BOAR Autocorrelator

BOAR stands for Bimirror based Optical Autocorrelation with Retrieval. This new technique of ultrashort pulses characterization relies on interferometric single shot autocorrelation and two photon absorption. The time delay is encoded into a spatial interferogram which is used to evaluate the pulse duration, the 2ω spectrum and the chirp. There is no non-linear crystal and no phase matching issues, the spectral working range is therefore very broad (1200 - 2400 nm). The BOAR is actually combining all the advantages : simple, extremely robust, accurate and reliable measurements, spatially resolved, suitable for rather chirped pulses and the retrieval is done in real time directly by Fourier transformation. Two models are available for two different temporal windows.

- *Very easy to use*
- *Temporal and spectral measurement*
- *Real time chirp measurement*
- *No phase matching issues*
- *Broad spectral range[1]*
- *Nonsensitive to polarization*
- *Suitable for any rep rate*
- *Single shot up to 150 kHz[2]*
- *Sub-10 fs in the NIR*
- *Achromatic and non-dispersive*

Models	BOAR FS	BOAR PS
Pulse duration range	Sub-10 to 750 fs	Sub-10 to 1500 fs
Temporal window Δτ	3 ps	5.5 ps
Spectral range (nm)	1200 – 2400 nm[1]	
Shot to shot measurement capacity	150 kHz with synchronisation 75 kHz without[2]	30 kHz with synchronisation 15 kHz without[2]
Input pulse repetition rate	From Hz to GHz	
Input pulse energy and average power (for 100 fs pulses)	*Standard models* Single shot : 100 nJ 1 MHz : 5 nJ / 5 mW 100 MHz : 200 pJ / 20 mW	
	With low energy option Single shot : 5 nJ 1 MHz : 100 pJ / 100 µW 100 MHz : 10 pJ / 1 mW 1 GHz : 1 pJ / 1 mW	
Input polarization	any	
Detection	CMOS 12 bit – 6 Mpx – 72 dB – USB 3.1	CMOS 12 bit – 18 Mpx – 72 dB - USB 3.1
Dimensions (mm)	125x150x80	

1. with a single optics set. The spectral range is directly accessible and there is no need for any manipulations.

2. If the laser rep rate is higher than the single shot capacity of the BOAR, the measurements are average over several shots. For example when measuring a 1MHz laser with the BOAR FS, it is not possible to measure less than 12 pulses together. Devices with higher single shot measurement capacity can be made upon request.

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