# LITHIUMSIX


**Compact high-power laser emitting high-frequency femtosecond pulses.**

LITHIUM LASERS Ultra pulses, pure impact.

## KEY FEATURES

- **High operational stability**
- Average power higher than:
  **7 Watt at 1050 nm;**
  **3.5 Watt at 525 nm**
- Pulse energy higher than:
  **33 nJ at 1050 nm;**
  **16 nJ at 525 nm**
- **High emission rate: 210 MHz**
- **Closed loop power control**
- **Compact single enclosure**

## APPLICATIONS

- **Biophotonics and life science:**
  Multiphoton microscopy;
  B-CARS microspectroscopy
- **Non-linear optics:**
  Supercontinuum generation;
  Seeding of amplifiers;
  Harmonic generation;
  Spatial and temporal focusing
- **Material processing:**
  Femtosecond lithography;
  Two-photon polymerization

# LITHIUM SIX is a state-of-the-art femtosecond laser emitting high-energy pulses in the IR and green regions.

With pulse durations under 200 femtoseconds, a high repetition rate of 210 MHz and a beam point stability of 1.16 uC/°C, LITHIUM SIX offers unmatched precision and speed.

Its advanced power locker ensures ultrastable performance even in challenging environments, making it ideal for cutting-edge applications like 3D nano-printing and femtosecond lithography. Compact, precise, and efficient, LITHIUM SIX redefines femtosecond laser capabilities.

## SPECIFICATIONS

| | | |
|---|---|---|
| **Center wavelength** | 1050 nm | 525 nm |
| **Maximum Average power** | > 7 W [1)] | > 3.5 W [1)] |
| **Maximum single pulse energy** | > 33.8 nJ | > 16.9 nJ |
| **Pulse duration** | < 200 fs | |
| **Long-term power stability, 100 h** [2)] | < 0.5 % | |
| **Repetition rate** | 210 MHz | |
| **Beam quality** | M2 < 1.2 | |
| **Beam circularity** | > 0.9 | |
| **Beam point stability** | < 2 µrad/°C | |
| **PER** | > 23 dB | |
| **Warm-up time** | < 20 min | |
| **Operational temperature** | 15 - 35 °C | |
| **Laser dimensions** | 390 x 220 x 125 mm | |
| **Laser weight** | 6 kg | |

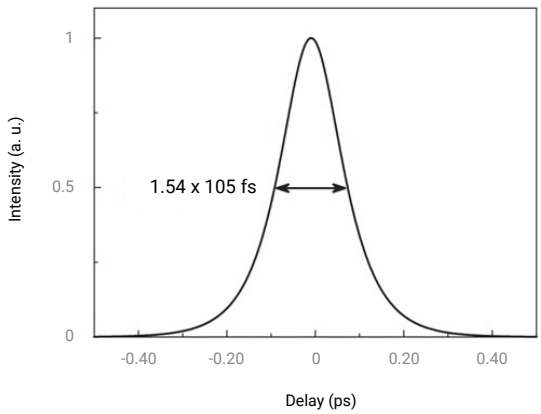
[1)] Different average powers are available upon request.
[2)] Under stable environmental conditions. Expressed as normalized root mean squared deviation (NRMSD).

**DANGER:** VISIBLE AND/OR INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT, REFLECTED OR SCATTERED RADIATION CLASS 4 LASER PRODUCT.

## TYPICAL PERFORMANCE DATA OF LITHIUM SIX

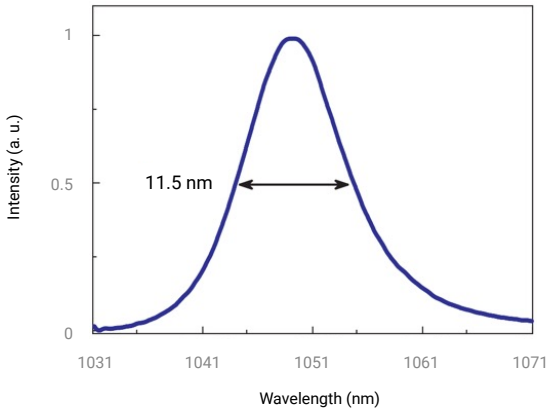
### Transform-limited pulses

**Autocorrelation trace**

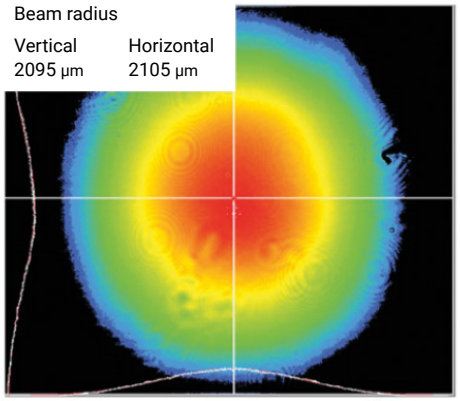


## Clean gaussian shape (no Kelly sidebands) and TEM00 profile

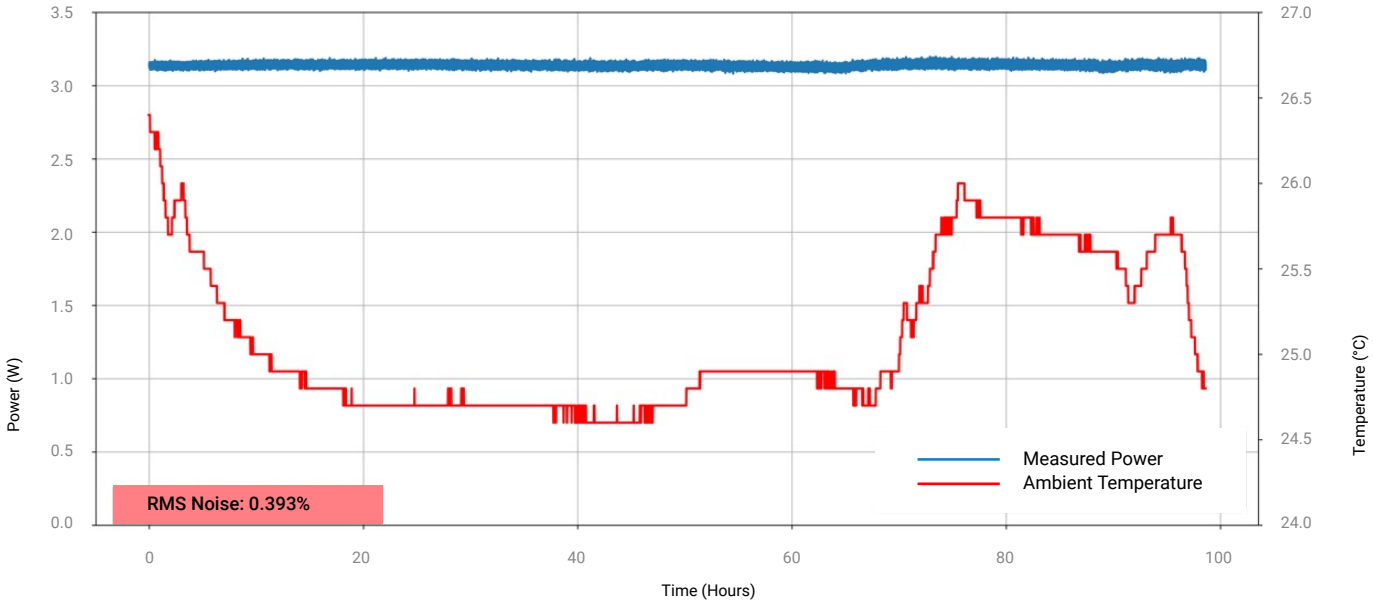
**Optical spectrum**




**Beam profile**




## High power stability with close loop power control (Lithium Six, 525 nm)




# Advanced power control

The laser system integrates an advanced closed-loop power control system to ensure precise and stable output power, even under varying ambient temperature conditions. This feedback system continuously monitors the laser's output using an integrated photodetector and dynamically adjusts drive parameters to compensate for deviations in real time.

This design ensures superior power stability, which is essential for demanding photonics applications such as advanced nonlinear processes and high-precision polymerization techniques such as 3D-nano printing, where output consistency is critical for achieving accurate and reproducible results.


LITHIUM
LASERS

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