

Teahupoo Rider

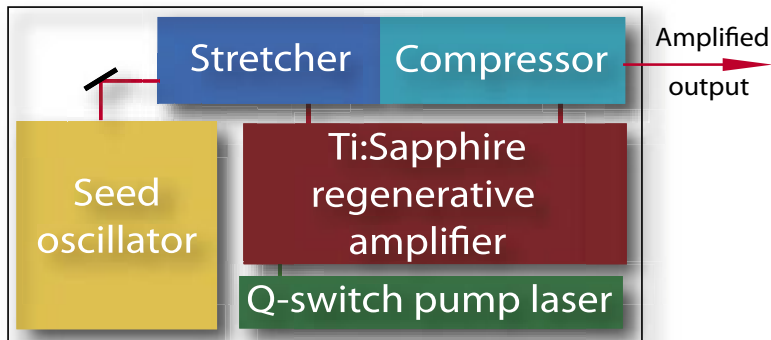
High Repetition Rate Amplified Ti:Sapphire Laser



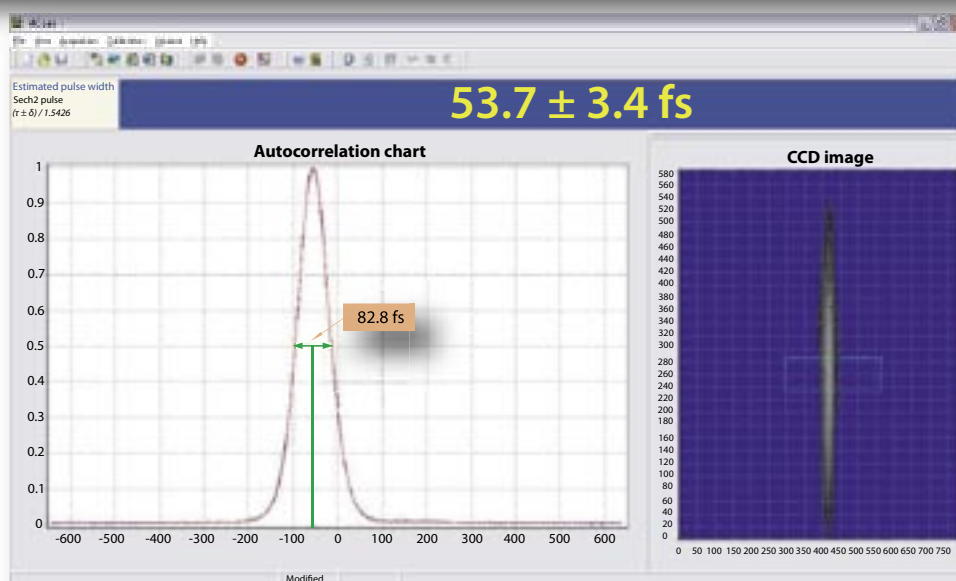
Teahupoo Rider is a fully-integrated all-in-one-box system that includes Trestles Mini Ti:Sapphire oscillator or Buccaneer SHG diode-pumped fiber oscillator, pulse stretcher, regenerative amplifier pumped by multi kHz Nd:YAG pump laser and pulse compressor. Teahupoo Rider has a factory preinstalled repetition rate of 2, 5 or 10 kHz and ideal for low cost femtosecond micromachining systems, OPA pumping, ultrafast spectroscopy and variety of applications in life sciences.

Advantages

- Single box compact design
 - seed oscillator
 - pump lasers
 - stretcher
 - regenerative amplifier
 - compressor
- High repetition rate – up to 10 kHz
- High contrast pulses
- Low prices
- Rough design



Autocorrelation function obtained using Del Mar Photonics Reef femtosecond autocorrelator



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Specifications

Model	RA-60	RA-100	RA
Seed oscillator	Trestles-50F ¹⁾	Fiber laser Buccaneer SHG ²⁾	NO ³⁾
Output energy ⁴⁾		150 μ J @ 2 kHz 100 μ J @ 5 kHz 50 μ J @ 10kHz	
Pulsewidth (fs)	<60	<100	Depends on seed oscillator
Spatial Profile Near		TEM ₀₀	
Beam quality (M2)		<1.3	
Beam diameter (mm)		5	
Stability (%rms)		<1.5	
Contrast ratio		>200:1 @ 10 ns ⁵⁾ >10 ³ :1 @ 1 ps >10 ⁶ :1 @ 5 ps >5x10 ⁷ :1 @ 10-20 ps >5x10 ⁷ :1 @ ASE	
Center wavelength (nm)		790 \pm 15	
Output polarization		horizontal	
Optical head dimensions (LxWXH, mm)		1200x650x225	900x650x200
Water		Close loop chiller is included	

1) Trestles-50F – miniature version of 50 fs femtosecond oscillator based on Ti:Sapphire (<50fs, 800 nm, 80 MHz) with integrated pump laser Finesse 4W

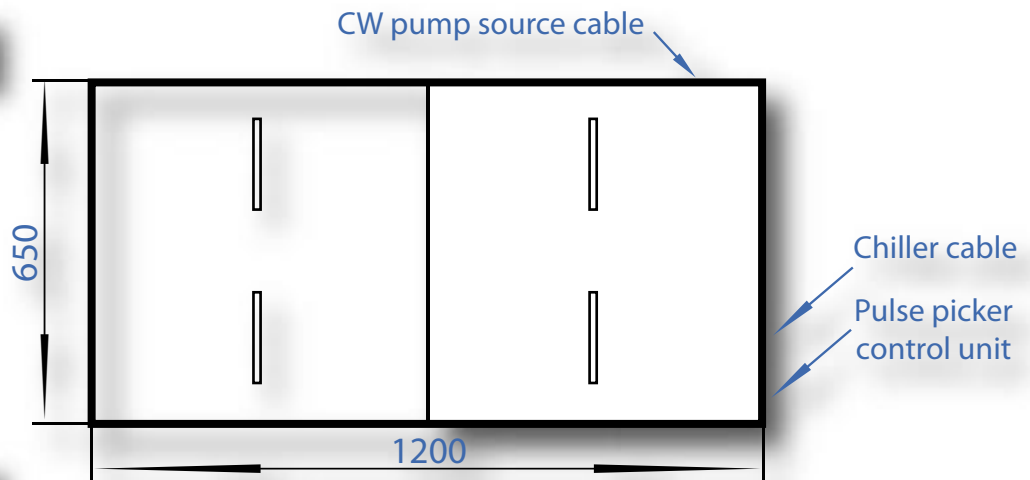
2) Fiber laser Tamarack SHG – second harmonic from Er-doped fiber laser (<100fs, 780 nm, 50 MHz)

3) Custom seed laser – please indicate the output characteristics of your laser when placing an order (average power, repetition rate, pulse width, beam diameter...)

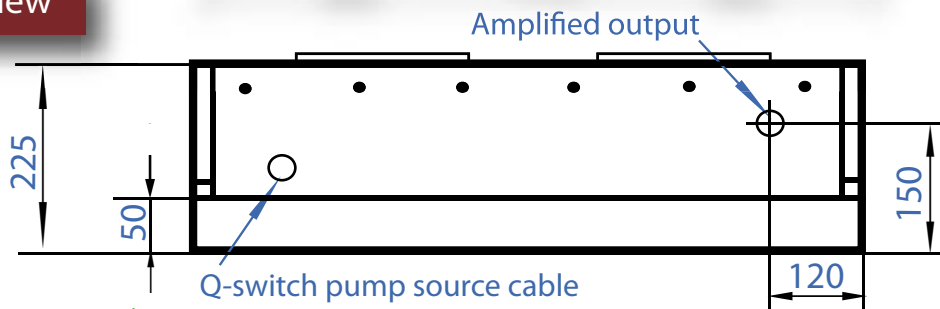
4) Repetition rate - please indicate the necessary value when placing an order (2 kHz, 5 kHz, 10 kHz...)

5) The contrast ratio will be >10⁴:1 with optional pulse picker. In this case the repetition rate of amplifier output can be changed from 0 Hz to working repetition rate of pump laser.

Top view



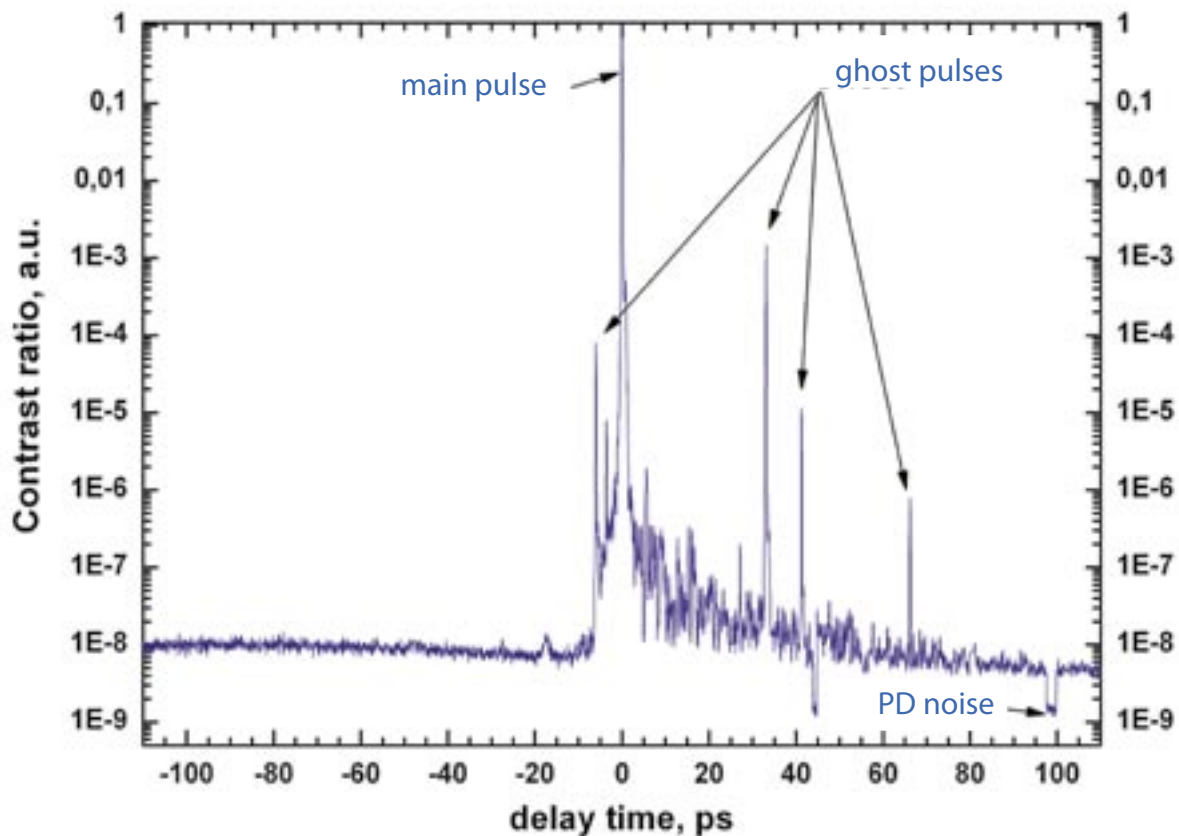
Front view



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Contrast ratio measured using Del Mar Photonics TOAC (third order autocorrelator) Rincon

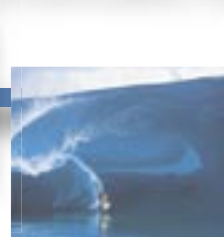


Where Del Mar Photonics product's names come from?

Del Mar means "by the sea", and Photonics is all about optical waves. So we decided to choose terms popular in surfing and sailing communities. Our femtosecond lasers, amplifiers and system are named after popular surf breaks around the world, and many other products named after sailing and nautical terms.



Teahupoo (pronounced Cho-poo, or 'Chopes) is a world-renowned reef break off the south-east of the island of Tahiti, southern Pacific Ocean. It's a world known surfing location with waves, that often reach 2 to 3 m (7 to 10 ft) and higher. Teahupoo is also renowned for the consistent number of "barrels" it delivers. It is widely regarded as being on the 'must-surf' list of every enthusiastic surfer.



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