

Sub-nanosecond DPSS micro laser

High peak powers (**500 kW**) with sub-nanosecond pulse lengths or high repetition rates (**100 kHz**) are now available from Standa. This family of highly reliable, solid-state lasers consists of a power supply unit and laser head. The power supply unit includes a laser diode (LD) driver, fiber pigtailed LD, and internal pulse generator.



The laser repetition rate can be operated in two different modes, and changed from single pulse to max repetition rate in either pulsed LD pumping mode.

- Repetition rate fixed by the internal pulse generator (Pulsed LD pumping).
- Repetition rate fixed by the external TTL level pulses (Pulsed LD pumping).

Available models include:

- Model **STA-01**, **STA-02** – designates pulses of the fundamental wavelength.
- Model **STA-01SH** – designates pulses of second harmonic.
- Model **STA-01CW** – designates continuous wave output.

OPTION

**STA-01 (or STA-01SH) + Photonic crystal fiber
= ultra-bright supercontinuum source**

APPLICATIONS

- Pump source for harmonic generators, optical parametric oscillators and amplifiers
- Two-photon microscopy
- Fluorescence microscopy
- Test and measurement systems
- Low-coherence "white light" interferometry
- Optical coherence tomography
- Spectroscopy
- Micromachining
- Two photon Photopolymerization

SPECIFICATIONS

MODEL	STA-01-1	STA-01-2	STA-01-3	STA-01-4	STA-01-5	STA-01-6	STA-01-7	STA-01CW	STA-01SH-1	STA-01SH-2	STA-01SH-3	STA-01SH-4	STA-01SHCW
Wavelength, nm	1062.5 / 1064								532				
Average output power (max), mW	140	100	120	125	65	12	100	0-500	40	25	50	50	0-500
Pulse energy, μ J	2	2	3	5	6.5	12	100	-	4	5	50	0.5	-
Pulse width (FWHM), ns	0.5	0.6	0.8	0.6	0.7	< 0.8	0.6	-	0.5	< 0.7	0.5	0.5	-
Repetition rate (max), kHz	70	50	40	25	10	1	1	-	10	5	1	100	-
Beam profile, M^2	< 1.3								< 1.3				
Pulse spectral structure	single longitudinal mode							multimode	single longitudinal mode			multimode	
Polarization ratio	> 100:1								> 100:1				
Operating temperature, °C	15-40								15-40				
Laser head dimensions													
diameter, mm	25								25				
length, mm	44.5								76.5				

Specifications are subject to changes without advance notice.

D P S S M I C R O L A S E R S

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The STA-02-SH-CW Microchip Laser is a CW diode-pumped solid-state laser operating at the wavelength 532 nm. The laser head delivers 20 ± 1 mW of stable output power in a TEM₀₀ beam. Laser resonator does not contain moving parts; optimized laser diode (LD) beam shaping optics allows easy and reliable assembling. Standard laser system consists of 12STAD-CW digital controller and a laser head. Controller includes LD and TEC drivers, output power stabilization system, USB interface for ease of integration and remote control. JLV-SOFT9, universal laser control software with intuitive GUI, allows detailed setting and monitoring of key laser parameters along with writing them to an EEPROM located inside laser head. The last feature enables the interchangeability of laser head STA-02-SH-CW and 12STAD-CW controller. Several LEDs located at the front panel indicate DC power, laser diode enabling and stable output power. The 12STAD-CW is equipped with a Remote Interlock connector located at the back panel and the corresponding LED at the front panel indicating the Interlock status. Each unit is supplied with a shorting device installed in the interlock connector. Laser head output power can be set by Standa from 10 mW to 30 mW agreed with customer.

APPLICATIONS

- DNA sequencing
- Flow cytometry
- Cell sorting
- Particle analysis
- Fluorescence microscopy
- Raman spectroscopy

SPECIFICATIONS

Wavelength	532 nm
Linewidth	<0.1 nm
Output power	20 ± 1 mW
Power stability (8 hours, +/-2 °C)	<5 % PtP
Warm up time	<10 min
Spatial mode	TEM ₀₀
M ² factor	<1.2
Beam diameter (1/e ² point)	1.0 mm ± 10%
Far field divergence (full angle)	<1.5 mrad
Polarization ratio	>100:1, horizontal
ELECTRICAL & MECHANICAL	
Operating voltage	4.75 – 5.5V DC
Operating Current	3 A (Maximum)
Modulation	No modulation offered
Dimensions	
Laser Head	104 x 58 x 33 mm
Controller	124 x 104 x 34 mm
Power supply	Optional
Laser head cable length	1 m
Laser head net weight	250 g
Controller net weight	350 g

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