RegA

High Repetition-Rate, Femtosecond Ti:Sapphire Amplifiers

With repetition-rate options to >500 kHz, the RegA 9000/9040/9050 provides a unique range of performance for Ti:Sapphire amplifiers. Its use of CW pumping by the market-leading Verdi laser creates a stable, near diffraction-limited output beam with energy to >6 µJ at 250 kHz. The wavelength range of RegA can also be extended by adding a Coherent high repetition-rate optical parametric amplifier (OPA 9400/9800 series).

The RegA is specifically designed to amplify seed pulses from certain models of Coherent's Vitara, Mira, and Chameleon families. For oscillator/amplifier split-pump beam configurations, the specified pump laser for RegA is our Verdi G10, G12, G15 or G18.

Three versions of RegA are available: the sub-160 fs RegA 9000, the sub-60 fs RegA 9050, and the sub-40 fs RegA 9040. The basic RegA 9000 includes the stretching, amplification and compression functions into a single box. The RegA 9050 and RegA 9040 both use one unit for the amplifier and a second unit con-taining a stretcher and compressor.

The low noise of the Verdi pump laser and high repetition-rate of RegA amplifiers enable data collection with high signal-to-noise ratio in applications such as fourwave mixing or up-conversion. With hundreds of units installed, the RegA system is a well proven ultrafast tool for advanced ultrafast research.

FEATURES

- CW-pumped regenerative amplifier (Verdi pumping)
- High repetition-rate, variable to 300 kHz standard (>500 kHz optional)
- Versatile electronic control
- Versions to sub-40 fs, >6 µJ
- Multiple OPA pumping

APPLICATIONS

- Ultrafast Spectroscopy
- Multiphoton Excitation (MPE) Imaging
- Material Processing
- Waveguide Writing

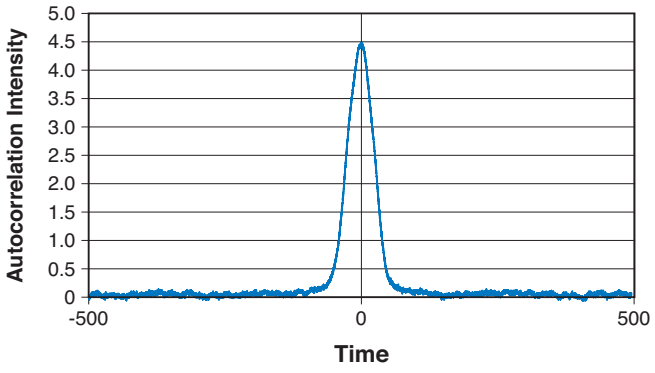
COHERENT®
Superior Reliability & Performance

SPECIFICATIONS FOR SYSTEM CONFIGURATIONS	12W Pump[1]		10W Pump[2]	
Repetition-Rate[3] (kHz)	100	250	100	250
Pulse Energy (µJ)				
RegA 9000[4]	5	4	4	3
RegA 9000[5]	6	6	4	3
RegA 9040[6]	6	6	4	3
RegA 9050[6]	6	6	4	3

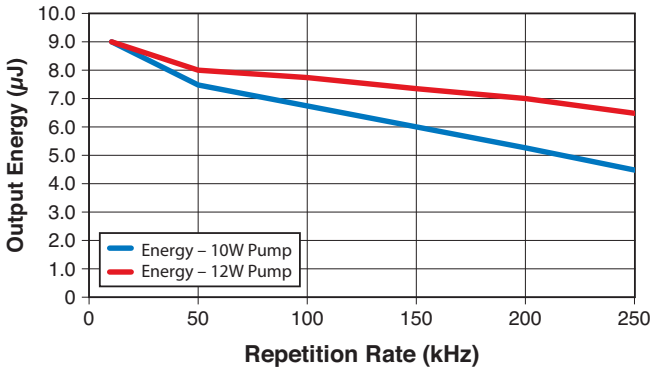
OPTIONS	RegA 9000	RegA 9050	RegA 9040
Pulse Width (fs) (FWHM)	<160	<60	<40
Polarization	linear, horizontal, 500:1		
Energy Stability[7] (% rms)	<1		
Average Power Drift[8] (% peak-to-peak)	<4		
Contrast Ratio	>500:1 pre-pulse, >250:1 post pulse; other pulses >1000:1		
Beam Quality (M^2)	<2[9]	<1.5	<1.3

1 Assumes full 12W of Verdi power used to pump RegA.
2 Assumes full 10W of Verdi power used to pump RegA.
3 Customer adjustable from 10 to 300 kHz typical. Available option for 500 kHz operation.
4 RegA 9000 seeded by Mira or Chameleon Vision-S.
5 RegA 9000 used with optional, external stretcher/compressor available at additional cost. Seeded with Mira or Chameleon Vision-S.
6 RegA 9040 and 9050 designs incorporate external stretcher/compressor and are seeded with Vitara.
7 Measured from 10 Hz to 10 MHz.
8 Power drift over two hours (after 30 min. warm-up); crystal temperature is controlled with supplied chiller, room temperature stable <±1°C.
9 <1.3 with optional external stretcher/compressor.

Autocorrelation of RegA 9040 Pulses
Deconvolved Single-Shot Pulse FWHM = 31 fs

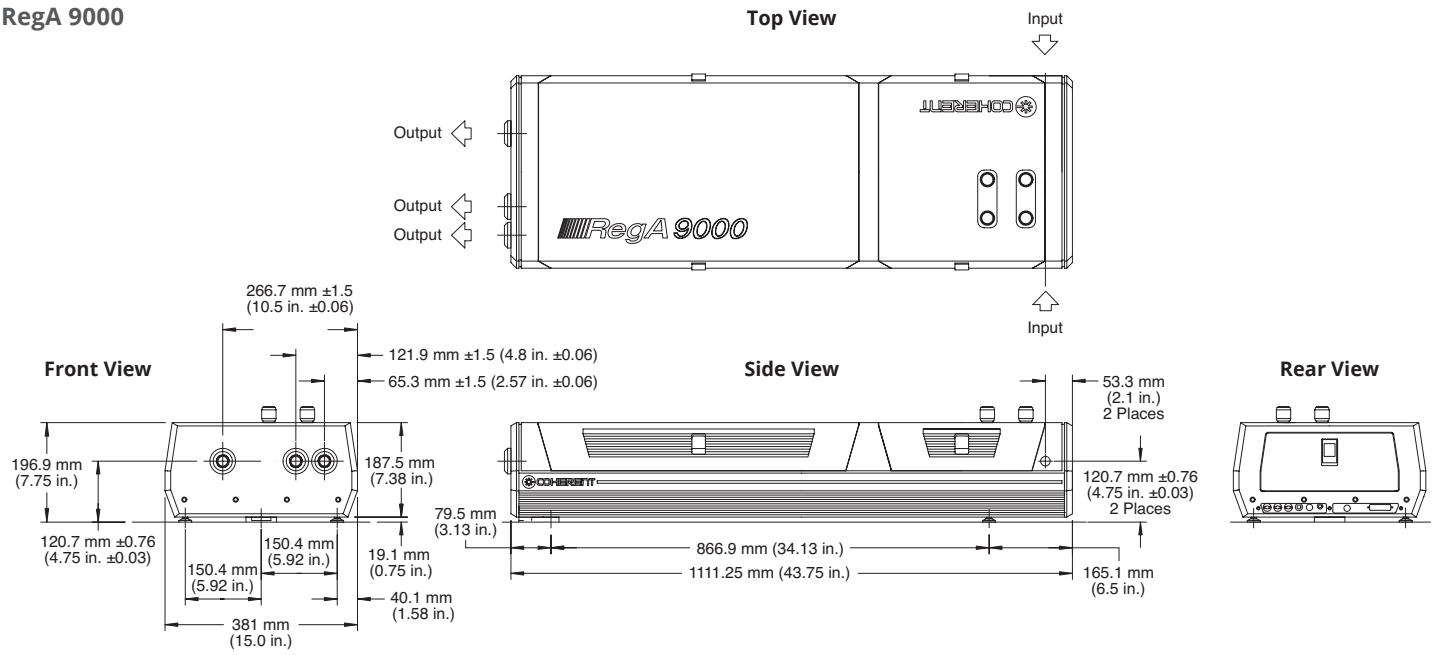


Typical RegA
Output Pulse Energy

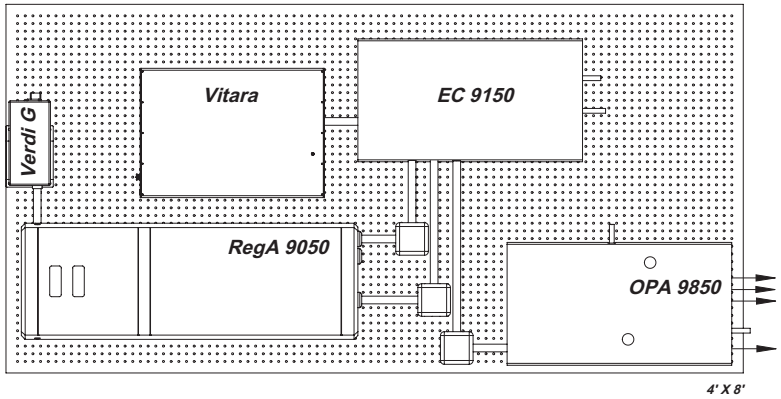


MECHANICAL SPECIFICATIONS

RegA 9000



Sample RegA 9050, Vitara, OPA 9850, Table Layout



COHERENT

Coherent, Inc.,
5100 Patrick Henry Drive Santa Clara, CA 95054
p. (800) 527-3786 | (408) 764-4983
f. (408) 764-4646

tech.sales@Coherent.com **www.Coherent.com**

CE **ISO 9001 Registered**