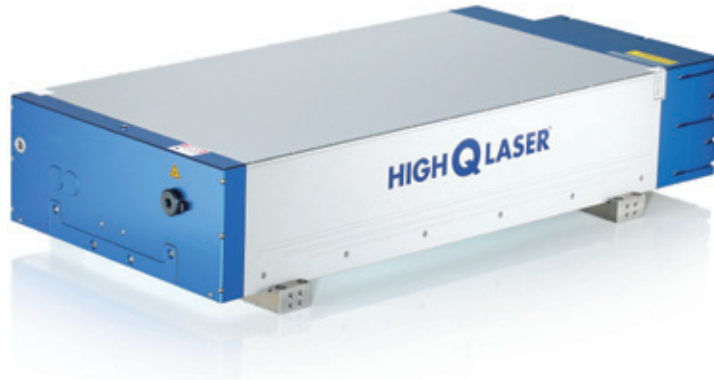


femtoREGEN™ Ultra Compact

All-in-one femtosecond regenerative amplifier system



femtoREGEN™	UC-1030-2000	UC-1040-4000	UC-1040-8000
Wavelength ¹⁾	1030 nm +/- 5 nm	1040 nm +/- 5 nm	1040 nm +/- 5 nm
Pulse width (FWHM), typical	350 fs +/- 50 fs		400 fs +/- 50 fs
Average output power	> 2 W	> 4 W	> 8 W
Pulse repetition rate ²⁾	Single pulse - 200 kHz (TTL-Trigger)		Single pulse - 500 kHz (TTL-Trigger)
Max. Pulse energy ³⁾	> 20 µJ @ 100 kHz	> 20 µJ @ 200 kHz	> 16 µJ @ 500 kHz
Laser material ⁴⁾	Ytterbium		
Power stability, typical	< 1 % RMS (12h)		
Beam quality	TEM ₀₀ ; M ² ≤ 1.25		
Beam diameter / divergence	typical values 1 mm / 2.5 mrad (full width at 1/e ²)		
Polarization	horizontal or vertical (TBD)		
Beam height	101.6 mm (4"), not including pedestals		
Laser head size	860 x 340 x 160 mm ³ , not including pedestals		
Controller size ⁵⁾	19" rack, 600 x 590 x 1170 mm ³ (l x w x h), including closed-loop, recirculation water chiller		
Power supply	90 VAC - 240 VAC, 50/60 Hz, < 3.7 kW		
Operation ambient temp.	18 °C to 26 °C		
Internal optional SHG and THG modules⁶⁾			
Max. average output power	SHG typical 40% @ 515 nm / 520 nm		THG typical 20% @ 343 nm / 347 nm

All specifications are typical data and subject to change without notice in order to provide the best product possible.

1) Other wavelengths on request

2) Up to 1 MHz on request

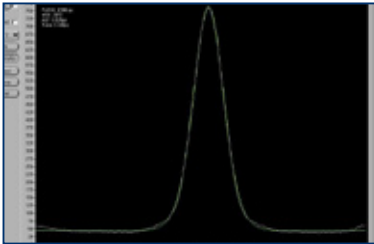
3) Higher pulse energy available

4) Different laser materials on request

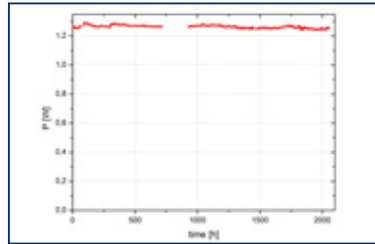
5) Without wheels (125 mm)

6) With controller upgrade (zero air module)

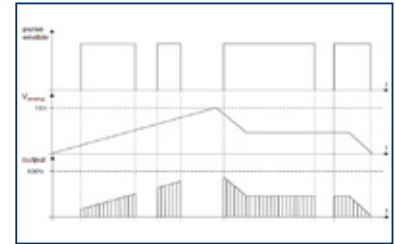
Main Features	Customer benefits
• Integrated femtoTRAIN™ Ultra Compact seed laser	• Service interval > 1 year
• Passive self-starting modelocking by saturable bragg reflectors	• Integrated pulse-picker: TTL pulse enable and attenuator function
• Shock and vibration tested	• Burst mode for arbitrary pulse sequences
• Modular Pockels-cell and Pockels-cell driver	• High temporal and spatial stability
• All-in-one controller system	• TCP/IP remote control (optional USB / CAN bus)
• Diode modules with de-rated pump current (long lifetime)	• Remote maintenance via internet



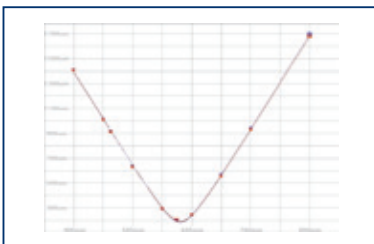
Typical Intensity Autocorrelation
Autocorr. duration 535 fs
Pulse duration 348 fs (sech²)



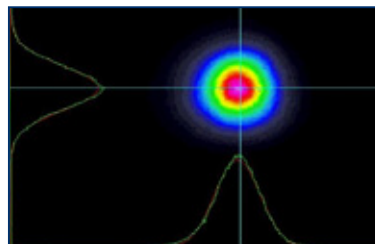
Typical Power Stability
UC-1030-2000
Measurement duration 2055h
RMS 1.03 %, attenuated to 1.25 W



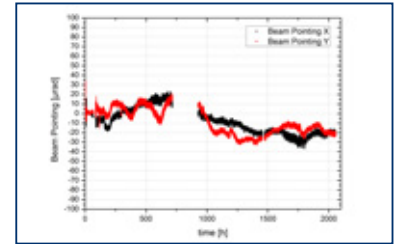
Pulse Picker Functionality
TTL pulse enable and fast 300 kHz
attenuator signal resulting in burst mode for
arbitrary pulse sequences



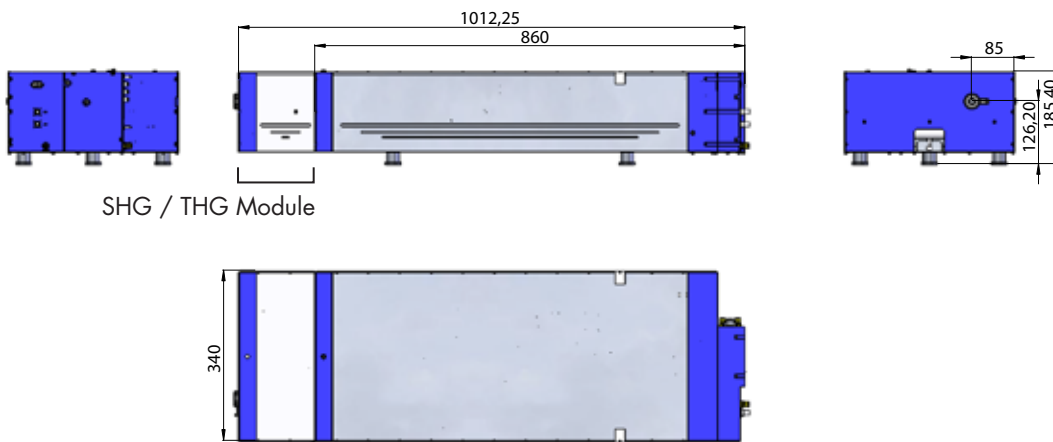
Typical Beam Quality
M² X 1.06, M² Y 1.08
Ellipticity 1.02



Typical IR Beam Profile
femtoREGEN Yb



Typical Beam Pointing Stability
UC-1030-2000
Measurement duration 2055h
-37 µrad < beam pointing angle < 34 µrad



SHG / THG Module

Applications

- Femtosecond Laser Dissection
- Thin Film Ablation
- OPA pumping
- Femtosecond Spectroscopy
- Nonlinear Optics
- Nano Processing
- Waveguide Writing
- Biological Tissue Ablation and Machining

Please Inquire About

- *femtoTUNE*™: Tunable output from 200 nm - 3000 nm
- High pulse energy option up to 500 µJ
- Tunable pulse duration up to 0.4 ps to 10 ps
- Shorter pulse duration down to 250 fs
- Internal FHG module
- High repetition rate (1 MHz)
- Wavelength option (1030 nm, 1040 nm)
- Multiple Beam exits
- OEM and customized versions
- Applications laboratory for Nano Processing

