ULTRA-LOW NOISE FEMTOSECOND LASER MODULE

ORIGAMI

SWISS MADE

THE LOWEST PHASE NOISE ON THE MARKET

Origami is an industrial-grade, ultra-compact, mode-locked, **femtosecond** laser that provides the **lowest phase noise** and timing jitter on the market. It has been specifically designed for OEM integration. The Origami families of lasers emit transform-limited soliton pulses, providing diffraction-limited beam quality and excellent pointing stability. It is available at various wavelengths and repetition rates. Origami is an air-cooled, maintenance-free laser module packaged in a sealed and robust enclosure allowing for operation in the harshest environments. It guarantees high stability, low drift and **24/7 operation.**

OPTIONS:

+ Synchronization to external clock for ultra-low timing jitter
+ Analog pump power control
+ Repetition rate control and tunability
+ Carrier-Envelope-Phase (CEP) stabilization ready
+ Fiber output

MAIN APPLICATIONS:

+ Seed for amplifiers
+ Frequency Comb systems
+ Supercontinuum generation
+ Analog-to-Digital converters / Radar systems
+ Clock distribution
+ THz generation

OUTSTANDING FEATURES :

+ Lowest phase noise on the market
+ Transform-limited soliton pulses of outstanding cleanliness
+ Diffraction-limited beam quality
+ No Kelly sidebands, no spectral ripple
+ Shot noise limited relative intensity noise (RIN)
+ Maintenance free – no alignement required
+ Plug & Play
+ 24/ 7 operation

Specifications subject to change without notice, May 2017

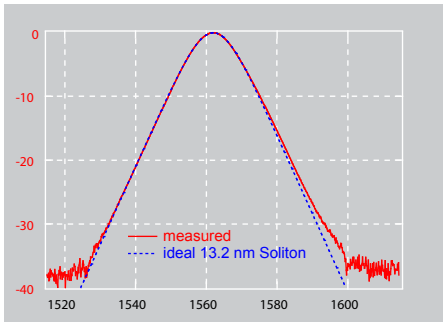
ISO 9001 : 2008
ISO 13485 : 2012

	ORIGAMI - 17	ORIGAMI - 15	ORIGAMI - 10	ORIGAMI - 08	ORIGAMI - 05
CENTER WAVELENGTH	1580 – 1700 nm	1530 – 1580 nm	1025 – 1070 nm	765 – 785 nm	513 – 535 nm
PULSE DURATION [1,2]	<200 – 300 fs	<80 – 500 fs	<70 – 400 fs	<60 – 200 fs	<100 – 230 fs
AVG. OUTPUT POWER [UP TO] [2]	50 mW	120 mW	250 mW	30 mW	100 mW
PULSE ENERGY [UP TO] [2]	1 nJ	2 nJ	5 nJ	0.7 nJ	1.2 nJ
PEAK POWER [UP TO]	3 kW	15 kW	30 kW	4.5 kW	10 kW
PULSE REPETITION RATE [2]	20 MHz – 1.3 Ghz				
SPECTRAL BANDWIDTH	transform-limited ($\tau p \cdot \Delta v$ ~ 0.32)				
BEAM QUALITY	M^2 < 1.1, TEM_{00}				
PER	> 23 dB				
AMPLITUDE NOISE [24 H]	< 0.2% rms, < 0.5% pk-pk				
CENTER WAVELENGTH DRIFT	< 0.2% rms, < 0.5% pk-pk				
LASER OUTPUT	collimated free space (fiber output optional)				
ENVIRONMENTAL					
WARM-UP TIME	< 10 minutes				
OPERATION TEMPERATURE	10 °C – 40 °C				
STORAGE TEMPERATURE	- 20 °C – 65 °C				
ON/OFF CYCLES	> 10000				
MECHANICAL					
SIZE LASER HEAD [3]	296 x 112 x 54 mm^3				
WEIGHT LASER HEAD [3]	2.5 kg				
SIZE CONTROL UNIT	165 x 104 x 44 mm^3				
WEIGHT CONTROL UNIT	0.65 kg				
ELECTRICAL					
POWER SUPPLY	24 VDC/2.5 A or 90 – 264 VAC, 47 – 63 Hz				
POWER CONSUMPTION	< 15 W				
COOLING					
LASER HEAD	air cooled				
LASER CONTROLLER	air cooled				

1 Tunable (requires external adjustable power supply)
2 Please inquire for possible combinations of pulse duration, average power and repetition rate
3 Exact size and weight depend on pulse repetition rate and wavelength

OPTICAL SPECTRUM

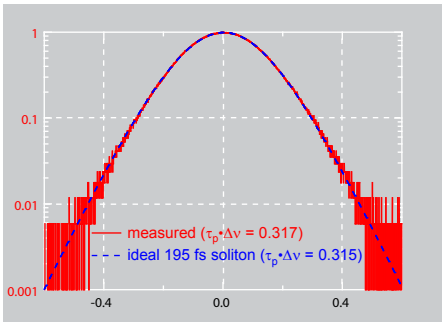
SPECTRAL POWER DENSITY (dBc/nm)



WAVELENGTH (nm)

PULSE PROFILE

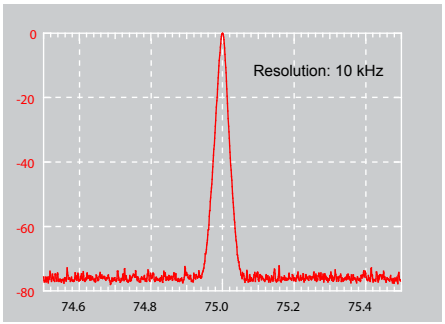
AUTOCORRELATION SIGNAL



TIME DELAY (PS)

RF SPECTRUM

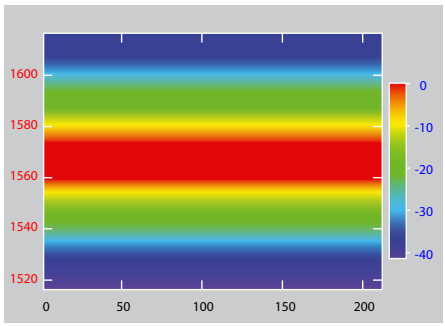
NOISE SPECTRAL DENSITY (dBc/10kHz)



FREQUENCY (MHz)

OPTICAL SPECTRUM AS FUNCTION OF TIME

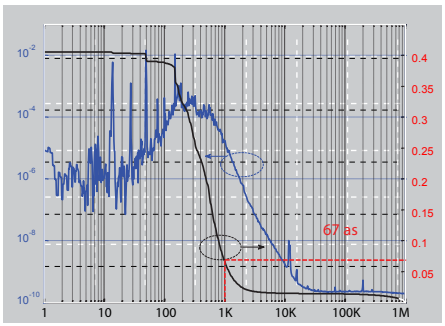
WAVELENGTH (nm) SPECTRAL POWER DENSITY (dBc)



TME (h)

PHASE NOISE / TIMING JITTER

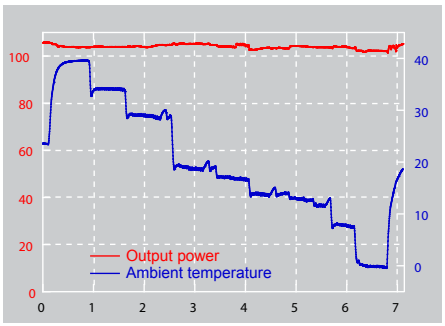
TIMING JITTER SPECTRAL DENSITY (fs2/Hz)



FREQUENCY (MHz)
INTEGRATED TIMING JITTER [f, 1MHz] (fs rms)

TEMPERATURE CYCLING

AVERAGE OUTPUT POWER (W) AMBIENT TEMP. (°C)



TME (h)

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