

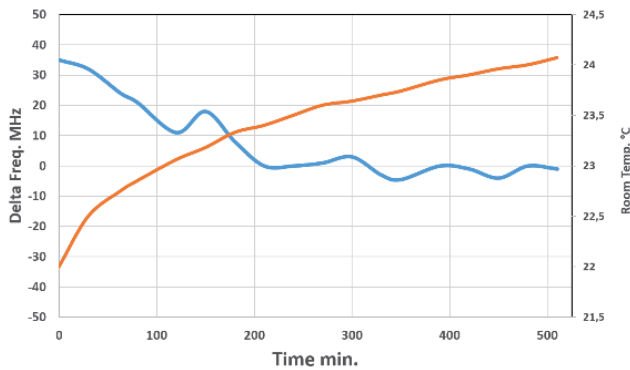


## ALS 976 CW Fiber Lasers 2W 5W 10W

### All-fiber based MOPA Technology

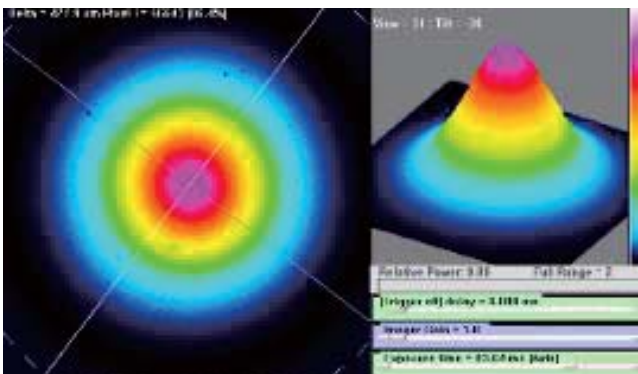


Frequency stability vs room temp.



Frequency stability of the ALS-IR laser in MHz over time (frequency in blue, room T°C in red).

Customers validated our solution as one of the most accurate optical tweezers at the best wavelength for biological materials.

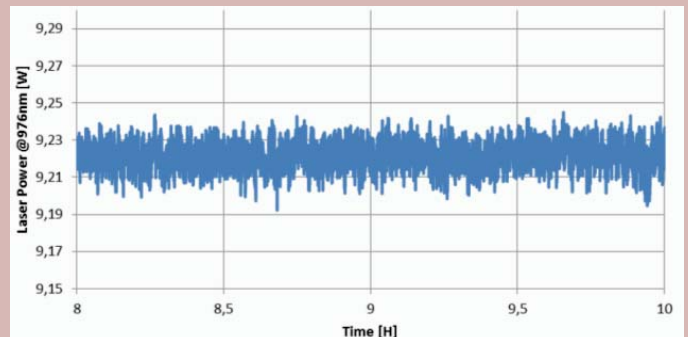


ALS lasers are based on only single mode fibers architecture and so offer an ultra-stable high quality single spatial mode. Typical value:  $M^2 < 1.1$

High power Laser pumping  
 Nonlinear frequency conversion  
 Control - measurement  
 Spectroscopy IR  
 Optical tweezers for Bio

### key features:

- TEM00 mode
- Long coherence length
- $M^2 < 1.1$
- Single frequency
- Ultra-low noise
- Excellent pointing stability
- Ultra stable power output
- High polarization ratio and stability
- Coolerless laser head
- Compact design
- Maintenance free - long life
- Low power consumption
- OEM versions available
- RoHS Compliant



The graph below shows the power stability of the entire range of ALS-IR lasers: short term fluctuations  $< \pm 0.2\%$  (limited by detector noise) and long term fluctuations  $< \pm 0.3\%$ .

# SPECIFICATIONS

976 High Power Fiber Lasers with internal seeder		Unit
Wavelengths <sup>(1)</sup>	976 ± 0,5	nm
Output power	2W, 5W, 10W*	W
Output power Tunability	1 to 100 (10 to 100 recommended)	%
Beam quality	M2 < 1.1	-
Beam diameter « free space »	1 ± 0,1 (other upon request)	mm
Beam divergence	< 0.8	mrاد (@1/e^2)
Spatial mode	TEM00	-
Spectral width		
- single frequency <sup>(2)</sup>	< 50	kHz
- narrow bandwidth	< 60	pm
Power stability		
	< ± 0.3 (short term)	%
	< ± 0.5 (over 8 hours)	%
Noise [100Hz - 10MHz]:		
- single frequency	< 0.05	% rms
- narrow bandwidth	< 0.2	
Frequency stability <sup>(3)</sup>	< 0.1	pm
Output polarisation	Vertically polarized > 100:1	-
Pointing stability	< ± 0.5	μrad/°C
Output <sup>(4)</sup>	Free space laser head	-
Laser control	Multi-turn potentiometer, Touch screen, Analog voltage	-
Supply requirements	90-240V/50-60Hz	-
Electrical power consumption	200<...<300	W
Cooling	Air cooled Rack, coolerless Head	-

\* As we include an internal isolator the actual power out of the head will be >9W

(1): Other wavelengths available on request.

(2): Typically <30 kHz for single frequency version

(3): For single frequency version only. Measured over 8 hours and temperature variation < 3°C.

(4): Optional output depending on the laser power: PM980 / HI1060 / LMA / Collimated fiber / Multiple output beam splitting

Dimensions	
Laser Rack	480 x 460 x 130mm
Laser Head	150 x 95 x 40mm



About 1,5 meters cable length between rack and the beam output from the laser head

Coolerless laser head  
19" 3U air cooled power unit



Customized optical output option available according to the Fiber Laser power :  
beam splitting: 1:3 or more, free space or fibered  
Beam shaping  
Advanced optical setup

**PNEUM Co., Ltd.**

5-15-3 Minamikoshigaya, Koshigaya-shi,  
Saitama-ken, 343-0845, Japan

TEL: 81-48-985-2720

FAX: 81-48-985-2721  
info@pneum.co.jp 1709

Contact and enquiries

[www.azurlight-systems.com](http://www.azurlight-systems.com)