

GigaTera® Pulse-Generating Laser

SESAM® Technology

Customizable

Applications

- Hi-speed transmission systems: 10G to 30Tera and higher
- Hi-speed optical sampling
- Phase-coherent modulation formats
- Nonlinear switching, optical mux/demux
- Multi-wavelength source with supercontinuum generation
- Optical clocking
- Ultra-dense WDM source
- Frequency metrology

Features

- Passively mode-locked Er-glass microlaser
- Fundamentally mode-locked
- Stable turn-key operation



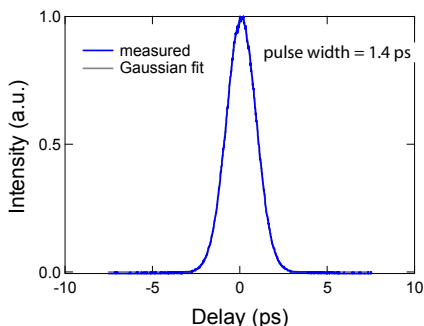
Options

- Fixed center wavelength from 1530-65 nm
- Tunable wavelength from 1545-65 nm
- Active clock synchronization, <100 fs jitter
- Available rep rates: 10 GHz (9.95328 GHz for SONET), 12.5 GHz, or 25 GHz

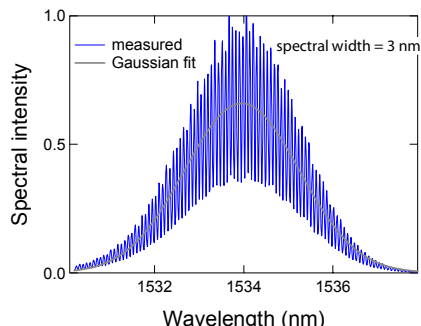
<2 ps	pulse width
1550 nm	wavelength
10 GHz	repetition rate
7 dBm	output power
100 fs rms	timing jitter

SERIES | ERGO™ - XG

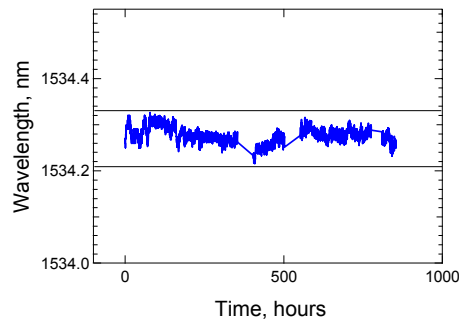
The ERGO-XG pulse-generating laser consists of a diode-pumped, solid-state erbium-glass, passively mode-locked laser employing Time-Bandwidth Products' patented SESAM® technology, resulting in clean picosecond pulses with unprecedented stability, and a micro-processor-controlled power supply for simple ease of use.



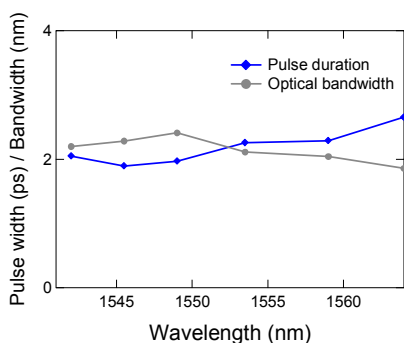
Typical autocorrelation trace of the ERGO



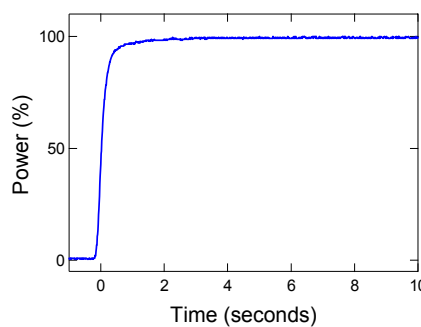
Optical spectrum corresponding to the pulse to the left



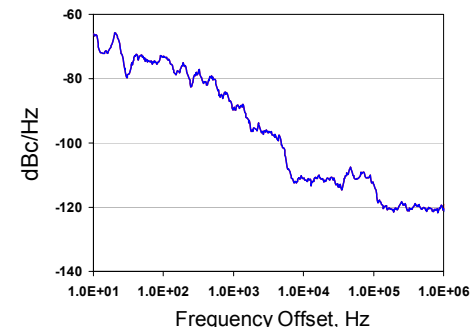
Free-running wavelength drift measured over 800 hours: $< \pm 0.06$ nm (± 7.5 GHz)



Wavelength tuning curve showing pulse width and optical spectrum bandwidth as a function of center wavelength



Average power output versus time from turn-on showing $< < 1$ minute warm-up



Microwave phase noise spectrum corresponding to an rms jitter of 90 fs over the measurement bandwidth of 10 Hz to 1 MHz

The ERGO laser system provides high-repetition rate mode-locked picosecond pulses in a compact, robust, price-competitive package. Fundamental modelocking (i.e. the laser cavity only has one pulse in it) results in excellent amplitude, optical, and microwave phase stability. The sealed laser head is a true turn-key system and reaches its specified performance typically within less than a minute. The new ERGO-XG features a more modular design approach that allows for repetition rates ranging from 10 GHz to 25 GHz. The modular laser head also provides a basis for integration into instrument-based test & measurement platforms.

Additional specifications

turn-on time
power stability (> 1 kHz)

voltage
frequency
input power (single phase)

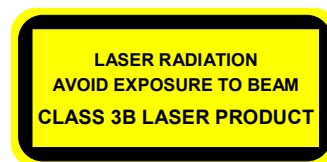
laser head (size, weight)
power supply (size, weight)

ERGO (all models)

< 1 min typical (< 5 minutes from cold start)
 $< 0.5\%$ rms

100 VAC – 240 VAC
50 Hz – 60 Hz
200 VA

110 mm x 47 mm x 230 mm (WxHxL), 2 kg
255 mm x 110 mm x 320 mm (WxHxL), 5 kg



Our team can customize the ERGO to your specific application, and we would be pleased to discuss and propose possible solutions. Please give us your key specifications and requirements in case they do not match our standard products.

All specifications are subject to change without notice. All numbers given in this datasheet are typical values and may depend on the specific laser configuration. SESAM is a registered trademark in the following countries: USA, Switzerland, United Kingdom, Germany, Austria, Netherland, Belgium, Luxembourg, France, Italy, Russia, China, Liechtenstein, Estonia, and Lithuania. GigaTera is a registered trademark in the following countries: USA, Switzerland, Liechtenstein, Germany, Austria, United Kingdom, Netherlands, Belgium, Denmark, Finland, Norway, Sweden, Luxembourg, France, Poland, Russia, Israel, China, and Japan. This product is protected by one or several of the following patents: US 6,538,298, US 6,466,604, US 6,826,219, US 6,778,565