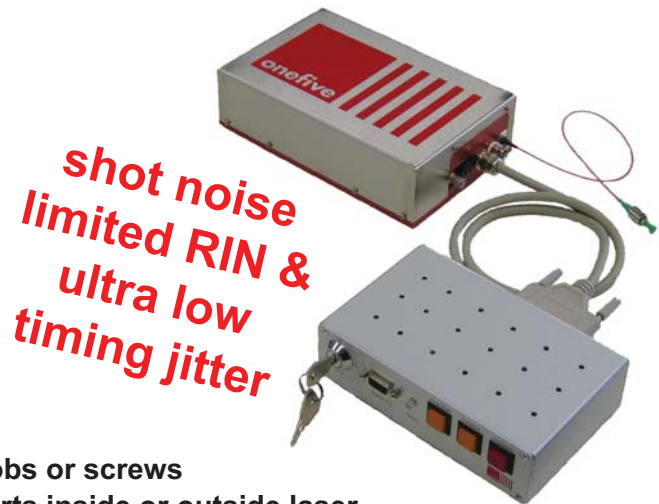


Origami



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

- Excellent pulse quality – pedestal-free transform-limited soliton pulses
- Clean sech²-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



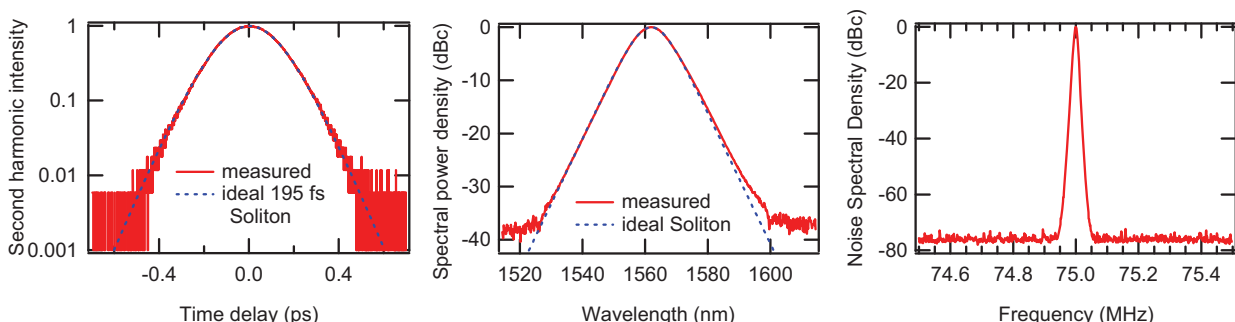
| | Origami – 05 | Origami – 08 | Origami – 10 | Origami – 15 | Origami – 17 |
|---------------------------------------|--|----------------|----------------|----------------|----------------|
| Center wavelength | 513 – 535 nm | 765 – 785 nm | 1025 – 1070 nm | 1530 – 1586 nm | 1666 – 1672 nm |
| Pulse duration ^{1,2} | < 100 – 230 fs | < 130 – 200 fs | < 100 – 400 fs | < 100 – 500 fs | < 200 – 300 fs |
| Avg output power (up to) ² | 50 mW | 30 mW | 250 mW | 90 mW | 50 mW |
| Pulse repetition rate ² | 40 MHz – 1.25 GHz | | | | |
| Pulse energy (up to) ² | 1.2 nJ | 0.7 nJ | 5 nJ | 2 nJ | 1 nJ |
| Peak power (up to) | 10 kW | 4.5 kW | 30 kW | 15 kW | 3 kW |
| Spectral bandwidth | transform-limited ($\tau_p \cdot \Delta\nu \sim 0.32$) | | | | > 18 nm |
| Output | collimated free space, $M^2 < 1.1$ (fiber output optional) | | | | |
| PER | >23 dB | | | | |
| Amplitude noise | < 0.2% rms, < 0.5% pk-pk (24h) | | | | |
| Center wavelength drift | < 0.1 nm pk-pk (24h) | | | | |
| 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 ³ | 296 x 112 x 54 mm ³ | | | | |
| Size std. controller | 165 x 104 x 44 mm ³ | | | | |
| Power consumption | < 15 W | | | | |
| Power supply | 90 – 264 VAC, 47 – 63 Hz | | | | |
| Weight laser head ³ | 2.5 kg | | | | |
| Weight controller | 0.65 kg | | | | |

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

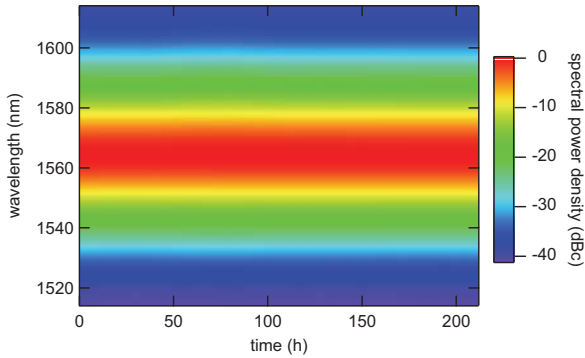
Sample data Origami – 15



Options

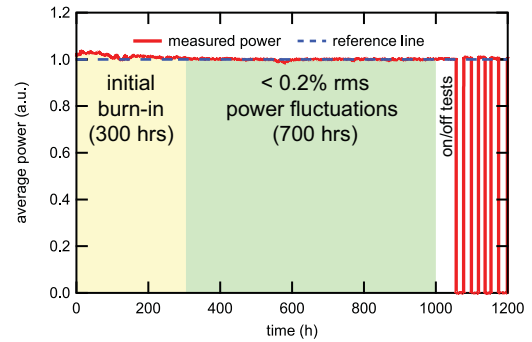
- Linear controller for ultra low noise & timing jitter
 - < 5 fs rms with low noise controller (1 kHz - 10 MHz)
 - < 25 fs rms with standard controller (1 kHz - 10 MHz)
- Synchronization to external clock
- Electrical interface for pump power control
- Fiber output (PM or SMF)
- UV generation
- Piezo controlled cavity length
- Repetition rate tunability
- Wavelength tunability
- Internal monitor PD
- Optical isolator

Optical spectrum as a function of time

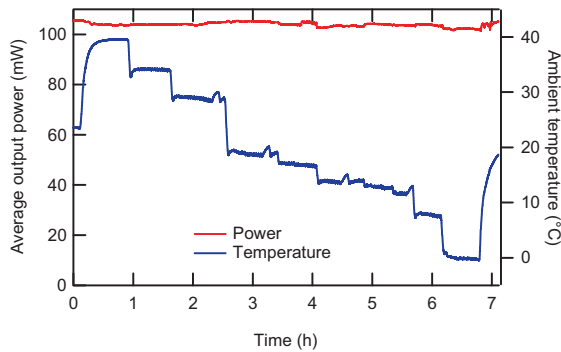


Output power as a function of time

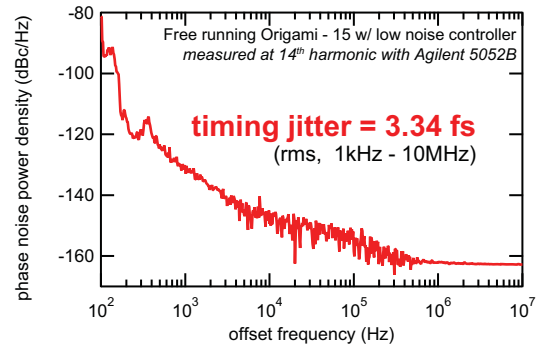
Origami - 08 in environment without climate control



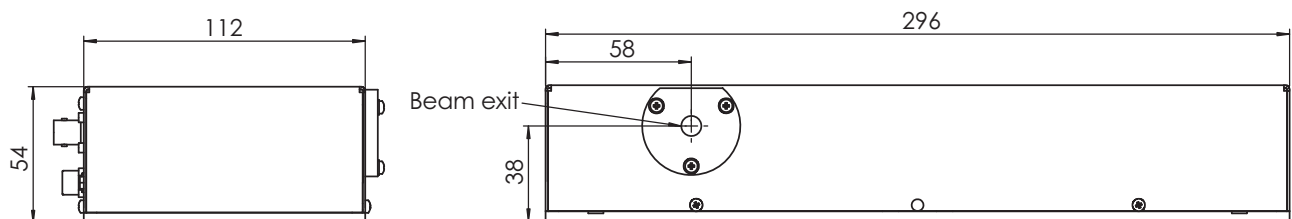
Temperature cycling



Phase noise / timing jitter



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



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

