

Amplifiers



Ti:Sapphire Regenerative Amplifier REUS

- Compact single-box design
- >2 mJ/pulse at 1 kHz
- Can be upgraded to higher energies
- <40 fs pulse duration
- High beam quality
- Excellent beam pointing and long-term power stability



Ti:Sapphire regenerative amplifier REUS

Product overview

The REUS family of amplifiers comprise a femtosecond seed oscillator (TIF-20F or fiber EFOA-SH), stretcher, Faraday isolator, Pockels cell with control and synchronization unit, regenerative amplifier, pulsed amplifier pump laser and compressor. The system may be equipped with an additional Pockels cell for contrast improvement. The cell enables the user to get "pulse-on-demand" operation and reduce the repetition rate to the required values. All elements are gathered into a single box on a thick breadboard, thus providing reliable and stable generation and hands-free operation. Upon customer request the system can be upgraded to deliver up to 500 mJ per pulse by adding further stages of multipass power amplifiers (with reducing the repetition rate to 10 or 15 Hz).

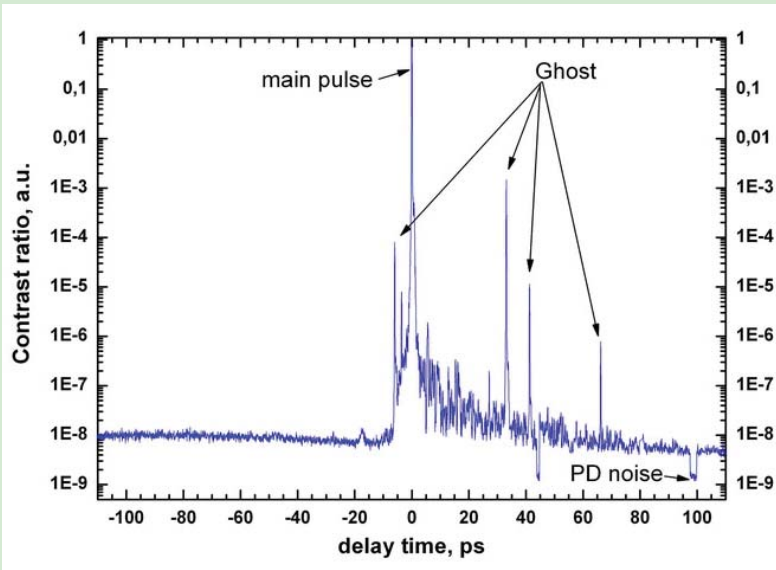
The REUS amplifier family is an ideal source for femtosecond micromachining systems, terahertz imaging, OPA pumping, remote sensing and ultrafast spectroscopy.

REUS technical specifications

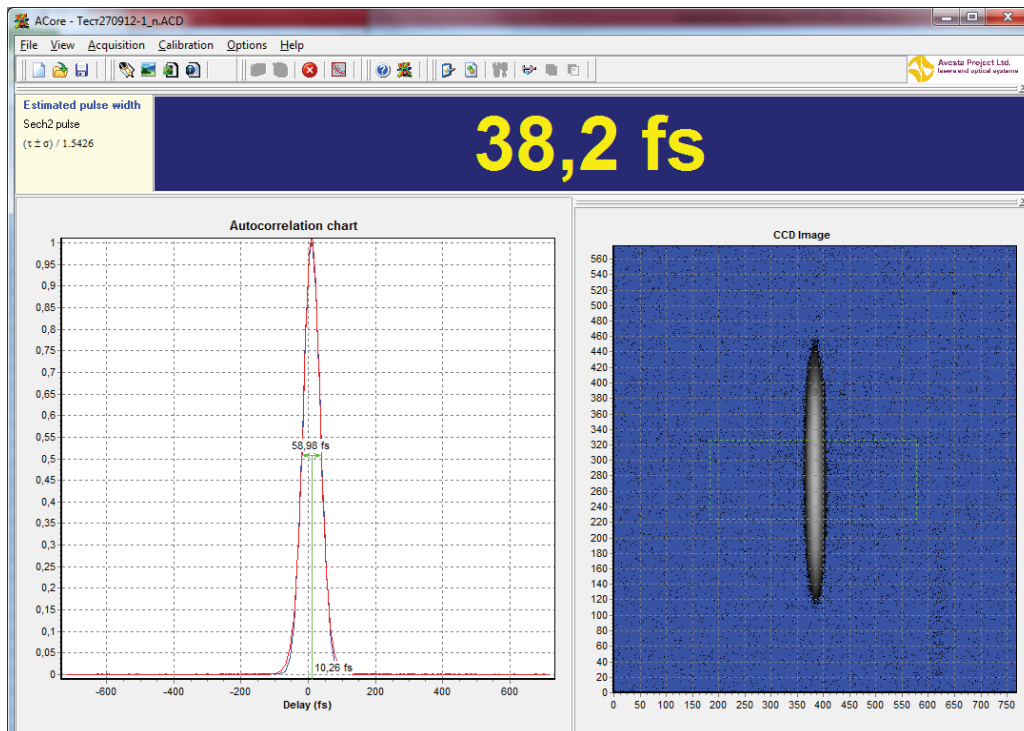
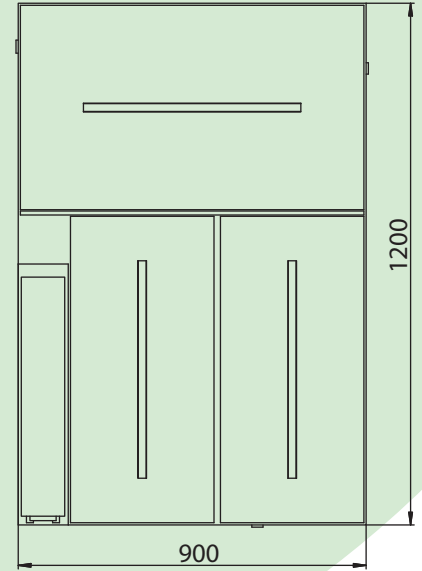
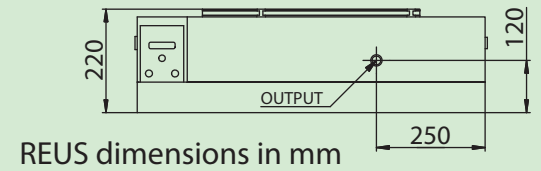
	REUS-40F1K	REUS-40F10 (-40F20, -40F50)	REUS-40F100	REUS-40F3K
Pulse duration	<40* fs			
Output pulse energy	>2 mJ	>2 mJ	>1.5 mJ	>0.15 mJ
Repetition rate**	1 kHz	10, 20 or 50 Hz	100 Hz	3 kHz
Beam diameter (1/e ²)	8	8	8	5
Stability	<1% rms	<2.5% rms	<2.5% rms	<2.0% rms
Central wavelength (fixed)	800±15 nm			
M ²	<1.3			
Contrast ratio	>10 ⁴ :1** / >200:1 @ 10 ns >10 ³ :1 @ 1 ps >10 ⁶ :1 @ 5 ps >5x10 ⁷ :1 @ 10-20 ps >5x10 ⁷ :1 @ ASE			
Spatial mode	TEM ₀₀			
Output polarization	linear, horizontal			
Dimensions	1200x900x220 mm			
Water cooling	the system includes a closed-loop water chiller			

* - custom pulse duration from 30 to 120 fs is available upon request;

** - an additional pulse slicer may be added to the unit. This improves the contrast ratio and allows the repetition rate to be adjusted from single-shot to the maximum repetition rate of the amplifier.



REUS contrast graph



REUS pulse duration measurement