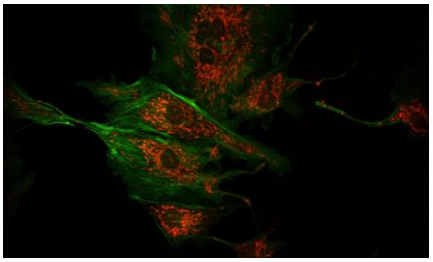
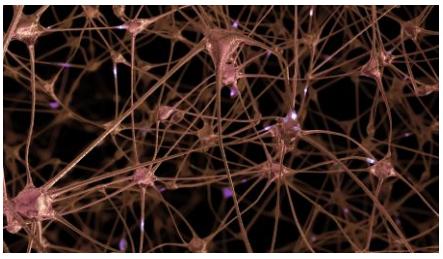
FEMTOSECOND LASER

ALCOR



Two-photon microscopy



Neuroscience



COMPACT HIGH-POWER FEMTOSECOND LASER

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

Spark Lasers' ALCOR has been 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 or 1064 nm.

The ALCOR compact laser head incorporates the widest range of software controlled GDD precompensation on the market and many options, such as a fully aligned and turn-key AOM for fast power modulation and power adjustment, an integrated pulse picker starting at either at 80 MHz or 40 MHz, as well as coupled Mini2P or FLeX fibers to deliver femtosecond pulses as close as possible to samples. ALCOR is air-cooled and can easily be integrated 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 (version 9)	ALCOR 920-2 (version 9)	ALCOR 920-4 (version 9)	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	1.5 W	2.5 W	4 W	2 W	5 W
Pulse duration	< 150 fs	< 100 fs		< 130 fs	< 100 fs	< 120 fs
Group Delay Dispersion	0 to -40 000 fs²	Software controlled from 0 to -60 000 fs²				
Repetition rate	80 +/- 2 MHz					
Energy per pulse	10 nJ	> 18.7 nJ	> 31.2 nJ	> 50 nJ	> 25 nJ	> 62.5 nJ
Beam parameters						
M²	< 1.2			< 1.3	<1.2	
Beam diameter	1.2 +/- 0.2 mm	1.0 +/- 0.2 mm	1.4 +/- 0.2 mm	1.5 +/- 0.2 mm	1.0 +/- 0.2 mm	
Divergence	< 1 mrad					
Ellipticity	> 0.9	> 0.8		> 0.8	> 0.8	
Output beam	Collimated					
Polarization	> 100:1, vertical					
Stability						
Power stability RMS	< 1%					
Pulse to pulse stability RMS	< 1%					
Electrical						
External interfaces	RS-232, USB, TCP/IP					
Synchronization output	TTL					
Software interfaces	GUI, serial communication protocol					
Power consumption	< 150 W					
Cooling	Air					
Mechanical						
Laser head dimensions	310x195x82 mm	270x165x79 mm				
Laser head weight	< 7 kg	< 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 divergence	< 1 mrad					
ON/OFF response time	< 1 µs (rise or fall time < 200 ns)					
Analog modulation bandwidth	> 1 MHz (input : 0-5 Volts, 1 kOhm)					
Power control	Software controlled from 0 to 100%, alignment mode					
Other options (depending on laser model)						
FLeX Fiber delivery	2 meters of FLeX fiber (stainless steel jacket), 60% transmission					
Mini2P	N/A	2.3 meters of Mini2P fiber with collimator, > 300 mW				
FS-Mini2P	N/A	Module offering one free-space and one Mini2P output of > 300 mW				
Multibeam MB2 or MB4	N/A	Multibeam splitter of 2 or 4 outputs, free-space or with fiber (FLeX or Mini2P)				
PP40	N/A	Software controlled repetition rate from 40 to 3 MHz (down to 0 MHz with XSight)				
PP80	N/A	Software controlled repetition rate from 80 to 3 MHz (down to 0 MHz with XSight)				
GDD extension	N/A	From 0 to -90 000 fs² or up to +120 000 fs²				
Repetition rate	N/A	Any fixed frequency: from 20 MHz to 80 MHz			from 40 MHz to 80 MHz	
Frequency conversion	N/A	460 nm			532 or 520 nm	

* This information is subject to modifications without prior notice.

