

# AZURLIGHT

SYSTEMS



Product Datasheet

**976 nm CW Fiber Lasers & Amplifiers**

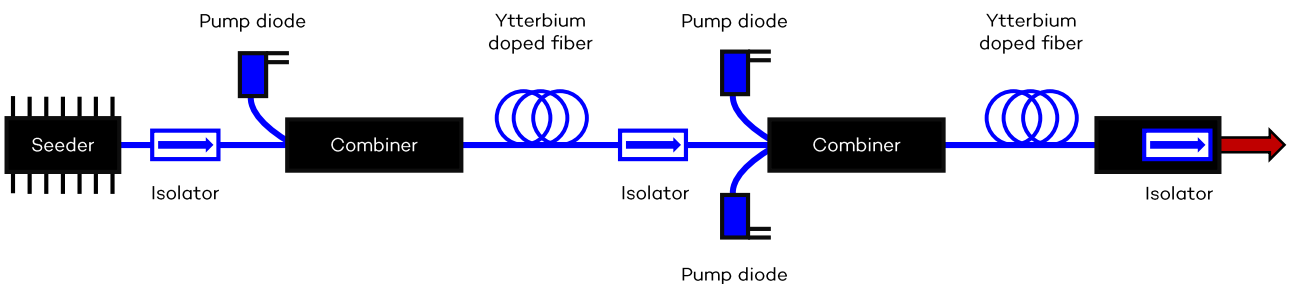
Up to 10 W

Azurlight Systems is a French company that develops, produces and commercializes innovative fiber laser technologies. Its patented design represents a real breakthrough on the laser market especially over other solid-state technologies. Our team strives to combine the most stringent fiber laser specifications : high power, single mode, single frequency, ultra-low noise, to enable the most demanding applications. The unique all-fibered architecture allows for reliability and robustness and enables efficient integration.

Our products are intended for industrials and academics. Azurlight Systems is ISO 9001:2015 certified and relies on a well-trained global network of partners. Nevertheless, we are very close to our customers and always appreciate to provide deep understanding of our products performances and potential customization to the application.

## MOPA Technology

The 3 building-blocks approach (seeder + HP amplifier + optical head) of the Master Oscillator Power Amplifier architecture let us all the freedom to tailor our products to your application.



## Key Features

- Single Frequency
- Ultra-low Noise
- Best-in-class Pointing Stability
- Maintenance Free – Long Life

Our 976 nm system offers an excellent beam quality ( $M^2 < 1.1$ ) out of an air-cooled compact laser head. Different turn-key configurations are available : either lasers or amplifiers.

## Applications

- Atomic & Molecular Physics
- High Performances Instrumentation
- Optical Metrology
- Interferometry

The most advanced fiber lasers specifications are combined in our lasers without compromise on stability and reliability making it the perfect tool to push the limits of your demanding application.

## Optical Specifications

Wavelength <sup>1</sup>	976 ± 0.5 nm
Output power	Up to 10 W
Single frequency <sup>2</sup> linewidth	< 50 kHz
Narrowband linewidth	< 100 pm
Input connection (amp. only)	FC/APC
Input power (amp. only)	10 - 100 mW
Spatial mode	TEM00
Beam quality	M <sup>2</sup> < 1.1
Beam diameter « free space »	1.0 ± 0.2 mm
Short term power stability	< ± 0.3%
Long term power stability (8 hours)	< ± 0.5%
Noise [100Hz - 10MHz]	< 0.02% RMS
Pointing stability	< ± 0.5 µrad/°C
Output polarization <sup>3</sup>	Vertically polarized > 300 : 1
Output power Tunability	1 to 100% (10 to 100 recommended)
Laser control	Multi-turn potentiometer, Touch screen, Analog voltage

## General Specifications

Power	10 W
Rack dimension	19"3U (460x440x130 mm)
Rack cooling	Air
Head	 150x115x45mm
Optical head cooling	Coolerless
Umbilical cable length	1.35 m
Supply requirements	90-240 V / 50-60 Hz
Electrical power consumption	200 W < ... < 300 W

<sup>1</sup> Other wavelengths available on request

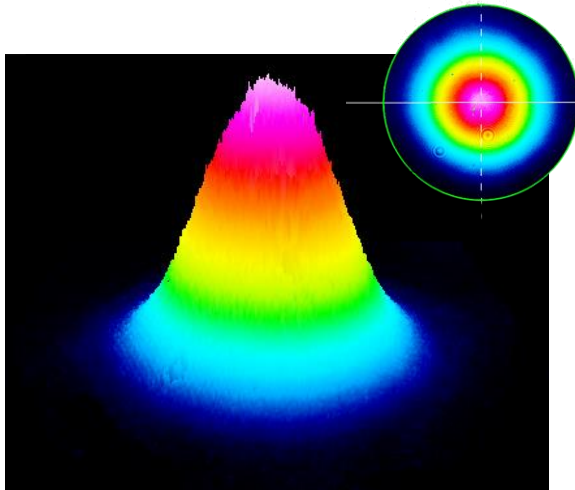
<sup>2</sup> Typically, < 30 kHz for single frequency version, linewidth reduction down to 3 kHz available as an option with an external seeder rack

<sup>3</sup> Optional output : Depending on the output power, PM980/H1060/LMA/Collimated fiber is available

## Options

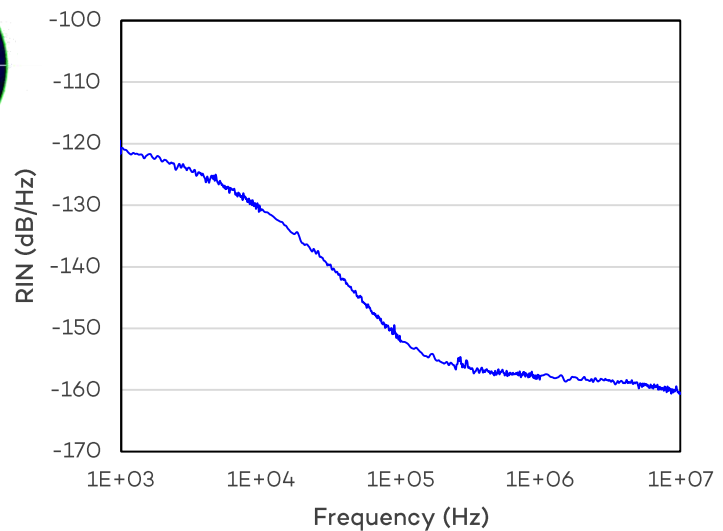
- Azurlight Systems offers 3 types of architectures :  
internal seeder, various external seeders, amplifiers only
- Advanced optical setup
- Combined IR/Visible dual output head, by upcycling unconverted IR radiation from a SHG head

## Performances



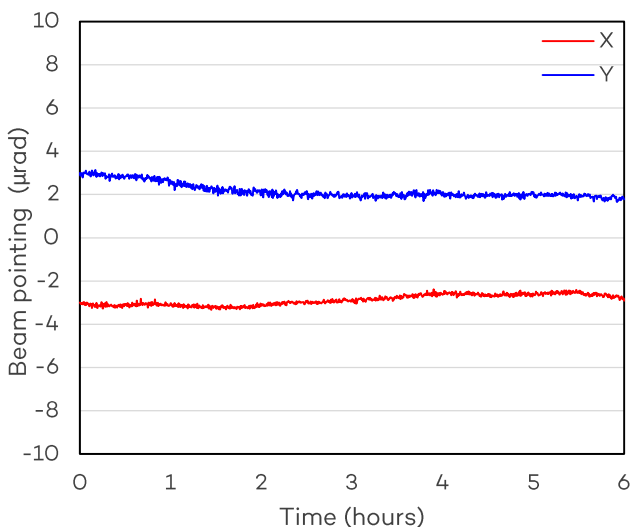
*Beam profile*

Excellent beam quality by design (TEM00). Only the fundamental transverse mode is guided through single mode fibers.



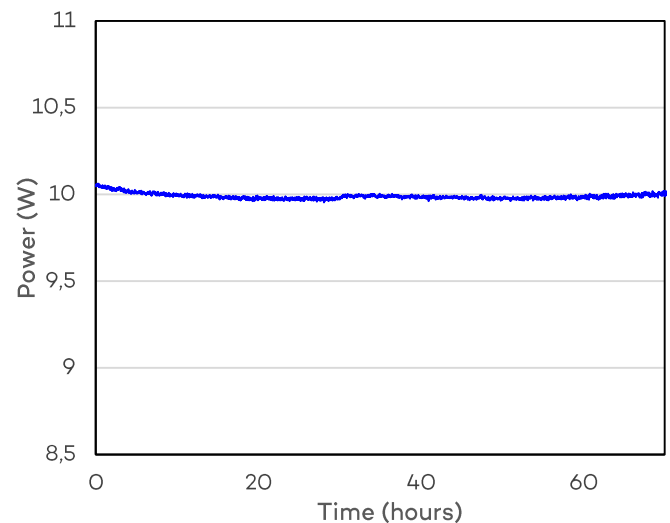
*Relative Intensity Noise (RIN)*

The dedicated low noise control electronics efficiently reduces the intensity noise. Above is presented a typical RIN measurement in Constant Current mode of operation. RMS value [100 Hz – 10 MHz] : 0.015%.



*Beam pointing stability*

The coolerless optical head design enables the best beam pointing stability on the market and ensures a subsequent long-term fiber coupling stability.



*Long term power stability*

Great power stability is made possible by a careful and robust integration of our optical components. The Constant Power mode of operation and its feedback loop gives the best power stability performances ( $< \pm 0.5\%$ ).

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