

DIADEM SERIES



<400 fs / SINGLE SHOT TO 40 MHz / UP TO 30W AT 1030 nm OR 1064 nm

COMPACT HIGH-ENERGY FEMTOSECOND LASER FOR OPTOGENETICS & MICROMACHINING

DIADEM is a state-of-the-art, all packaged fiber, high energy, femtosecond laser range in an ultra-compact, robust and air-cooled format that SPARK LASERS has especially designed for the most demanding micromachining such as IMD machining, luxury and Watch industry, Consumers' electronics and Optogenetics applications for instrumentation and industrial OEM integration working with 24/7 operations.

DIADEM is a 1030 nm or 1064 nm, high energy, ultrafast laser for advanced applications needing short femtosecond pulse widths (from <350 fs up to 10 ps), which offers over 40 μ J, with tunable pulses from single shot to 2 MHz with a remarkable beam quality with $M^2 < 1.2$.

DIADEM range combines the most advanced electronics for on-the-fly pulse control and incomparable ergonomics within a compact design and a less than 5 minutes set-up time with average power reached in < 15 minutes.

Thanks to its fully integrated electronics the DIADEM range can be synchronized internally or externally for remote control and fine and fast power modulation through GUI or TTL signal including gating, burst mode...

DIADEM range is available in IR and can be optionally doubled (at 515 nm or 532nm) and tripled (343 nm or 355 nm) in the harmonics thanks to an external conversion module. Wavelengths can be selected electronically through the GUI or serial communication protocol.

TECHNICAL SPECIFICATIONS*

	DIADEM IR-10	DIADEM IR-20	DIADEM IR-30
WAVELENGTH		1030 nm or 1064 nm	
SPECTRAL LINEWIDTH		< 10 nm	
PULSE DURATION		< 400 fs (typ. 350 fs) to 10 ps	
PULSE ENERGY	10 µJ up to 1 MHz	30 µJ up to 700 kHz	40 µJ up to 750 kHz
REPETITION RATE		Single shot to 2 MHz – single shot to 40 MHz (optional)	
M ²		<1.2	
OUTPUT BEAM DIAMETER		2 mm	
BEAM DIVERGENCE		<1 mrad	
BEAM POINTING		<25 µrad/°C	
ELLIPTICITY		> 0.85	
WARM-UP TIME		< 15 min	
POWER STABILITY		<2% RMS	
PULSE STABILITY		<2% RMS	
POLARIZATION		Linear, >100:1	

ELECTRICAL

EXTERNAL INTERFACES	High speed External synchronisation (Sync. Out / Sync. In), Communication through USB, RS 232, TCP/IP		
SOFTWARE INTERFACES	Intuitive GUI, Serial communication Protocol with remote control		
POWER CONSUMPTION	100 to 240 VAC < 400 W		

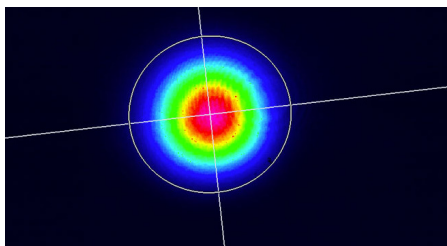
MECHANICAL

LASER HEAD DIMENSIONS (mm ³) - WEIGHT	531 x 342 x 143 - 17 kg		
LASER CONTROLLER DIMENSIONS - WEIGHT	19"/3U rack - 7.5 kg		
STANDARD UMBILICAL LENGTH	3 m		
TECHNICAL DRAWINGS FOR DOWNLOAD	DIADEM / DIADEM + MODULE		
COOLING	Air cooled		

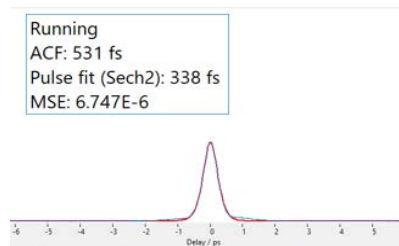
OPTIONS

FIBER DELIVERY MODULE	Fiber delivery coupling module with hollow core fiber (3 m or 5m long)		
ULTRA SYNC	Low timing jitter for ultra accurate on-demand pulse triggering		
EXTERNAL MODULE	Possibility to convert in the harmonics and electronically switch thanks to an external module (IR/GR or IR/GR/UV)		
PULSE TUNABILITY	Upper range above 10 ps		
PULSE DURATION	< 300 fs (typ. 270 fs)		

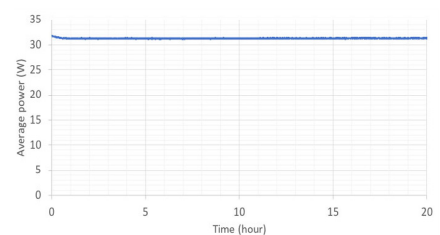
PERFORMANCE



BEAM PROFILE



AUTOCORRELATION



AVERAGE POWER STABILITY

* This information is subject to modifications without prior notice.

