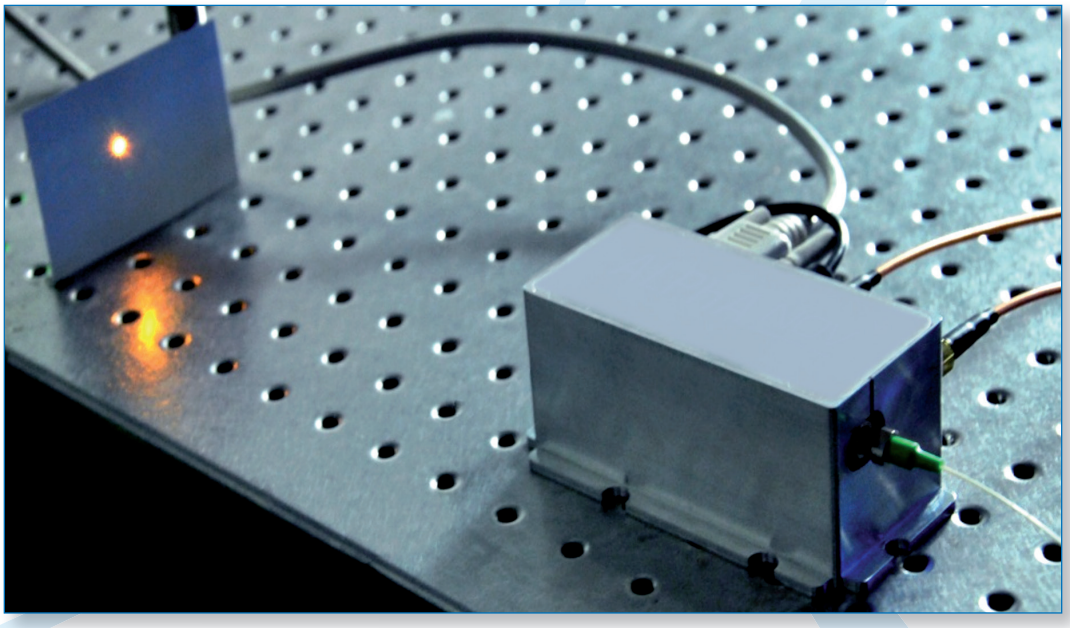
μQUANS
PRECISION QUANTUM SENSORS

High-power high-efficiency frequency-doubling module

Muquans offers an attractive way to obtain more than 5 W of optical power over the range [765 nm; 805 nm] with more than 70 % conversion efficiency. This module features a high quality output beam and shows a remarkable stability.



General architecture

This stand-alone frequency doubling module relies on a non-linear crystal placed within a resonant cavity working at the fundamental wavelength. This unique component is based on an original and patented architecture, which allows to reach an excellent conversion efficiency whatever the input optical power level. Fast tunability of few hundreds of MHz is available, and a robust and active stabilization scheme confers to the module an excellent stability.
Dedicated ultra low-noise electronics required to drive the cavity is included.

Main features

- Fiber input / free-space output
- Remarkable output beam quality at high power
- High Polarization Extinction Ratio
- Robust and active stabilization of the cavity to sustain excellent output signal stability
- [765 nm; 805 nm] but other wavelengths available in option

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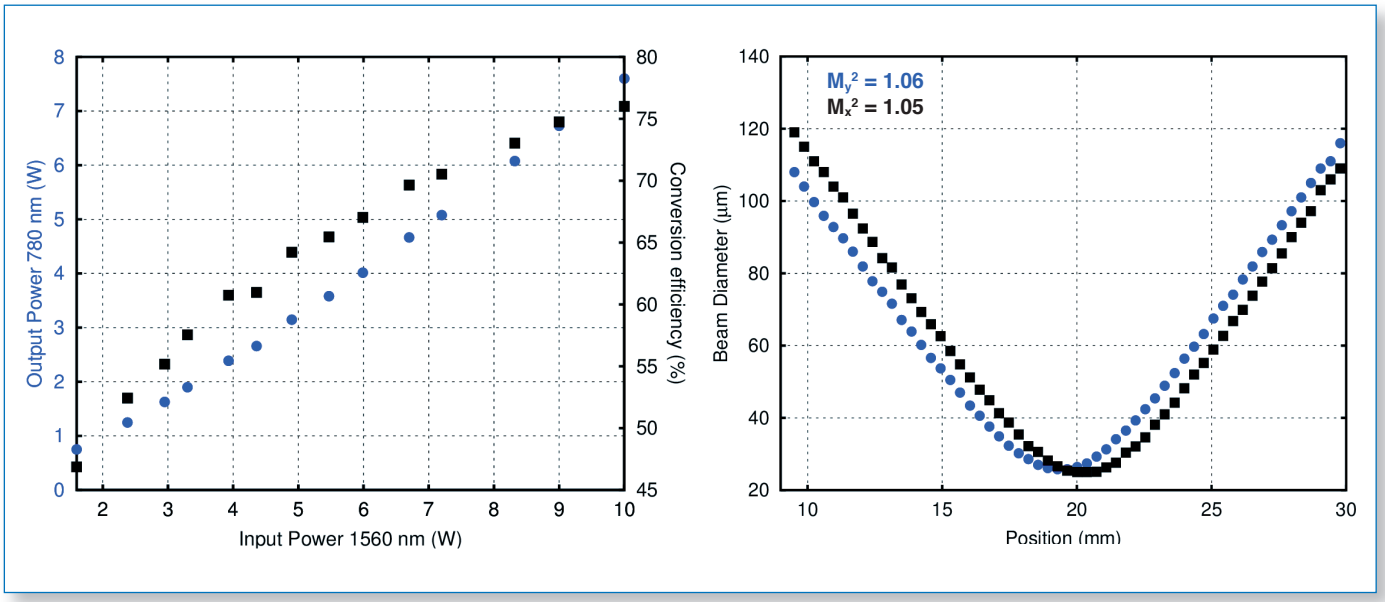
Specifications

▸ Optical characteristics

Central output wavelength	from 765 nm to 805 nm (other wavelengths available in option)
Maximum output power	> 5 W
Conversion efficiency	> 70 %
Power stability	< 1 % over 2 h (with an input power of 5 W stabilized within 1 %)
Acceptance spectral range	> 15 nm
Linewidth	< 25 kHz with ECDL seed laser
Polarization	linear, PER > 30 dB
Beam quality	TEM_{00}, $M^2 < 1.1$ (see graph below)



Complete laser system including a seed laser also available

Although this frequency-doubling module is available alone, Muquans also provides an entire laser system in a fully integrated rack. This includes a high-performance seed laser and an amplification stage, the frequency doubling unit, and the dedicated ultra-low noise electronics. It thus offers a complete turnkey solution.

This module was developed in collaboration with ALPhANOV.

ALPhA NOV
Optics & Lasers Technology Center

µQUANS

Contact

Should you have any inquiry regarding our products or our technologies, please feel free to contact us.

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