COUGAR High-Power Picosecond Laser

Customized systems with SESAM® technology*

The COUGAR high-average power, passively mode-locked, diode-pumped, solid-state laser system employs SESAM technology. Combining a saturable absorber and longitudinal pumping yields continuous clean picosecond pulses with exceptional amplitude and phase noise performance.

The COUGAR turnkey laser system can be customized to user-defined 20 to 400 MHz repetition rates, increased pulse width, frequency conversion, and timing synchronization with the CLX-1100 phase-locked-loop feedback system. The COUGAR laser achieves its specified performance level within a few minutes and requires very little maintenance.

Features

- Passively mode-locked DPSSL
- Closed-loop water cooling
- Turnkey operation
- Low maintenance

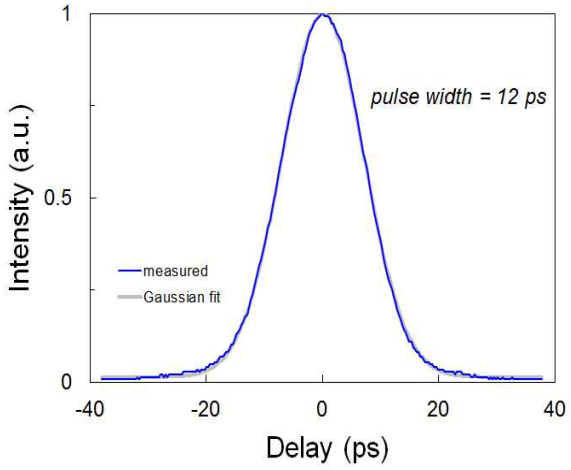
Options

- Multiple output beams
- Extended pulse widths
- Second harmonic generation (SHG)
- Remote control
- Clock synchronization
- RS232

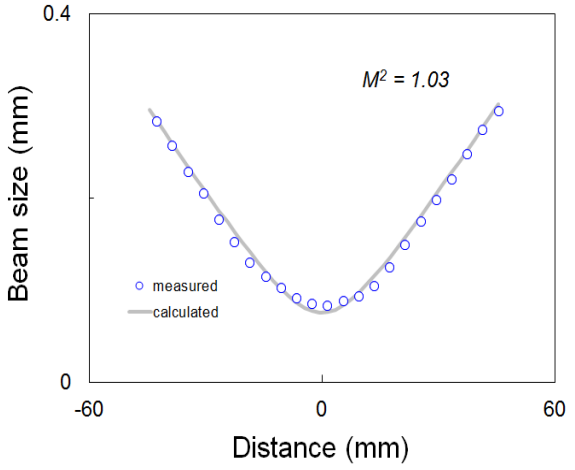
Applications

- Flow cytometry
- Time-resolved fluorescence spectroscopy
- Multiphoton excitation
- Seeding amplifier
- Pump-probe experiments
- Nonlinear optics

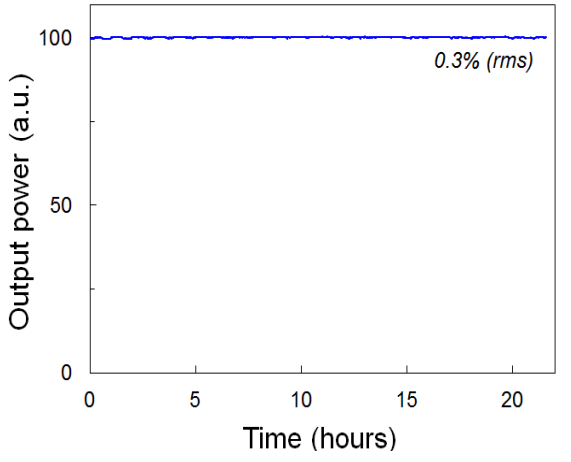
*The COUGAR laser uses passive, self-starting JDSU-proprietary SESAM technology (a semiconductor saturable absorber mirror) to generate the picosecond seed pulses without requiring any external control. SESAMs from JDSU are designed and optimized for the COUGAR laser to avoid long-term degradation.



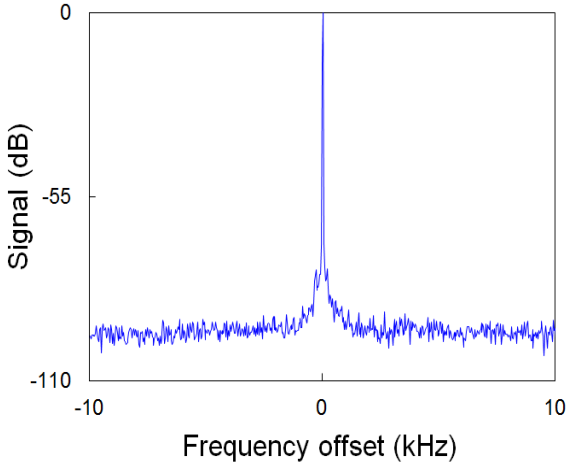
Typical COUGAR laser pulse autocorrelation trace



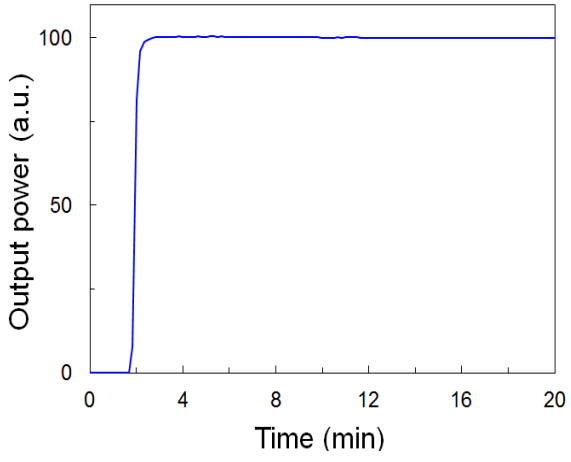
Measured beam size versus propagation distance through a beam focus. The calculated curve shows the Gaussian beam with the indicated M^2 value.



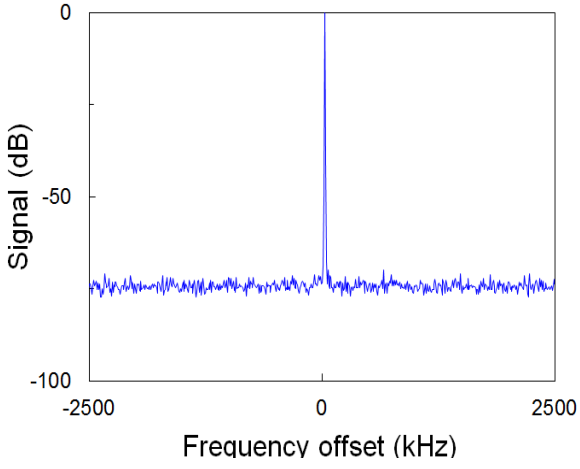
Average laser output power (long term)



Typical pulse train microwave spectrum centered at the laser repetition rate (span: 20 kHz, resolution: 3 Hz, vertical scale in dB)



Average laser output power after a cold start



Typical pulse train microwave spectrum centered at the laser repetition rate (span: 5 MHz, resolution: 1 kHz, vertical scale in dB)

Specifications

Parameter	COUGAR Laser Details*
Output power	10 W at 1064 nm
Repetition rate	20 – 400 MHz
Pulse width	12 ps
Wavelength	1064, 532, and 355 nm
Power stability	1%/°C
Spatial mode	1.1 M^2 (TEM_{00})
Turn-on time	10 mins
Pointing stability	50 µrad/°C
Pulse energy stability (>1 kHz)	0.3% rms
Voltage	100 – 240 V AC
Frequency	50 – 60 Hz
Input power (single phase)	1350 VA
Laser head (L x W x H, weight)	632 x 310 x 176 mm, 30 kg
Power supply (L x W x H, weight)	380 x 360 x 160 mm, 15 kg
Chiller (L x W x H, weight)	280 x 220 x 390 mm, 9.5 kg

*These values represent typical performance.

Laser Safety

Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

Laser Head

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PRF	Code
Specify within the range of 20 – 400 MHz	xxx[1]

NLO	Code
1064 nm IR	R
532 nm SHG	G
355 nm THG	V

Options	Code
No options	0
CLX[2]	C

Example of a Complete Order

CO-350-R-0-00 (COUGAR; 350 MHz; 1064 nm)[3]

Notes:

1. Where 020 equals 20 MHz
2. CLX-110 phase-locked clock synchronizer to synchronize the laser system's repetition rate to a reference clock signal.
3. Includes air-water chiller, 2-m chiller hose, and 2-m umbilical cable. Different cable lengths are available upon request.

JDSU

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