

Sub-nanosecond Miniature Master Oscillator Power Amplifier

STA-01-MOPA



APPLICATIONS

- Marking
- Biomedical
- LIDAR and Laser Ranging
- Micro dissection
- Material processing
- TiSa, OPO pumping
- Spectroscopy (LIBS, LIPS and PIV)
- Nonlinear Optics (Harmonics and Supercontinuum Generation)
- Diamond drilling (SiC) other hard materials
- Sensing and Monitoring
- Semiconductor Inspection
- MALDI-TOF
- Laser Induced Fluorescence (LIF)
- Micromachining
- Photoacoustic spectroscopy

A number of applications like high precision ranging and imaging, LIDAR, micro-materials processing, UV spectroscopy in chemistry and biochemistry will benefit from energetic (300–500 μ J) high beam quality sub-nanosecond (\sim 200 ps) laser pulses. To address the needs of these applications the new MOPA microlasers from STANDA utilize Master Oscillator Power Amplifier platform that combines company's renowned STA-01 microlaser oscillators together with a highly efficient amplifying stage. Due to the MOPA configuration the unique spatial and temporal characteristics of the microlasers are preserved while their output power is raised to the multiwatt level. All Master Oscillators as well as Power Amplifiers are produced at Standa facilities.

SPECIFICATIONS

Models	STA-01-MOPA 1	STA-01-MOPA 2	STA-01-MOPA 3	STA-01-MOPA 4
Wavelength, nm	1064			
Average Output Power (max), W	3	2.5	0.2	5
Pulse Energy, μ J	300	50	200	100
Pulse Width (FWHM), ns	0.8	0.4	0.2	0.5
Repetition Rate (max), kHz	10	50	1	50
Peak Power, MW	up to 1.2			
Beam Divergence (1/e ² , full angle), mrad	< 6			
Pulse Spectral Structure	SLM			
Spatial Mode	TEM ₀₀			
Beam Propagation Factor M ²	< 1.2			
Polarization Ratio (linear)	> 100 : 1			
Power Stability RMS, %	< 1%			
Operating Voltage, V AC	100–230			
Power Consumption, W	< 100			
Operating Temperature, °C	20–35			
Interfaces	USB, External Trigger (TTL rising edge)			
Dimensions of Laser Head, mm	79 (W) × 37.5 (H) × 75 (L)			
Dimensions of Controller, mm	471 (W) × 157 (H) × 458 (L)			
Warranty	12 months			
Laser Head Cooling	Required: 12WSC1 Cooling system			
Thermal Resistance, K/W	≤ 0.05			
Laser Controller Cooling	Provided			Required: 12WSC1 Cooling system
Thermal Resistance, K/W				≤ 0.05

Ask Standa for your MOPA parameters.

Specifications are subject to changes without advance notice.

Actively Q-switched is available, please visit www.standa.lt for more information.

www.standa.lt

e-mail: sales@standa.lt

Fax: +370-5-2651483

Phone: +370-5-2651474

standa

Optical Tables

1

Brackets & Rails

2

Base Mounts & Accessories

3

Optical Mounts

4

Optical Positioners

5

Base Positioners

6

Translation & Rotation Stages

7

Motorised Positioners & Controllers

8

Fine Adjustment Screws

9

Opto-Mechanics & Sets

10

Light Test & Measurement Instruments

11

Lasers & Laser Accessories

12

Second and Third Harmonic Generators

STA-01-MOPA-SH

STA-01-MOPA-TH

Without compromising their compactness and beam quality the STA-01-MOPA series lasers can be equipped with second and third harmonic generation crystals for nonlinear frequency conversion. STANDA can offer green and UV lasers with 532 and 355 nm wavelengths accordingly.

SPECIFICATIONS

Models	STA-01-MOPA SH-1	STA-01-MOPA SH-2	STA-01-MOPA SH-3	STA-01-MOPA SH-4	STA-01-MOPA TH-1	STA-01-MOPA TH-2	STA-01-MOPA TH-3	STA-01-MOPA TH-4
Wavelength, nm	532				355			
Average Output Power (max), mW	1500	1200	100	2500	750	700	50	1250
Pulse Energy, μ J	150	10	100	50	75	5	50	25
Pulse Width (FWHM), ns	0.7	0.4	0.2	0.5	0.5	0.4	0.2	0.7
Repetition Rate (max), kHz	10	50	1	50	10	50	1	50
Peak Power, MW	up to 1.2							
Pulse Spectral Structure	SLM							
Beam Propagation Factor M^2	< 1.2							
Power Stability RMS, %	< 1%							
Interfaces	USB, External Trigger (TTL rising edge)							
Dimensions of Laser Head, mm	79 (W) \times 37.5 (H) \times 75 (L)							
Dimensions of Controller, mm	471 (W) \times 157 (H) \times 458 (L)							
Warranty	12 months							
Laser Head Cooling	Required: 12WSC1 Cooling system							
Thermal Resistance, K/W	≤ 0.05							
Laser Controller Cooling	Provided		Required: 12WSC1 cooling system		Provided		Required: 12WSC1 cooling system	
Thermal Resistance, K/W	-		≤ 0.05		-		≤ 0.05	

Specifications are subject to changes without advance notice.

Water Cooling System

12WSC1



Equip laser head with proper cooling equipment. STANDA has specially designed a cooling unit that serves as compact and reliable heat dissipation system.

SPECIFICATIONS

Rated Voltage	DC 12 V \pm 10%
Q-max	800 L/hour \pm 10%
H-max	4 m \pm 10%
Size	75 \times 54 \times 66 mm
Life Expectancy	50000 hours at 25°C
Noise	24.5 dB
Power Supply Voltage	12 V
Power	3 W
Working Liquid	Distilled water
Thermal Resistance	
Coefficient of the System	0.05 $^{\circ}$ /W

Non-standard Lasers

STA-01-X

Due to the MOPA configuration different modifications of output parameters are possible. Contact STANDA directly or find your local STANDA representative if you have laser specification other than given in the table of standard units.