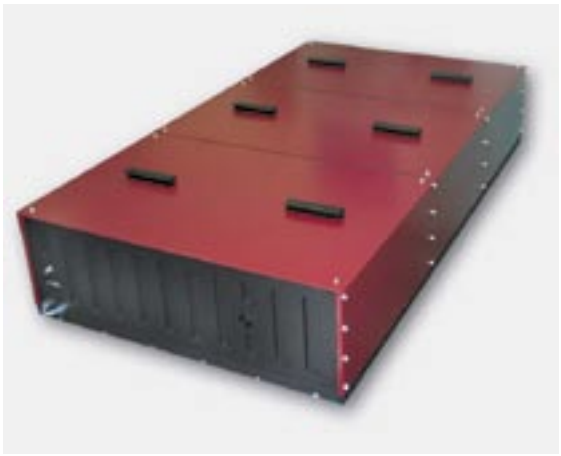
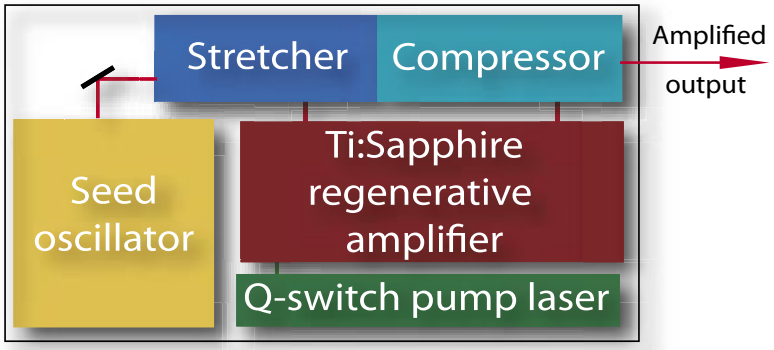
Teahupoo Rider

High Repetition Rate Amplified Ti:Sapphire Laser



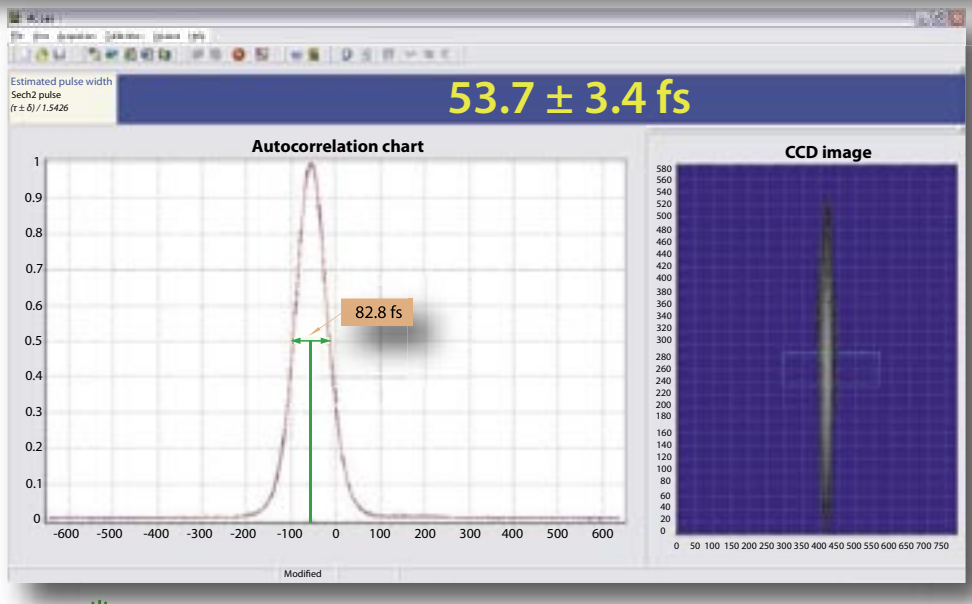
Teahupoo Rider is a fully-integrated all-in-one-box system that includes Trestles Mini Ti:Sapphire oscillator or Buccaneer SHG diode-pumped fiber oscillator, pulse stretcher, regenerative amplifier pumped by multi kHz Nd:YAG pump laser and pulse compressor. Teahupoo Rider has a factory preinstalled repetition 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



DEL MAR PHOTONICS

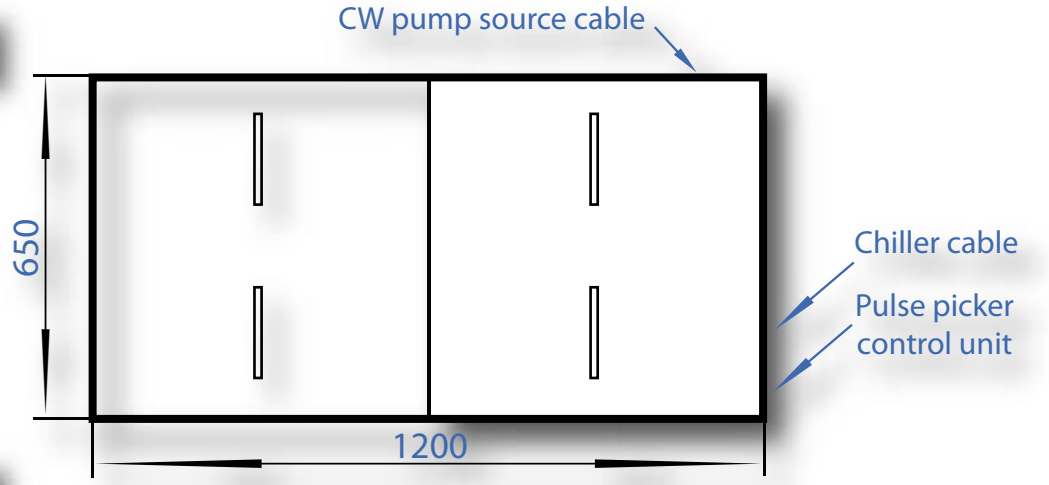
www.dmphotonics.com

Specifications

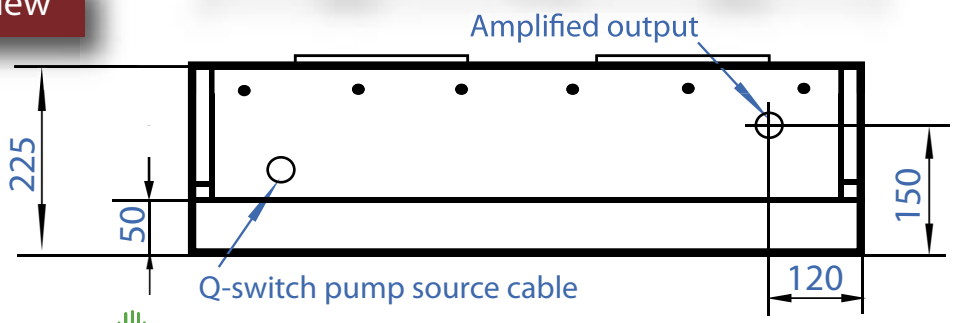
Model	RA-60	RA-100	RA
Seed oscillator	Trestles-50F [1]	Fiber laser Buccaneer SHG [2]	NO [3]
Output energy [4]	150 µJ @ 2 kHz 100 µJ @ 5 kHz 50 µJ @ 10kHz		
Pulsewidth (fs)	<60	<100	Depends on seed oscillator
Spatial Profile Near	TEM_{00}		
Beam quality (M2)	<1.3		
Beam diameter (mm)	5		
Stability (%rms)	<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 ± 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 $>10^4$: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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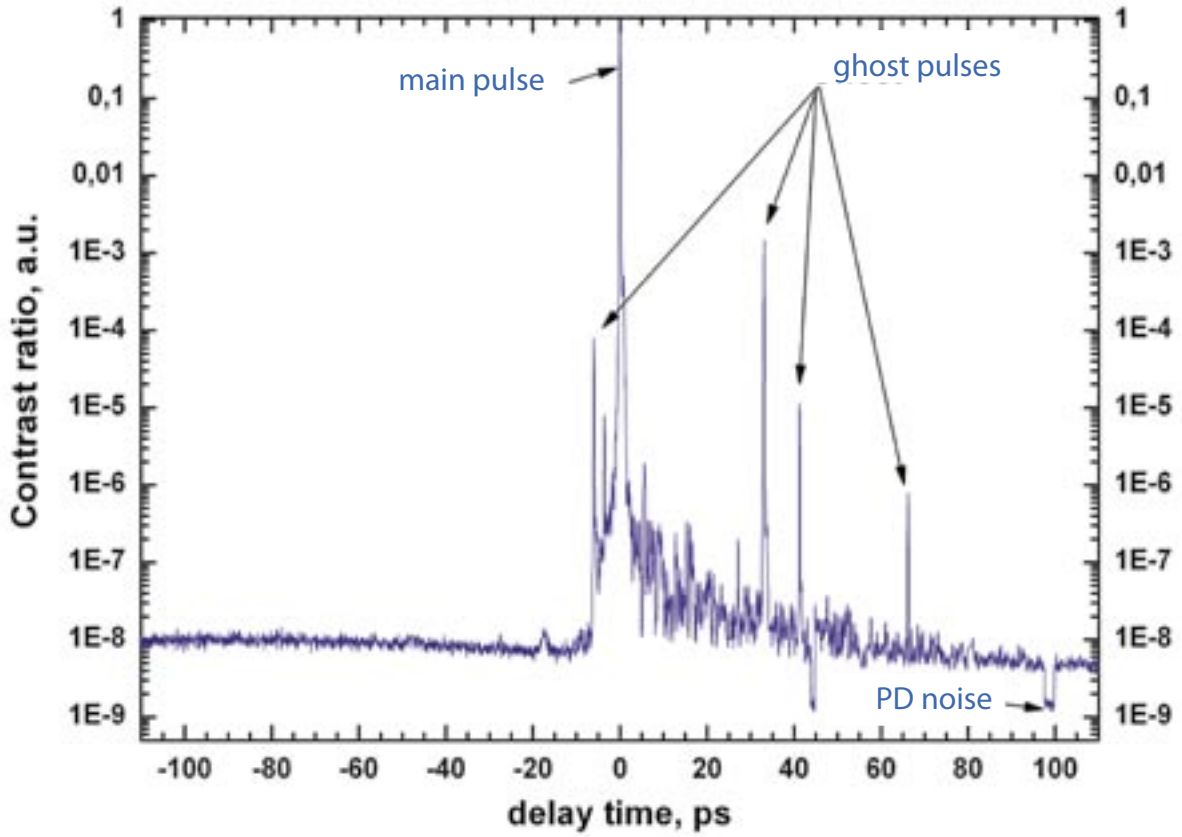
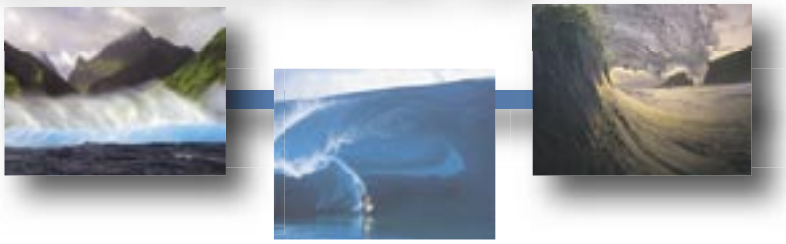
Contrast ratio measured using Del Mar Photonics TOAC (third oeder autocorrelator) Rincon



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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