Origami HP

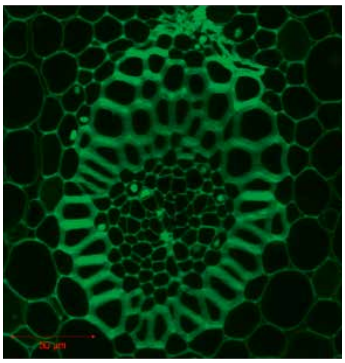
High power femtosecond laser module

Swiss Made

High power and high repetition rate compact industrial laser

Origami HP is an industrial-grade, cost-effective femtosecond laser that emits transform-limited pulses down to 70 fs duration at high power levels. This laser platform is available at repetition rates above 40 MHz and power levels up to 4W. The free-space output provides diffraction-limited beam quality and excellent pointing stability. Origami HP is available in infrared, green and UV models. Origami HP is a maintenance-free laser module which comes in a compact, dust-sealed OEM package. It guaranties high repeatability and 24/7 operation.

Convallaria Majalis
(Lily of the Valley)
© H. Zell, Karlsruhe, Germany



2-photon microscopy image
of the rhizome section realized with
the Origami HP laser.

Laser outstanding features:

- Low amplitude and phase noise
- Transform-limited clean soliton pulses
- Diffraction-limited beam quality
- No Kelly-sidebands – no spectral ripple
- No amplifier built-in – no ASE noise
- Maintenance free – no alignment required
- Plug & Play
- 24/7 operation

Options:

- UVA 343 – 355 nm
- UVC 257 – 266 nm
- Synchronization to external clock for ultra-low timing jitter
- Electrical interface for pump power control
- Repetition rate tunability

Main applications:

- Multi-photon microscopy
- Supercontinuum generation
- Multi-photon polymerization
- THz generation
- Inspection
- Seed for amplifiers

Femtosecond Laser

Origami HP

Laser specifications	Origami-05 HP	Origami-08 HP	Origami-10 HP	Origami-15 HP
Center wavelength	**514 – 532 nm**	**765 – 780 nm**	**1028 – 1065 nm**	**1530 – 1560 nm**
Pulse Duration[1,2]	100 fs – 1 ps	70 – 300 fs	70 fs – 1 ps	< 500 fs
Avg. output power (up to)[2]	2 W	300 mW	4 W	3 W
Pulse energy (up to)[2]	40 nJ	8 nJ	80 nJ	30 nJ
Peak power (up to)	160 kW	60 kW	350 kW	60 kW
Spectral bandwidth	3 nm – 0.3 nm	9 nm – 2 nm	16 nm – 2.5 nm	9 nm
	$\tau_p \cdot \Delta\nu$ ~ 0.32 (transform-limited)			$\tau_p \cdot \Delta\nu$ < 0.7
Pulse repetition rate[2]	40 MHz – 200 MHz			40 MHz – 100 MHz
Beam quality	M^2 < 1.2, TEM_{00}			
PER	> 20 dB			
Amplitude noise (1 h)	< 0.5% rms, < 1.0% pk-pk			
Center wavelength drift (1 h)	< 0.3 nm pk-pk			
Pointing stability (12 h)	< 50 µrad rms			
Laser output	collimated free space			
Environmental				
Warm-up time	< 15 minutes			
Operation temperature	18 °C – 32 °C			
Storage temperature	-20 °C – 65 °C			
On/Off cycles	> 10000			
Mechanical				
Size laser head[3]	57 x 275 x 300 mm^3			
Weight laser head[3]	5 kg			
Size control unit	133 x 483 x 400 mm^3 (19"/3U rack mount)			
Weight control unit	7 kg			
Electrical				
Power supply	24 VDC / 9A or 90 – 264 VAC, 47 – 63 Hz			
Power consumption	< 300 W			
Cooling				
Laser head	air cooled or water cooled			
Laser controller	air cooled			

RoHS compliant

CE

DANGER

CLASS 4 LASER

IEC Compliant Product

IEC 60068-2-27:2008
IEC 60068-2-6:2007
Shock & Vibration Test

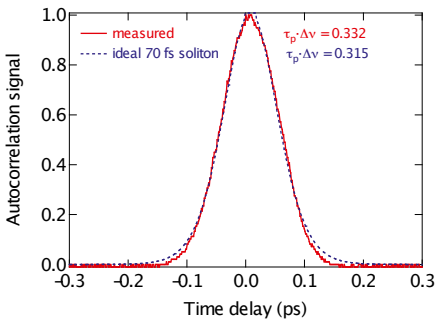
IEC 60825-1:2014
Laser Radiation Safety

ISO Certified Company

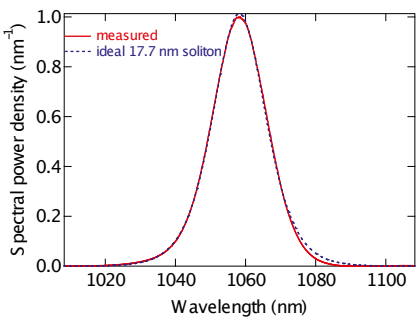
ISO 9001:2008
ISO 13485:2012

[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

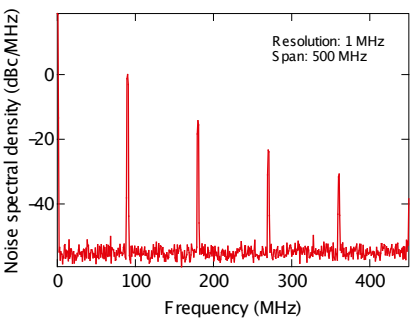
Pulse profile



Optical spectrum



RF spectrum



Specifications subject to change without notice, March 2016

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