

AZURLIGHT

SYSTEMS



Product Datasheet

50 W Infrared CW Fiber Lasers & Amplifiers

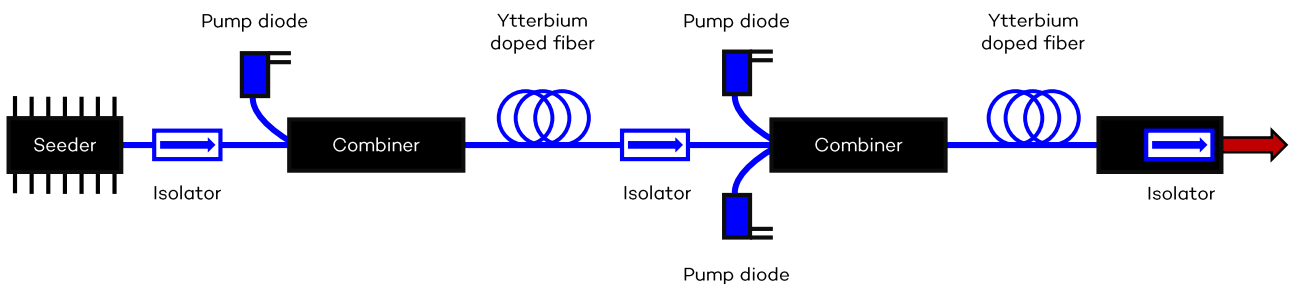
1030 nm – 1064 nm

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

- Up to 130 W
- Single Frequency
- Ultra-low Noise
- Best-in-class Pointing Stability
- Maintenance Free – Long Life

Our star product line 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 ¹ | 1030 ± 0.5 nm | 1064 ± 0.5 nm |
|---|--|---------------|
| Output power | 50 W | |
| Single frequency ² linewidth | < 50 kHz | |
| Input connection (amp. only) | FC/APC | |
| Input power (amp. only) | 10 - 100 mW | |
| Spatial mode | TEM00 | |
| Beam quality | $M^2 < 1.1$ | |
| Beam diameter « free space » | 1 ± 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 ³ | 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 | 50 W |
| Rack dimension | 19"3U (460x440x130 mm) |
| Rack cooling | Air |
| Head |  330x115x80 mm |
| Optical head cooling | Coolerless |
| Ombilical cable length | 1,35 m |
| Supply requirements | 90–240 V / 50–60 Hz |
| Electrical power consumption | 200 W < ... < 300 W |

¹ Other wavelengths available on request

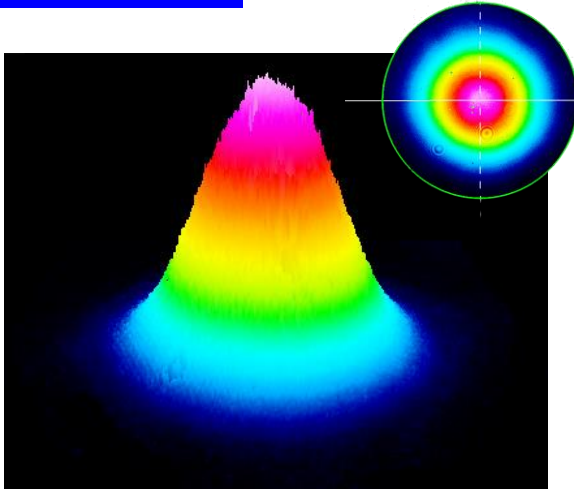
² Typically, < 30 kHz, linewidth reduction down to 3 kHz available as an option with an external seeder rack

³ Optional output : Depending on the output power, PM980/HI1060/LMA/Collimated fiber is available

Options

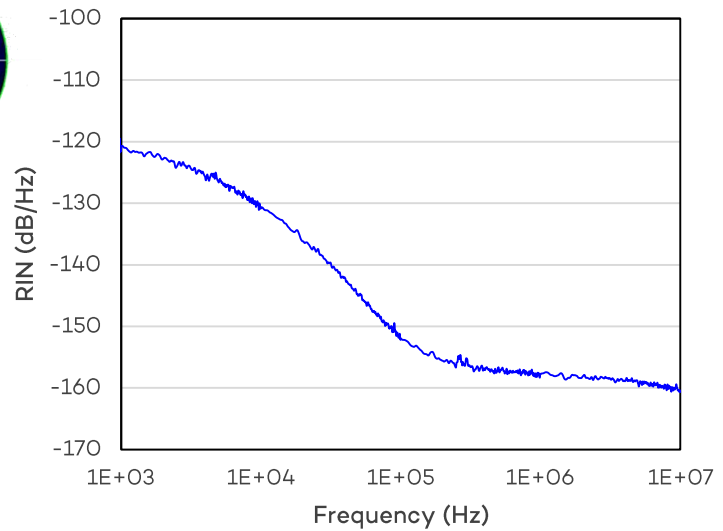
- Azurlight Systems offers 3 types of MOPA architectures : internal seeder, various external seeders, amplifiers only
- Advanced optical setup
- Combined IR/Visible dual output head, by upcycling unconverted IR radiation from a SHG head

Performances



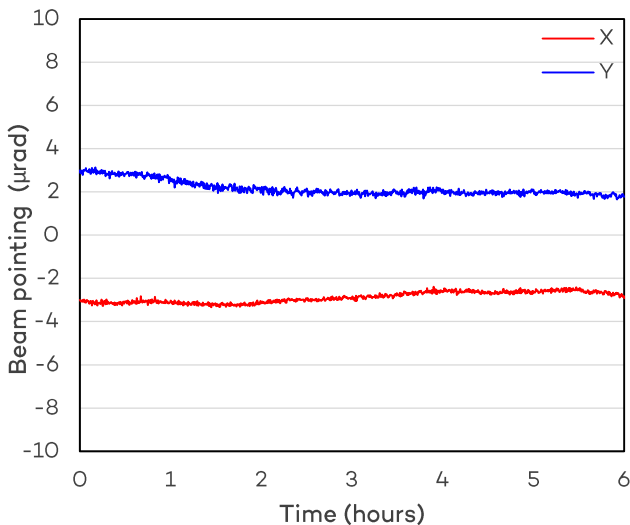
Beam profile

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



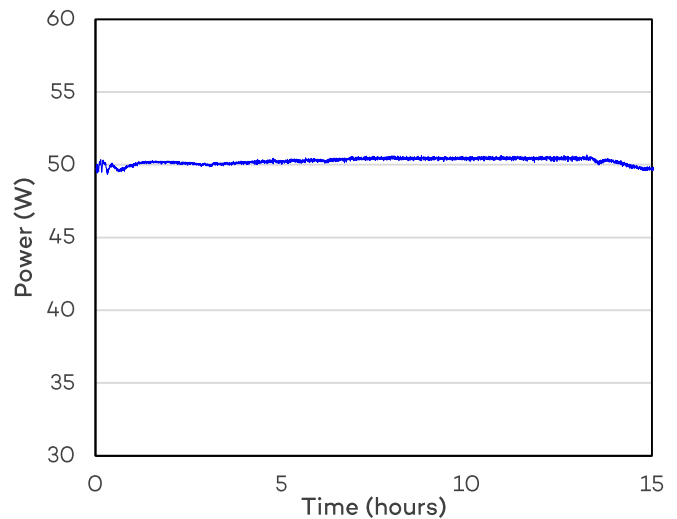
Relative Intensity Noise (RIN)

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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