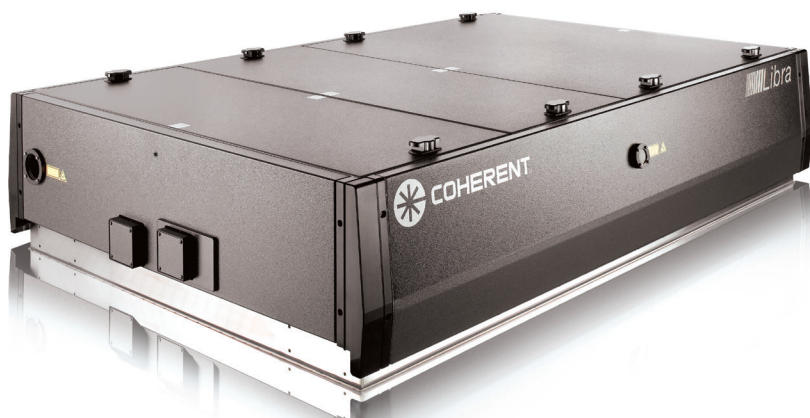


Libra

One-Box, Ultra-Stable, kHz Repetition-Rate, Ti:Sapphire Amplifier System

Configured in a one-box, ruggedized, ultra-stable, compact platform, Libra features high performance comparable to advanced multi-box systems. The compelling, customer-value advantage and market success of Libra are enabled by key design innovations throughout and the Libra concept has proven itself in a wide range of scientific applications and demanding industrial settings.

All Libra models are seeded by the Vitara-S oscillator, our hands-free, wide bandwidth oscillator. The design integrates Coherent's newest HASS verified Revolution pump laser with the E-2 Engine module – Coherent's thermally stabilized, high efficiency, regenerative amplifier platform that includes a unique, Ti:Sapphire rod geometry enabling simple, water-only cooling on all Libra models. Finally, a compact, stretcher and compressor support high power, short pulses with unsurpassed beam quality and stability.



FEATURES & BENEFITS

- One-box, compact, computer-controlled system contains integrated Vitara seed laser, Revolution pump laser, regenerative amplifier, stretcher and compressor
- E-2 Engine - high performance, high reliability, regenerative amplifier module providing the highest energy and efficiency with ($M^2 < 1.3$)
- Unique Ti:S slab-rod geometry for enhanced thermal management, enabling water-only cooling
- Thermally-stabilized amplifier platform for long term stability
- Pulse energy to > 5.0 mJ at 800 nm
- < 40 fs, < 50 fs, or < 100 fs and 1, 5, or 10 kHz models
- Stability $< 0.5\%$ rms

OPTIONS & ACCESSORIES

- Harmonic Generators
- Optical Parametric Amplifiers

SPECIFICATIONS	Libra	Libra-HE	Libra-HE+
Center Wavelength (nm) (nominal)	800		
Repetition-Rate ¹ (kHz)	1, 5 or 10	1, 5 or 10	1
Pulse Duration ² (fs) (FWHM)			
F-Model	<100	<100	<100
USP-Model	<50	<50	<40
Energy-per-Pulse (mJ)	>1.0 at 1 kHz >0.3 at 5 kHz >0.15 at 10 kHz	>4.0 at 1 kHz >0.8 at 5 kHz >0.4 at 10 kHz	5.0 at 1 kHz
Contrast Ratio ³			
Pre-pulse	>1000:1		
Post-pulse	>100:1		
Power Stability ⁴ (% rms) (24 hrs.)	<0.5		
Beam Diameter ⁵ (mm) (1/e ²) (nominal)	6	9	9
Spatial Mode	TEM ₀₀ , M ² <1.3		
Polarization	linear, horizontal		
Pump Laser	REVOLUTION-20	REVOLUTION-35	REVOLUTION-50

1 Repetition-rate must be specified when ordered and will be optimized prior to shipment.

2 A Gaussian pulse shape de-convolution factor (0.7) is used to determine the pulse width from an autocorrelation signal measured by a Coherent SSA (Single-Shot Autocorrelator).

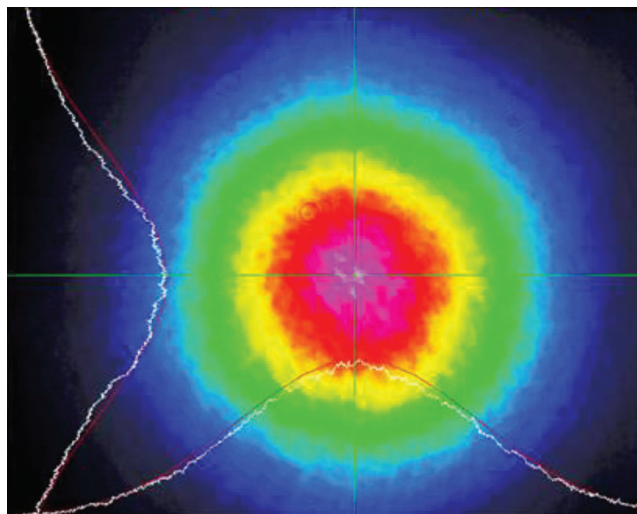
3 Contrast ratio is defined as the ratio between the peak intensity of the output pulse to the peak intensity of any other pulse that occurs greater than 1 ns before or after the output pulse.

4 Under stable environmental conditions, after system warm-up.

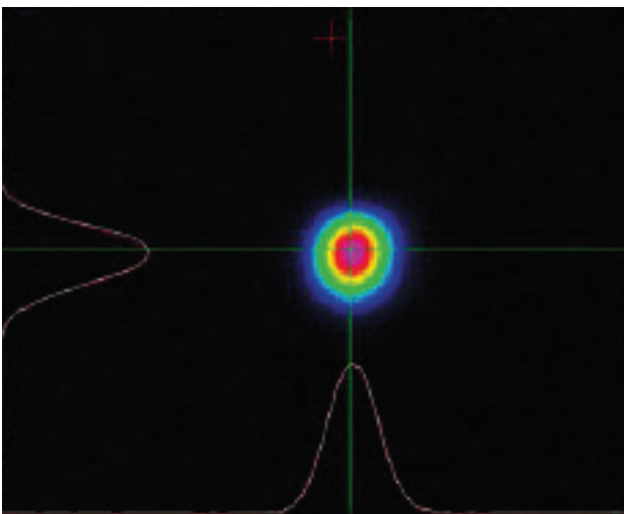
5 8 mm (nominal) for Libra-F-HE and Libra-USP-HE at 10 kHz.

TYPICAL PERFORMANCE DATA

Typical Libra-HE
Near Field Beam Quality

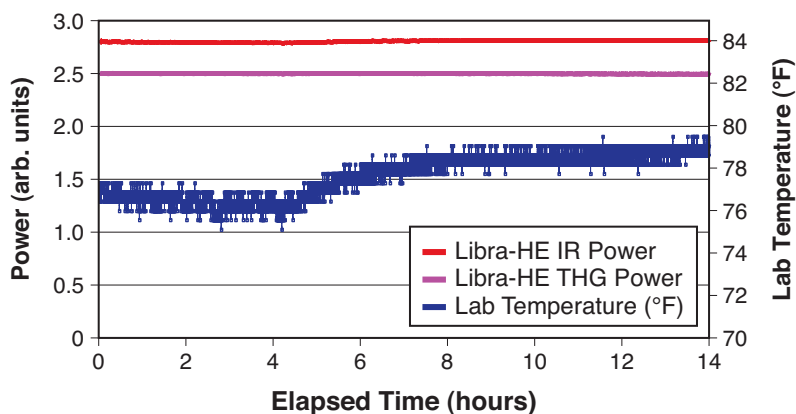


Typical Libra-HE
Far Field Beam Quality

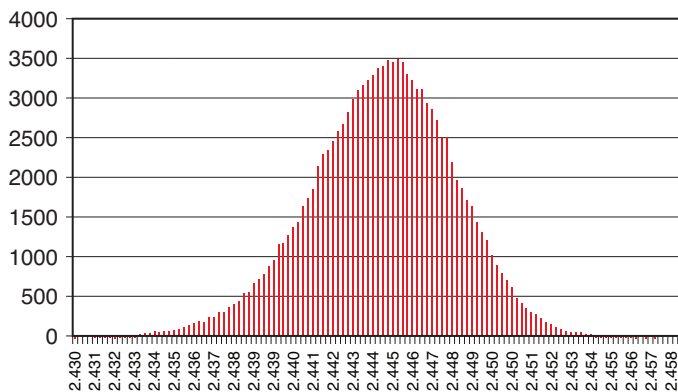


TYPICAL PERFORMANCE DATA

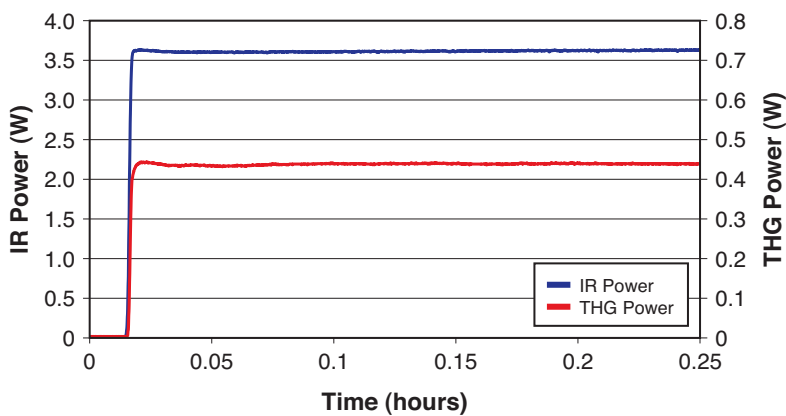
**Typical Libra-HE Power Stability >14 hours,
800 nm and 266 nm simultaneously**



**Typical Energy Stability
0.13% rms 120k shots**

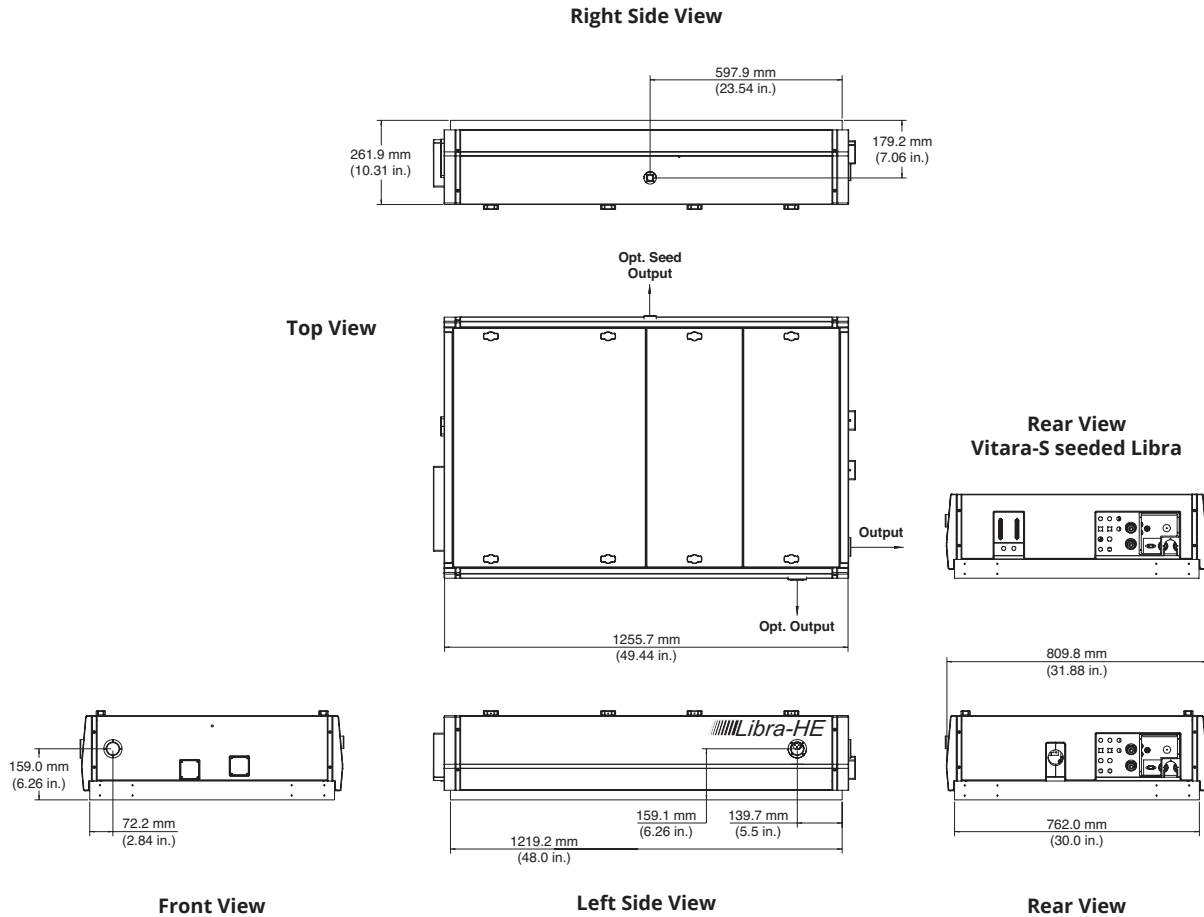


**Typical Warm-Up
Stable Power after 15 min. 800 nm and 266 nm**



MECHANICAL SPECIFICATIONS

Libra



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

Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Libra Amplifiers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.
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