

High Speed Swept Lasers at 1060, 1310, & 1220 nm

Axsun Swept Lasers

Axsun lasers provide an optimal balance of tuning bandwidth, output power, sweep speed, and coherence length to enable **cutting-edge performance** in next-generation Swept-Source Optical Coherence Tomography (SS-OCT) systems.

A Unique Design

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

Integrated Solutions

Axsun lasers are paired with driver electronics and optional k-clock, balanced receivers, interferometers, and high-speed data acquisition electronics in compact and **highly cost-effective** OEM configurations or benchtop enclosures.

Reliability & Support

Axsun products have logged billions of hours in telecom and imaging systems around the world since 2001. Our products meet rigorous Telcordia qualification standards and are supported by a team with **decades of expertise** in laser and OCT system technology.



OEM Configuration, shown with optional data acquisition board



Benchtop Enclosure Configuration



Small Form Factor OEM Configuration with EMI shield

Largest Selection of Laser Specifications Available

Spectral Range	~1310 nm				~1060 nm				
Sweep Rate, kHz	50	100	100	200	100	100	200	100-400 ⁽⁴⁾	2-50
Tuning Range, nm (-10 dB)	105	105	135	90	105	135	100	90	28
Coherence Length, mm ⁽¹⁾	28	18	18	16	10	10	10	>>100	>>100
Average Output Power, mW ⁽³⁾	18	18	18	18	15	15	15	18	18
Max Scan Depth in Air, mm ⁽²⁾	12	Up to 7.2		5	3.7	3.7	3.7	Customizable	
Laser Architecture	External Cavity Laser (ECL)				ECL			VCSEL	VCSEL
Common Applications	Anterior Segment Ophthalmic Imaging, Endoscopy, Dermatology, Cardiology				High Speed Retinal Imaging				Optical Biometry

(1) Measured as double-sided 6 dB fringe contrast roll-off
 (2) With optional k-clock output
 (3) Higher power available for some configurations
 (4) Azmyth Engine platform required higher than 200 kHz

Minimum specifications shown.
 Custom configurations available on request.
 Please inquire about 1220 nm swept laser specifications.

See the **Axsun Azmyth™ VCSEL Engine and Axsun Dual-Channel DAQ datasheets** to learn about additional Axsun SS-OCT capabilities!



Axsun High Speed Swept Laser Engines

Features & Available Options

Configured as: **Standard OEM, Small Form Factor OEM, or Benchtop Enclosure**

Emission control via hardware line or software (Windows & Linux, x64 or x32)

Latching hardware-based emission interlock and LED emission indicator

Quasi-linear laser sweep trajectory; $\approx 42\text{-}55\%$ sampled duty cycle

Optional **Digital K-clock Output** for direct sample clocking (Standard OEM or Benchtop only)

- 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 systems using SW resampling (Standard OEM only)

Optional **Balanced OCT Photoreceivers** (single or dual-channel) (Standard OEM only)

Optional 900 MS/s, 12-bit **Data Acquisition Board** (Standard OEM only)

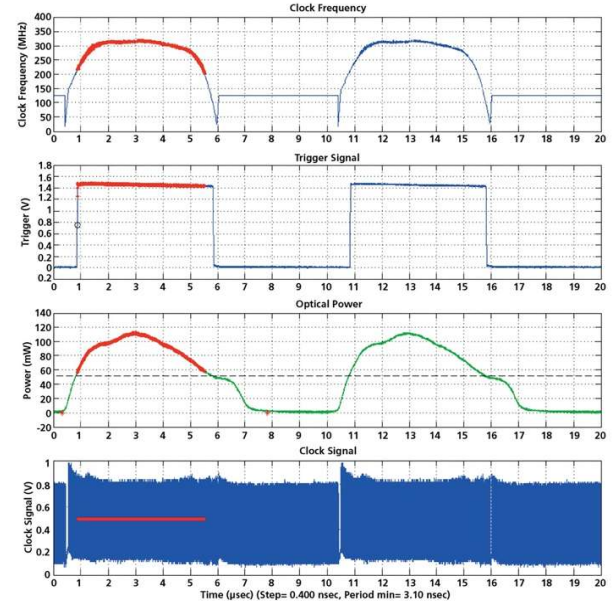
Optional Power **Monitor Photodiode** (Standard OEM only)

Optional fiber-based **OCT Interferometer** (Standard OEM only)

Optional motorized reference **Variable Delay Line** and driver (Standard OEM only)

Optional visible **Aiming Laser** (Standard OEM only)

Typical Oscilloscope Capture (100 kHz)

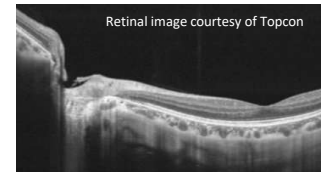
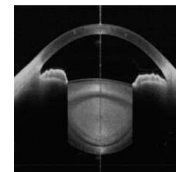
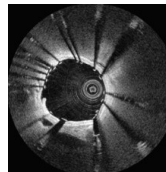
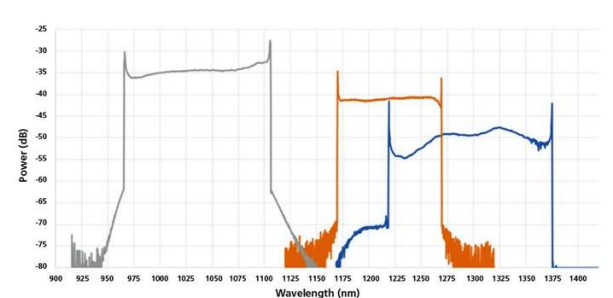


Interface Specifications

Optical Output	OEM: $\approx 1\text{m}$ 900 μm -jacketed fiber, FC/APC connector Benchtop: FC/APC bulkhead
Sweep Trigger Output	Standard OEM: LVDS (1.0-1.4V), 100 Ω termination, SATA* Benchtop & SFF OEM: LVTTTL (0-3.3V), unterminated, SMA
K-clock Output	Standard OEM: ECL (1.6-2.4V), 100 Ω termination, SATA* 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	(1) Standard OEM: 54 x 144 x 178 mm (2.1 x 4.5 x 7") (2) SFF OEM: 25 x 85 x 110 mm (1 x 3.5 x 4.5") (3) 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

*Benchtop signal levels available on OEM configuration with included interface board

Typical Optical Spectra of Axsun Lasers



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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