VENTEON | PULSE : ONE

VENTEON®
FEMTOSECOND LASER TECHNOLOGIES

Femtosecond Ti:Sapphire Laser System
_ Designed for OPCPA Seeding

- The VENTEON | PULSE : ONE OPCPA laser system represents the ideal front-end for broadband few-cycle OPCPA systems. The spectral bandwidth of this oscillator allows for the generation of broadband < 6fs pulses as signal for a subsequent NOPA stage and provides a high power level > 30 pJ @ 1030 nm for seeding an Yb-based amplifier serving as pump stage. Both signals are provided in separate outputs which are intrinsically self-synchronized with ultralow timing jitter.
- The first output provides the broadband signal pulses featuring a pulse duration as short as 6 fs. The pulses can be optionally CEP stabilized without additionally spectral broadening with the typical performance of the VENTEON CP laser systems.
- The second output around 1030 nm delivers exceptionally high energy > 30 pJ in a spectral bandwidth of 10 nm (FWHM) without any additional broadening and is ideally suited as narrowband seed for pump amplifiers. This output can be ordered optionally pre-amplified delivering pulses with an energy > 1 nJ.

Specifications

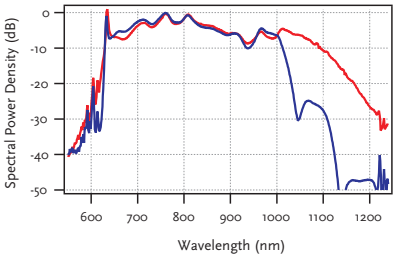
OPCPA SEED

1. Broadband OPCPA Signal Output (after filtering)

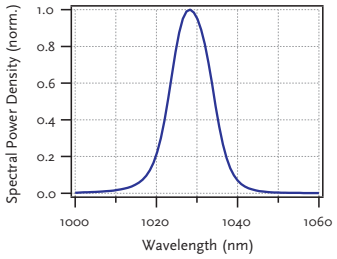
- Center wavelength: 800 nm
- Spectral bandwidth > 350 nm (@ - 10 dBc)
- Pulse duration < 6 fs
- Average output power > 180 mW
- Pulse energy > 2 nJ
- CEP-lock without additional spectral broadening (optional)

2. Amplifier Seed Output

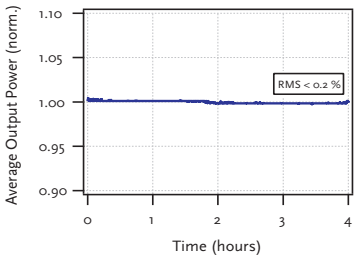
- Center wavelength: 1030 nm
- Spectral bandwidth: 10 nm (FWHM)
- Pulse energy (free space) > 30 pJ (2.4 mW)
- Pulse energy (fiber coupled) > 12 pJ (1 mW)
- Pulse energy (pre amplified) > 1 nJ (80 mW) (optional)
- Pulse duration < 200 fs (transform-limited)
- RMS noise (ampl.) < 0.2 %



VENTEON | PULSE : ONE OPCPA SEED spectrum. The red graph shows the original output spectrum, the blue graph the applicable spectrum after extracting the pump-amplifier seed radiation.



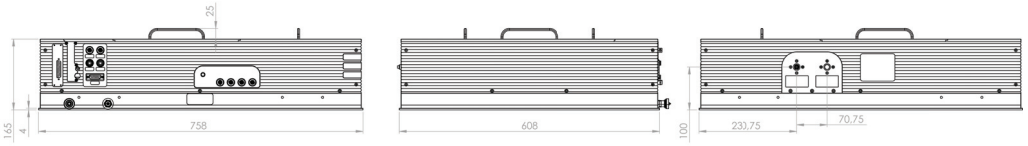
Extracted and amplified spectrum that can be used for direct seeding of an amplifier for pumping the OPCPA stage.



RMS noise of the extracted and amplified narrowband seed radiation shown for four hours.

Technical Data

- Novel monolithic, extended breadboard design with water-cooling for an exceptional long-term stability.
- Integrated design with pump laser on one common plattform
- High performance water chiller included
- Dual output port
- Beam height: 101.6 mm (4 inch)
- Robust mechanical KLM starter
- Dimensions: 758 x 608 x 168 (mm-values)
- Weight: ~75 kg (~166 lbs)



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