

Femtosecond Preampifier Modules

- ▶ The VENTEON | PULSE : THREE Preampifier modules have been developed for amplifying low energy pulses (~10 pJ) to significant higher power levels. Designed for amplifying the narrowband 1030 nm output of the VENTEON | PULSE : ONE OPCPA SEED laser system, the alignment-free preampifier modules can also be used as an independent amplification module for other laser systems.
- ▶ The different versions of the VENTEON | PULSE : THREE Preampifier modules allow for a simple scaling of the pulse energy (PRE-AMP 1) and a reduction of the fundamental repetition rate of the seed oscillator using a fiber coupled pulse picker directly implemented within the amplifier module (PRE-AMP 2). A fully customized version for e.g. higher pulse energies is available upon request (PRE-AMP 3).
- ▶ The included control electronics contains several interlock functions as well as an output power stabilization to ensure reliable long term operation. Therefore the VENTEON | PULSE : THREE Preampifier modules are best suited for seeding high power stages such as ROD-Type fiber amplifiers, regenerative amplifiers or slab amplifiers.



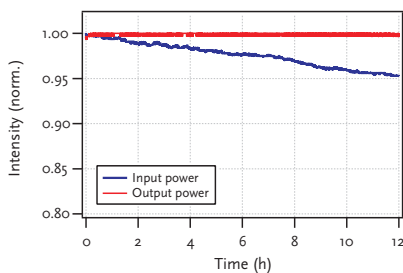
System Overview



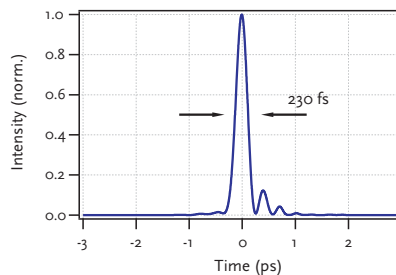
OUTPUT	PRE-AMP 1	PRE-AMP 2	PRE-AMP 3	
	ENERGY SCALING	ENERGY SCALING & PULSE PICKING	CUSTOMIZED SOLUTIONS	
	Pulse duration (stretched)	~ 15 ps	~15 ps	~200 ps*
	Pulse duration (compressed) (compressor is not included)	< 250 fs	< 250 fs	< 1 ps
	Spectral bandwidth (FWHM)	> 8 nm	> 8 nm	> 15 nm*
	Center wavelength	1030 nm	1030 nm	1030 nm*
	Repetition rate	80 MHz	variable (80 - 0.3 MHz)	variable (80 - 0.1 MHz)*
	Pulse energy	> 1 nJ	> 0.5 nJ	> 0.5 μJ (@0.1 MHz)*
	M ²	< 1.2	< 1.2	< 1.5*

* other values available on request

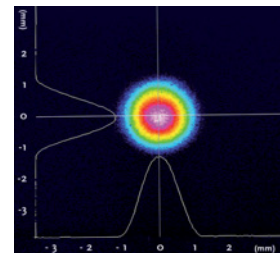
Typical Performance



- ▶ Typical output power of a preampifier module measured over 12 hours. The output power is stabilized and therefore independent of seed power fluctuations in a range up to 20%.



- ▶ Example of an externally compressed pulse of PRE-AMP 1 using a grating compressor (Treacy configuration) measured with a VENTEON | PULSE : FOUR IR SPIDER. The pulse duration is as short as 230 fs.



- ▶ Measured output beam profile of a VENTEON | PULSE : THREE PRE-AMP 1.