

Origami



Low-noise soliton femtosecond laser module designed for OEM and R&D applications

- Excellent pulse quality – pedestal-free transform-limited soliton pulses
- Clean sech^2 -shaped optical spectrum
- No Kelly-sidebands – no spectral ripple
- Diffraction-limited beam quality
- Very low amplitude and phase noise
- No amplifier built in – no ASE noise
- Internal optical isolation stage
- High repeatability and 24/7 operation
- Compact, dust-sealed OEM package
- Plug & play
- Passively air cooled – no water cooling
- Low power consumption
- Remote control
- One-button operation – no adjustment knobs or screws
- Maintenance free – no user-serviceable parts inside or outside laser

shot noise
limited RIN &
ultra low
timing jitter

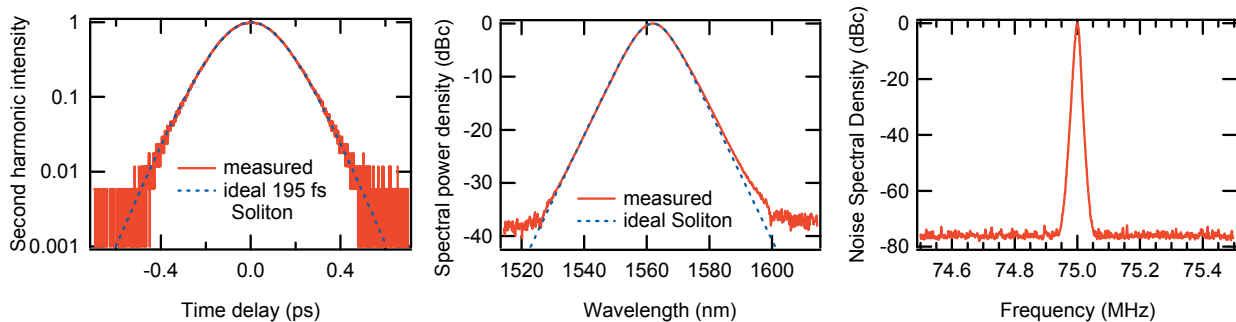


	Origami – 05	Origami – 08	Origami – 10	Origami – 15	Origami – 17
Center wavelength	513 – 535 nm	765 – 785 nm	1025 – 1070 nm	1530 – 1586 nm	1666 – 1672 nm
Pulse duration ¹	< 100 fs	< 130 fs	< 100 fs	< 100 fs	< 270 fs
Average output power	> 50 mW	> 30 mW	> 200 mW	> 90 mW	> 50 mW
Pulse repetition rate	40 / 50 / 75 / 80 / 100 / 250 / 500 MHz and 1.3 GHz				
Pulse energy (up to)	1.2 nJ	0.7 nJ	5 nJ	2 nJ	1 nJ
Peak power (up to)	10 kW	3.5 kW	22 kW	15 kW	3 kW
Spectral bandwidth	transform-limited ($\Delta\lambda/\lambda \sim 0.32$)				> 18 nm
Output	collimated free space, $M^2 < 1.1$ (fiber output optional)				
PER	>23 dB				
Amplitude noise (24h)	< 0.2% rms, < 0.5% pk-pk				
Warm-up time	< 10 minutes				
Specs guaranteed	10 °C – 40 °C				
Storage temperature	–15 °C – 65 °C				
On/Off cycles	> 10,000				
Size laser head ²	306 x 112 x 54 mm ³				
Size std. controller	165 x 105 x 44 mm ³				
Power consumption	< 15 W				
Power supply	90 – 264 VAC, 47 – 63 Hz				
Weight laser head ²	2.5 kg				
Weight controller	1 kg				

¹ tunable (requires external adjustable power supply)

² exact size and weight depends on pulse repetition rate

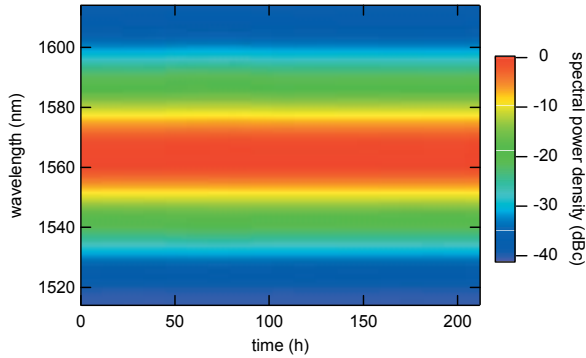
Sample data Origami – 15



Options

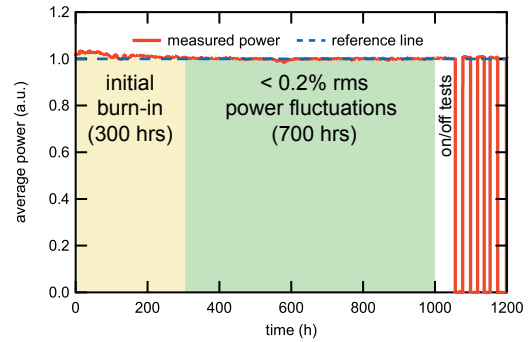
- Linear controller for ultra low noise & timing jitter
 - < 5 fs rms with low noise controller (1 kHz - 10 MHz)
 - < 30 fs rms with standard controller (1 kHz - 10 MHz)
- Synchronization to external clock
- Electrical interface for pump power control
- UV generation
- Piezo controlled cavity length
- Repetition rate tunability
- Wavelength tunability
- Internal monitor PD

Optical spectrum as a function of time

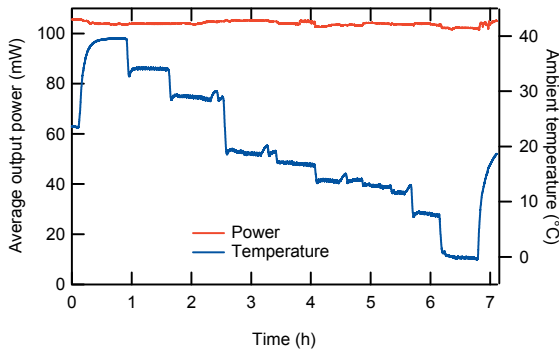


Output power as a function of time

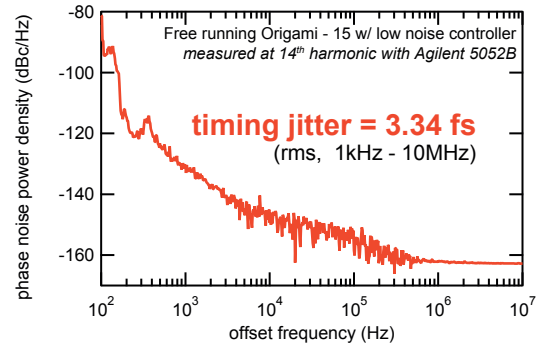
Origami - 08 in environment without climate control



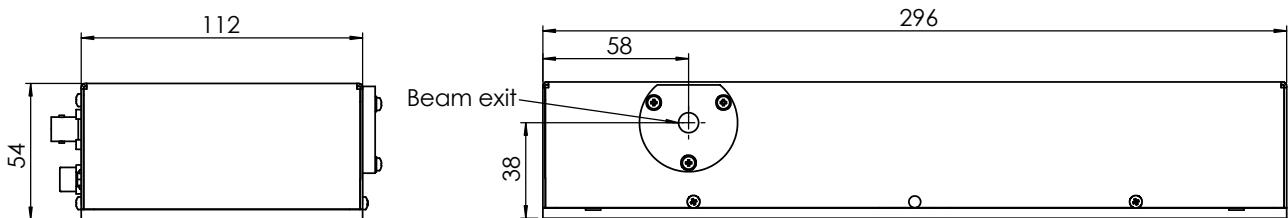
Temperature cycling



Phase noise / timing jitter



Technical drawing of laser head (measures in mm, 80-MHz version):



Technical drawing of standard laser controller (measures in mm):

