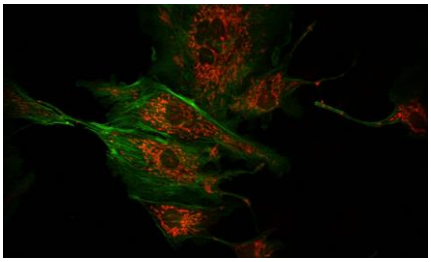
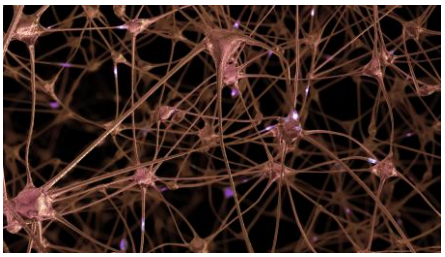
FEMTOSECOND LASER

ALCOR



Two-photon microscopy



Neurosciences

COMPACT HIGH-POWER FEMTOSECOND LASER

780, 920, 1040 and 1064 nm / < 100 fs / Up to 5 W

Spark Lasers' ALCOR is specifically designed for two-photon excitation. It offers clean femtosecond pulses with the highest guaranteed peak power on the market, in an unprecedented compact format and with fixed wavelengths at 780, 920, 1040 and 1064 nm.

The compact laser head of ALCOR incorporates the widest range of computer controlled GDD precompensation on the market and, optionally, a fully aligned and turn-key AOM for fast power modulation and power adjustment. ALCOR can also be coupled to an optical fiber to deliver femtosecond pulses as close as possible to samples. ALCOR offers air cooling and ease of integration with the possibility to install the laser head in any orientation. ALCOR's innovative fiber-based design offers high stability, high reliability without any maintenance, making it the perfect industrial laser for scientific applications.

TECHNICAL SPECIFICATIONS*

General	ALCOR 780	ALCOR 920-1	ALCOR 920-2	ALCOR 920-4	ALCOR 1064-2 or ALCOR 1040-2	ALCOR 1064-5 or ALCOR 1040-5
Wavelength	780 nm	920 nm			1064 nm or 1040 nm	
Average power	0.8 W	> 1 W	> 2 W	> 4 W	> 2 W	> 5 W
Pulse duration (1)	< 150 fs	100 fs		< 130 fs	100 fs	< 120 fs
Group Delay Dispersion (2)	Adjustable from 0 to -60 000 fs²					
Repetition rate (3)	80 +/- 2 MHz					
Energy per pulse (4)	10 nJ	> 12.5 nJ	> 25 nJ	> 50 nJ	> 25 nJ	> 62.5 nJ
Beam parameters						
M² (5)	< 1.2	< 1.2		< 1.3	<1.2	
Beam diameter (6)	1.2 mm	1.4 +/- 0.2 mm		1.8 +/- 0.2 mm	1.5 +/- 0.2 mm	
Divergence (7)	< 1 mrad					
Ellipticity (8)	> 0.9	> 0.8		> 0.8	> 0.8	
Output beam	Collimated					
Polarization	> 100:1, vertical	> 95 %, vertical				
Stability						
Power stability RMS (9)	< 1%					
Pulse to pulse stability RMS (1	< 1%					
Electrical						
External interfaces	RS-232, USB, TCP/IP					
Synchronization output	TTL					
Software interfaces	GUI, RS-232 serial communication protocol					
Power consumption	< 150 W					
Cooling	Air					
Mechanical						
Laser head dimensions	286 x 165 x 79 mm					
Laser head weight	5 kg					
Control unit	19" / 3U height					
Control unit weight	12 kg					
Umbilic length	3 m			1.5 m	3 m	
Environmental						
Operational temp range	19-30°C					
Storage temp. range	0-40°C					
Operational max altitude	2000 m					
Operational humidity	Non condensing					
Storage humidity	80% RH					
Option XSight (Integrated AOM for fine power control and fast power modulation)						
Transmission	85%					
Beam diameter	1.0 +/- 0.2 mm					
Beam divergence	< 1 mrad					
ON/OFF response time	< 1 µs					
Analog modulation bandwidth	> 1 MHz					
Power control	Adjustable from 0 to 100%, alignment mode					
Other options						
DUAL	N/A	2 independently controlled laser heads operating at 920 and (1064 nm or 1040 nm				
FLeX Fiber delivery	2 meter long fiber with < 120 fs pulse duration and 50% transmission					
GDD extension	From 0 to -90 000 fs²					
Wavelength	Other wavelengths on request					
Repetition rate (11)	Any fixed frequency from 30 MHz to 80 MHz					
Frequency conversion	N/A	460 nm			532 or 520 nm	

(1) Sech² fit, autocorrelator measurement, 100 fs +/- 20 fs for 1 W and 2 W version
(2) User adjustable group delay dispersion compensation
(3) Other value upon request
(4) Energy defined as the ratio between average power and repetition rate
(5) M² measurement according to ISO method
(6) Beam diameter at ouput port at 1/e²
(7) Half divergence, far field measurement, ISO method
(8) Minor over major diameter ratio, far field measurement
(9) Over 12 hours or more, at room temperature +/-1°C
(10) Pulse to pulse stability measurement performed with oscilloscope and photodiode
(11) Change in repetition rate affects average output power. Energy will be unchanged

* This information is subject to modifications without prior notice.