

venteon pre-amp

Femtosecond preamplifier modules



- 1030nm amplification
- Amplification and pulse picking
- >1nJ output
- Ideal for amplifier seeding



Overview

The **venteon pre-amp** modules have been developed for the amplification of low energy pulses ($\sim 10\text{pJ}$) to significant higher power levels. Designed for amplifying the narrowband 1030nm output of the **venteon dual** laser system, the alignment-free preamplifier modules can also be used as an independent amplification module for other laser systems.

The different versions of the **venteon pre-amp** 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 fibre coupled pulse picker directly implemented within the amplifier module (**pre-amp 2**).

The control electronics contain several interlock functions as well as output power stabilisation technology to ensure reliable long term operation. Therefore the **venteon pre-amp** modules are best suited for seeding high power stages such as ROD-Type fibre amplifiers, regenerative amplifiers or slab amplifiers.

Typical performance

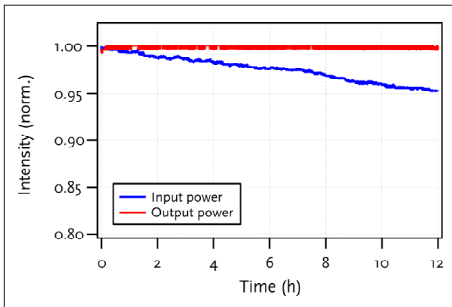


Fig. 1 Typical output power of a preamplifier module measured over 12 hours. The output power is stabilised and therefore independent of seed power fluctuations in a range up to 20%.

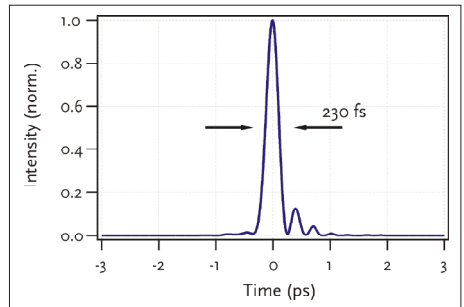


Fig. 2 Example of an externally compressed pulse of **pre-amp 1** using a grating compressor (Treacy configuration) measured with a **venteon SPIDER**. The pulse duration is as short as 230fs.

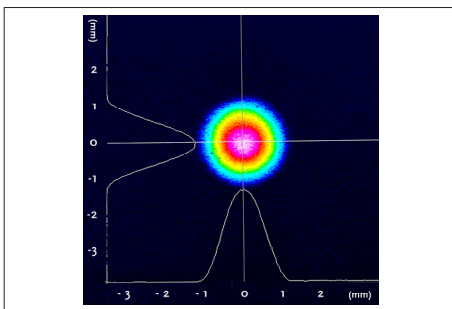
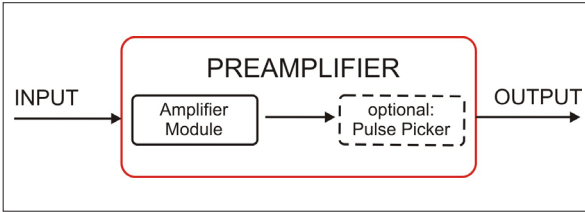


Fig. 3 Measured output beam profile of a **venteon pre-amp 1**.

System overview

Input

	pre-amp
Pulse duration	>150fs
Spectral bandwidth (FWHM)	>10nm
Average input power	>2mW (@80MHz)
Central wavelength	1030nm



Output

	pre-amp 1	pre-amp 2
	Energy scaling	Energy scaling & pulse picking
Pulse duration (stretched)*	~15ps	~15ps
Pulse duration (compressed)* compressor is not included	<250fs	<250fs
Spectral bandwidth (FWHM)*	>8nm	>8nm
Central wavelength*	1030nm	1030nm
Repetition rate	80MHz	variable (80-0.3MHz)
Pulse energy*	>1nJ	>0.5nJ
M ²	<1.2	<1.2

*Other values available on request.

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