

Axsun Azmyth™ High-Speed Compact Tunable VCSEL Engine

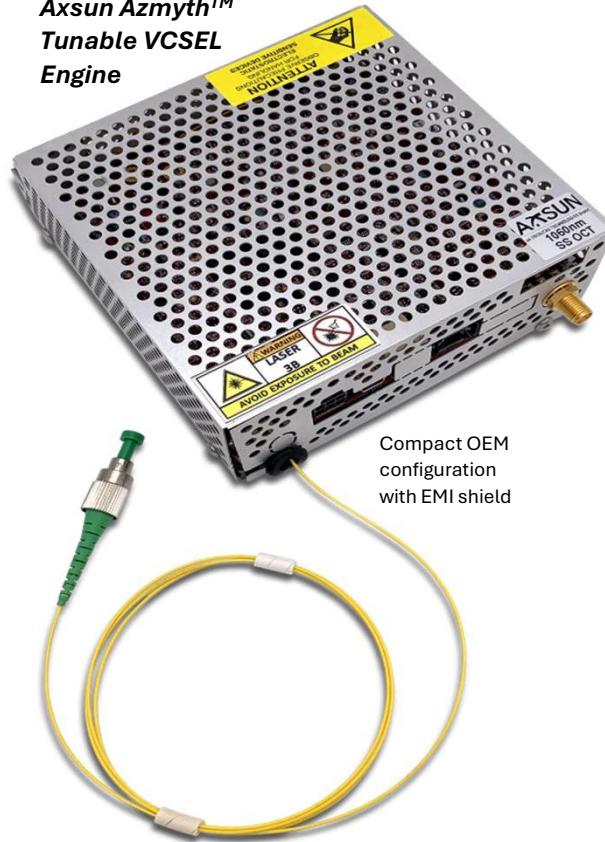
Leading Edge Performance

The Axsun Azmyth™ VCSEL provides an **impressive balance** of tuning bandwidth, output power, sweep speed, and coherence length to enable **leading edge imaging performance** for next-generation Swept-Source Optical Coherence Tomography (SS-OCT) systems.

Compact & Scalable

The Azmyth™ VCSEL leverages Axsun's **proven tunable laser technology**, intellectual property, and volume manufacturing infrastructure to achieve a **reliable, scalable, and cost-effective** SS-OCT laser source with the highest level of performance. The enhanced Azmyth™ SS-OCT engine platform provides ultra-high-speed tuning control and valuable customization options within a compact footprint.

**Axsun Azmyth™
Tunable VCSEL
Engine**



Compact OEM configuration with EMI shield

A Unique Laser Design

Based on Axsun's renowned micro-optical integration & precision alignment capabilities and its patented MEMS Fabry-Perot tunable filter, the Azmyth™ VCSEL is poised to become the **preferred choice** for OCT system integrators in multiple markets, including medical imaging, industrial inspection, and academic research.

Supported by Experts

Axsun has shipped over 25,000 tunable lasers into the market since 2009. Our products meet rigorous Telcordia qualification standards and are supported by a team with **decades of expertise** in tunable laser physics and OCT systems technology.

Sweep Rate	2 kHz to 400 kHz (up to 800 kHz bidirectional)
Center Wavelength	~1055 nm
Tuning Range	> 90 nm
Coherence Length	>> 100 mm
Average Output Power	> 18 mW
Scan Depth	Customizable with integrated Analog or Digital K-clock
Typical Applications	Retinal Imaging, OCT-Angiography, Anterior Segment Imaging, Optical Biometry, Inspection, Profilometry, Defect Identification, Quality Control, Ranging & LiDAR <i>Axsun VCSELs can operate at multiple combinations of sweep rate and tuning range to enable a variety of multi-modal OCT imaging and sensing applications.</i>

See the Axsun High Speed Swept Lasers and Axsun Dual-Channel DAQ datasheets to learn about additional Axsun SS-OCT capabilities!

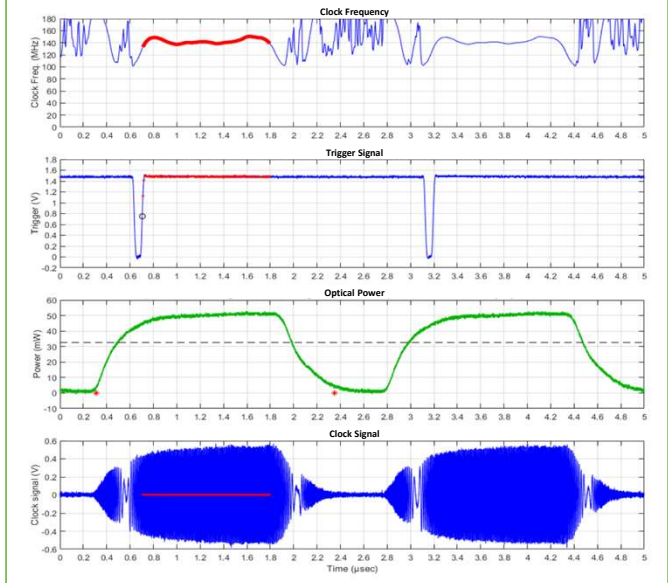


Axsun Azmyth™ High-Speed Compact Tunable VCSEL Engine

Features & Available Options

- Compact OEM footprint including EMI shield enclosure for easy handling
- Emission control via hardware line or software (Windows & Linux, x64 or x32)
- Latching hardware-based emission safety interlock and LED emission indicator
- Optional **Digital K-clock Output** for direct ADC sample clocking
 - Phantom clock generated during laser fly-back for compatibility with common third-party data acquisition boards.
 - Software-programmable k-clock delay to manage time-of-flight difference between k-clock and main OCT interferometers.
- Optional **Analog K-clock Output** for OCT architectures using SW resampling
- Software API and power connectors are backward-compatible with prior generation of Axsun OEM laser engine products for **plug-and-play upgrade**
- Optional single- or dual-channel balanced photoreceivers and other system options on roadmap

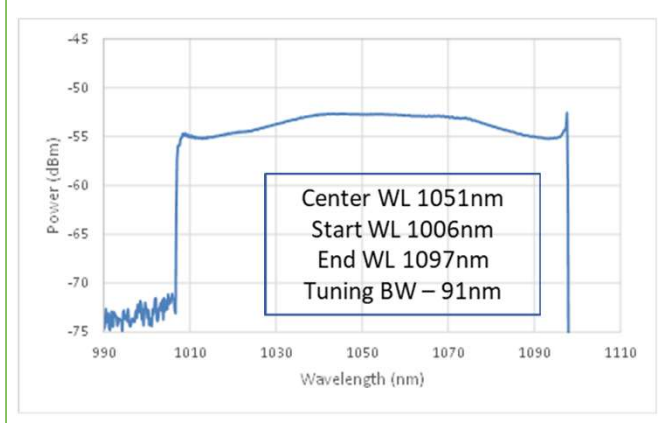
Typical Oscilloscope Capture (400 kHz)



Interface Specifications

Optical Output	≈1m of 900µm-jacketed fiber; FC/APC connector
Sweep Trigger Output	LVDS (1.0-1.4V), 100Ω termination via SATA connector and LVTTTL via SMA connector
K-clock Output	Digital: ECL (1.6-2.4V), 100Ω termination, SATA Analog: +/- 200 mV sine wave via SMA connector
USB 2.0 Control & Diagnostics	Mini-B receptacle; Windows and Linux APIs
Power Consumption	<30 W; 12 V _{DC} supply included
Dimensions	44 x 111 x 123 mm (1.73 x 4.37 x 4.84")
Environmental Requirements	10-40 °C, 10-90% humidity NC Must maintain heatsink < 55 °C

Typical Optical Spectrum



Contact us with Special Requests!

About Excelitas

Excelitas is a leading provider of advanced, life-enriching technologies that make a difference, serving global market leaders in the life sciences, advanced industrial, next-generation semiconductor, and avionics end markets. Headquartered in Pittsburgh, PA, USA, Excelitas is an essential partner in the design, development, and manufacture of advanced technologies, offering leading-edge innovation in sensing, detection, imaging, optics, and specialty illumination for customers worldwide. Excelitas is at the forefront of addressing many of the relevant megatrends impacting the world today, including precision medicine, industrial automation, artificial intelligence, and connected devices (IoT).

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