Exalos Swept Source | ESS – 1550nm

Applications

- Fiber-Optic Sensing
- Frequency Domain Ranging
- Optical Coherence Tomography
- Bio-medical Imaging
- Industrial metrology
- Spectroscopy

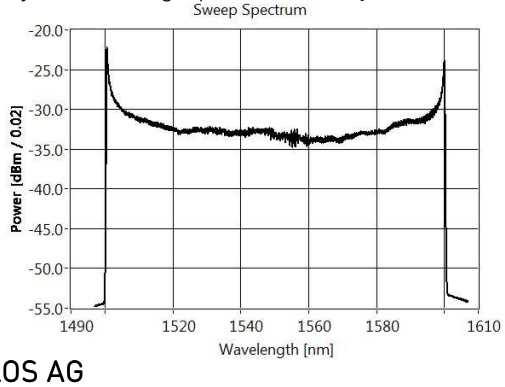
Product Features

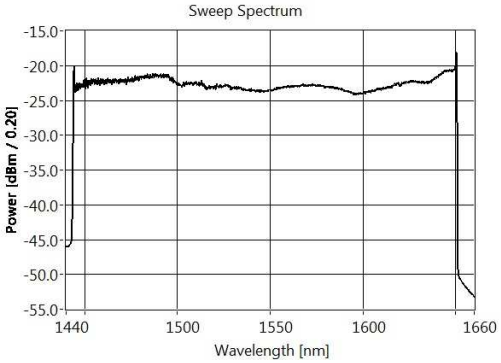
- Sweep frequency (>2 kHz)
- Wide sweep range (> 100 nm)
- High output power (up to 15 mW)
- Compact turn-key system
- USB interface
- Sweep trigger output
- Average optical power monitoring
- OEM versions available

Description

The Exalos swept source (ESS) is a fiber-coupled turn-key laser engine capable of fast wavelength sweep operation (1 kHz to 150 kHz) over wide spectral range. The heart of the ESS is a MEMS-based micro-optic swept laser module in a hermetically sealed 26-pin butterfly package. Its compact and robust packaging enables high performance over broad-based field deployment. Both bench-top instrument and OEM-module versions are available.

Proprietary, patent-protected optical design of the micro-optical swept laser module. The entire laser cavity is sealed within a 26-pin BTF package. Its resonant MEMS mirror provides low scan jitter and high phase stability.





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ESS-1550nm-150kHz				
Swept Source Parameters	Min	Typ	Max	Unit
Center Wavelength	1530	1550	1570	nm
Sweep Range (-10dB)	90	100		nm
A-scan frequency[1]	145	150	155	kHz
Coherence length (in air)[2]		4		mm
6-dB Amplitude Fall-off		4		mm
20-dB Amplitude Fall-off		8		mm
Sweep duty cycle[3]	70	85	100	%
Average output power[4]	5	10		mW
Linewidth		250		pm
ESS-1550nm-2kHz/20kHz				
Swept Source Parameters	Min	Typ	Max	Unit
Center Wavelength	1530	1550	1570	nm
Sweep Range (-10dB)	110	150		nm
A-scan frequency[1]	1.8/18	2/20	2.2/22	kHz
Coherence length (in air)[2]		10/8		mm
6-dB Amplitude Fall-off		10/8		mm
20-dB Amplitude Fall-off		22/18		mm
Sweep duty cycle[3]	70	85	100	%
Average output power[4]	10	15		mW
Linewidth		100/150		pm
Operating Conditions (Bench-Top Instrument)				
Operating temperature	10	25	40	°C
Storage temperature	5	25	80	°C
Humidity	5		85	% r.h.
ESD			500	V
Supply voltage	100-240 V @ 50-60 Hz			
Dimension	261 x 181 x 78			
Laser Classification (per IEC 60825-1)	Class 1M			

Notes:
1 EXALOS' MEMS architecture allows for realizing, upon request, A-scan frequencies from 1 kHz to above 150 kHz. The specified range is due to slight variations in the fabrication process of the MEMS and not related to instabilities of the system. EXALOS will deliver the ESS with a report specifying the exact sweep frequency, and this frequency remains stable over time. Up and down sweeps can be considered identical but mirrored.
2 The coherence length is the optical path difference (OPD) at which the amplitude of the optical fringe signal drops to 50% of its initial value for OPD=0 mm. Typically the so-called *image depth* is half the coherence length value.
3 The "sweep duty cycle" defines the relative portion of the sweep in either up or down direction that can be used for sampling and hence for the OCT scan. The maximum duty cycle is close to 100% (bidirectional scanning).
4 Under sweep operation. For a sweep duty cycle of 100%.

Ordering Information

Part Number: **ESS320030-00** : 1550nm/150kHz/100nm/10mW/4mm - with k-clock
Part Number: **ESS320025-00** : 1550nm/20kHz/150nm/15mW/8mm - with k-clock
Part Number: **ESS320029-00** : 1550nm/2kHz/150nm/15mW/10mm - with k-clock

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