

SWISS MADE

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**.

**THE LOWEST
PHASE NOISE
ON THE
MARKET**

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 alignment required
- + Plug & Play
- + 24/ 7 operation



	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 ($\tau_p \cdot \Delta\nu \sim 0.32$)				
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)

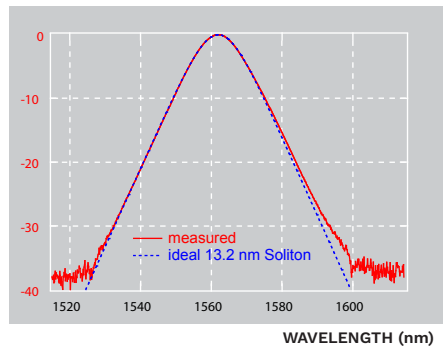
2 Please inquire for possible combinations of pulse duration, average power and repetition rate

3 Exact size and weight depend on pulse repetition rate and wavelength



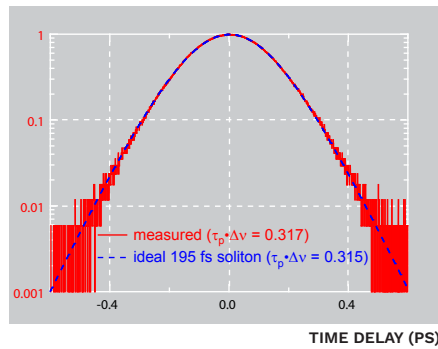
OPTICAL SPECTRUM

SPECTRAL POWER DENSITY (dBc/nm)



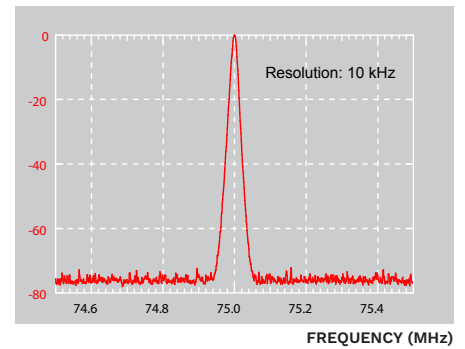
PULSE PROFILE

AUTOCORRELATION SIGNAL



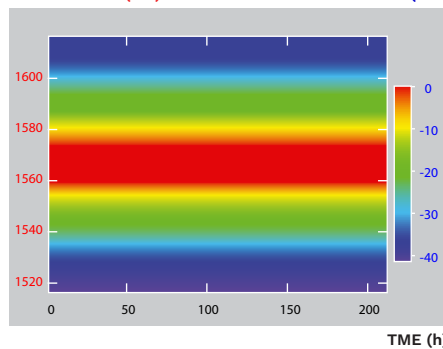
RF SPECTRUM

NOISE SPECTRAL DENSITY (dBc/10kHz)



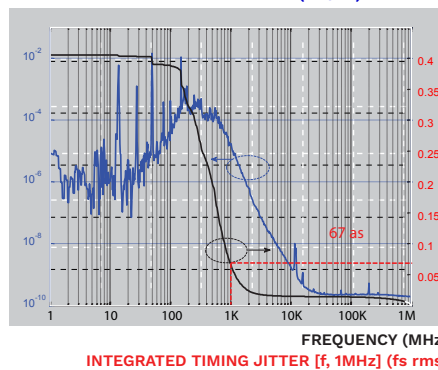
OPTICAL SPECTRUM AS FUNCTION OF TIME

WAVELENGTH (nm) SPECTRAL POWER DENSITY (dBc)



PHASE NOISE / TIMING JITTER

TIMING JITTER SPECTRAL DENSITY (fs²/Hz)



TEMPERATURE CYCLING

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

