PALLAS Compact Ti:Sapphire Lasers

Customized systems with SESAM® technology*

The PALLAS lasers combine soliton mode-locking, a balance between self-phase modulation (SPM) and laser cavity dispersion, with a SESAM device for improved stability and reliable self-starting. The PALLAS lasers have a compact, all-solid-state green pump laser integrated into the laser head. The lasers have no moving parts and require no RF drive electronics for mode-locking.

SESAM passive mode-locking delivers high stability and reliable self-starting without dropping pulses and without complicated or noisy high-frequency mode-locking electronics. The PALLAS also has a robust solid-state pump laser. SESAM technology facilitates customized PALLAS laser system designs. Repetition rate, wavelength, and pulse widths from femtoseconds to picoseconds can be tailored to meet individual requirements. Additionally, PALLAS lasers are less sensitive to pump-laser parameters. The sealed, turnkey platforms are suitable for use even in the most demanding laboratories and industrial environments.

Features

- Passively mode-locked DPSSL
- Integrated pump laser
- Turnkey operation
- Low maintenance
- Customized design

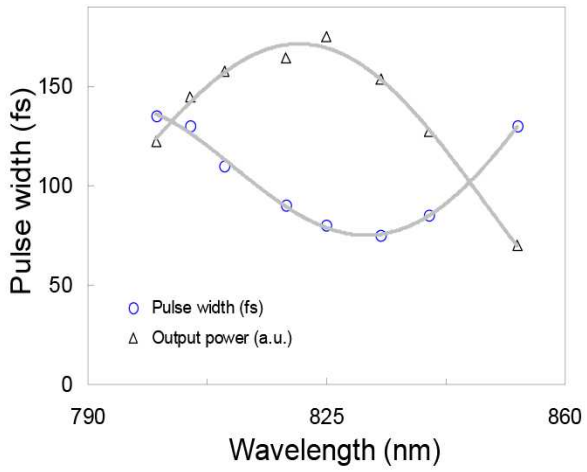
Options

- Extended pulse widths
- Second harmonic generation (SHG)
- Long-term power stabilization
- Remote control
- Clock synchronization
- RS232

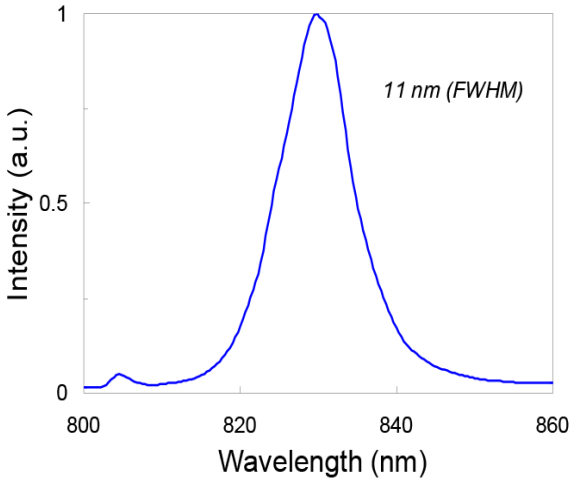
Applications

- Seeding amplifier
- Two-photon microscopy
- Pump-probe experiments
- Optical testing
- SHG on nanoparticles
- Photocathode illumination

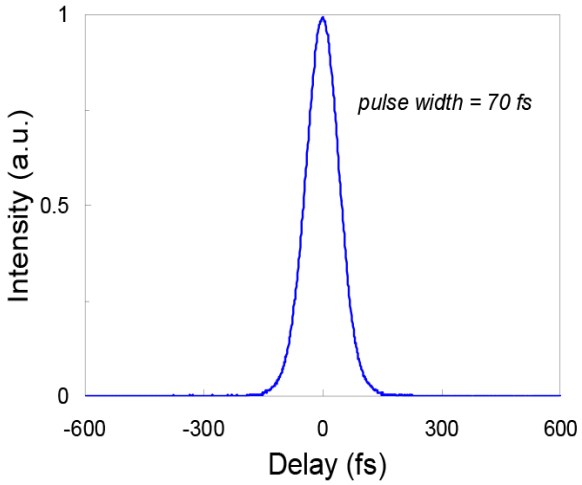
*The PALLAS laser uses passive, self-starting JDSU-proprietary SESAM technology (a semiconductor saturable absorber mirror) to generate the picosecond seed pulses without requiring any external control. JDSU SESAMs are designed and optimized for the PALLAS laser to avoid long-term degradation.



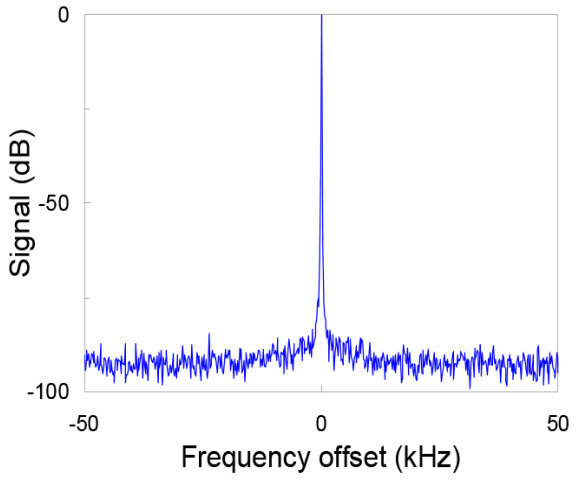
Pulse width (FWHM) and average laser output power (a.u.) versus wavelength



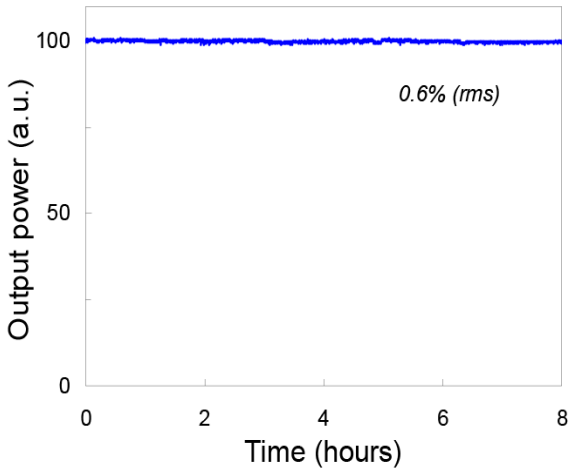
PALLAS optical laser pulse spectrum at the center wavelength (resolution: 0.1 nm)



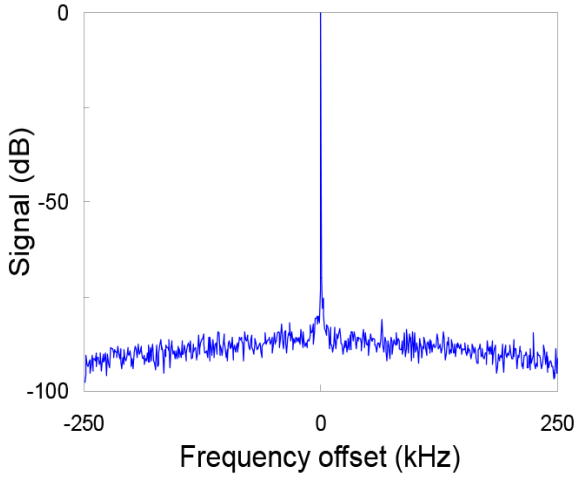
Typical PALLAS laser pulse non-interferometric autocorrelation trace



Typical pulse train microwave centered at the laser repetition rate
(span: 100 kHz, resolution: 30 Hz, vertical scale in dB)



Average laser output power (long term)



Typical pulse train microwave centered at the laser repetition rate
(span: 500 kHz, resolution: 100 Hz, vertical scale in dB)

Specifications

Parameter	PALLAS Laser	
Output power	800 mW	150 mW
Repetition rate	75 – 120 MHz	
Pulse energy	Up to 200 µJ	
Pulse width	80 fs – 100 ps	
Wavelength	780 – 860 nm	
Power stability	1%/°C	
Spatial mode	1.1 M^2 (TEM_{00})	
Turn-on time	10 mins	
Pulse energy stability (>1 kHz)	0.1% rms	
Voltage	100 – 240 V AC	
Frequency	50 – 60 Hz	
Input power (single phase)	1350 VA	
Laser head (L x W x H, weight)	450 x 360 x 101 mm, 15 kg	
Power supply (L x W x H, weight)	380 x 360 x 160 mm, 13.5 kg	
Chiller (L x W x H, weight)	390 x 280 x 220 mm, 9.5 kg	

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

PA-□ - □□□ - □□□ - □ -00

Output Power	Code
800 mW	H
150 mW	L

PRF	Code
Specify within the range of 75 – 120 MHz	xxx[1]

Wavelength	Code
Specify within the range of 780 – 860 nm	xxx[2]

Options	Code
No options	0
CLX[3]	C

Example of a Complete Order

PA-H-100-800-0-00 (800 mW, 100 MHz, 800 nm laser head)[4]

Notes:

1. Where 075 equals 75 MHz
2. Where 860 = 860 nm
3. CLX-1100 phase-locked clock synchronizer to synchronize the laser system's repetition rate to a reference clock signal
4. Includes air-water chiller, 2-m chiller hose, and 2-m umbilical cable. Different cable lengths are available upon request.

JDSU

North America Toll Free: 800 498-JDSU (5378)
Worldwide Tel: +800 5378-JDSU

www.jdsu.com

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