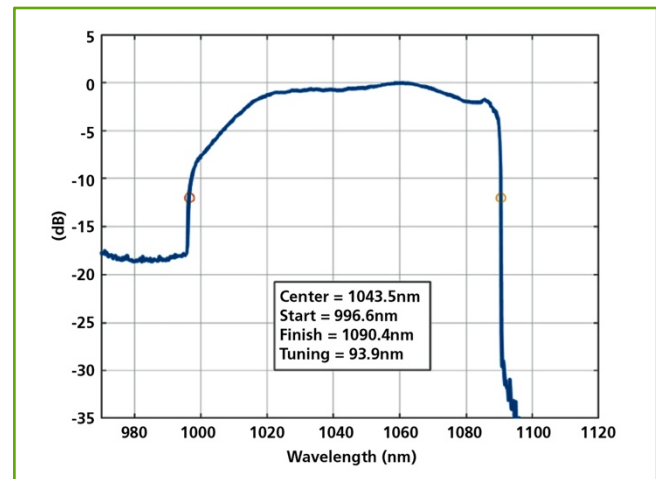
Optical Output	OEM: $\approx 1\text{m}$ 900 μm -jacketed fiber, FC/APC connector Benchtop: FC/APC bulkhead
Sweep Trigger Output	OEM: LVDS (1.0-1.4V), 100 Ω termination, SATA ⁽²⁾ Benchtop: LVTTTL (0-3.3V), unterminated, SMA
K-clock Output	OEM: ECL (1.6-2.4V), 100 Ω termination, SATA ⁽²⁾ Benchtop: 0.2-0.8V, 50 Ω termination, SMA
USB 2.0 Control & Diagnostics	OEM: mini-B receptacle Benchtop: type B receptacle
Power Consumption	12 W typical at 25°C, 12 V _{DC} supply included
Dimensions	OEM: 54 x 144 x 178 mm (2.1 x 4.5 x 7") Benchtop: 76 x 152 x 208 mm (3.1 x 6 x 8.2")
Environmental Requirements	OEM: maintain heatsink @ 10-45°C, 10-90% humidity NC Benchtop: 10-35°C, 10-90% humidity NC
(1) OEM configuration only	
(2) Benchtop signals on OEM configuration with available interface board	

Contact Us with Special Requests!

Typical O-Scope Capture (200/400 kHz)



Typical Optical Spectrum



About Excelitas Technologies

Excelitas Technologies® Corp. is a photonics technology leader focused on delivering innovative, high-performance, market-driven solutions to meet the lighting, optronics, detection and optical technology needs of our OEM customers.

Serving a vast array of applications across biomedical, scientific, safety, security, consumer products, semiconductor, industrial manufacturing, defense and aerospace sectors, Excelitas stands committed to enabling our customers' success in their end-markets. Our photonics team consists of 7,000 professionals working across North America, Europe and Asia, to serve customers worldwide.

For a complete listing of our global offices, visit www.excelitas.com/locations

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