ROC Single-Shot Autocorrelator

ROC stands for Row Optical Correlator. Based on a compact and robust inline setup, the ROC allows the measurement of single-shot autocorrelation traces. Specifically designed to offer the easiest user experience, they cannot be misaligned and no calibration or tweaking is needed. Also, they are easily transportable. And yes, they are rock-solid! Besides those advantages, the ROC autocorrelators provide excellent technical performances and highly accurate measurements. The ROC autocorrelators are available for different wavelength ranges and several pulse durations.

Key features

- Compact, robust and ultra easy to use
- Installation and measurement in less than 2 minutes! No calibration necessary
- Suitable for any repetition rate
- Single-pulse extraction possible up to 125 kHz laser repetition rate (with Enhanced detection and Trigger option)
- User-friendly and powerful software
- Acceptable average power up to 2.5 W for high rep rate. Input pulse energy up to a few mJ at low rep rate (with Integrated attenuation option).
- Pulse measurement from 5 fs to 10 ps
- Measurement of beam profile and pulse duration distribution over one diameter

Options

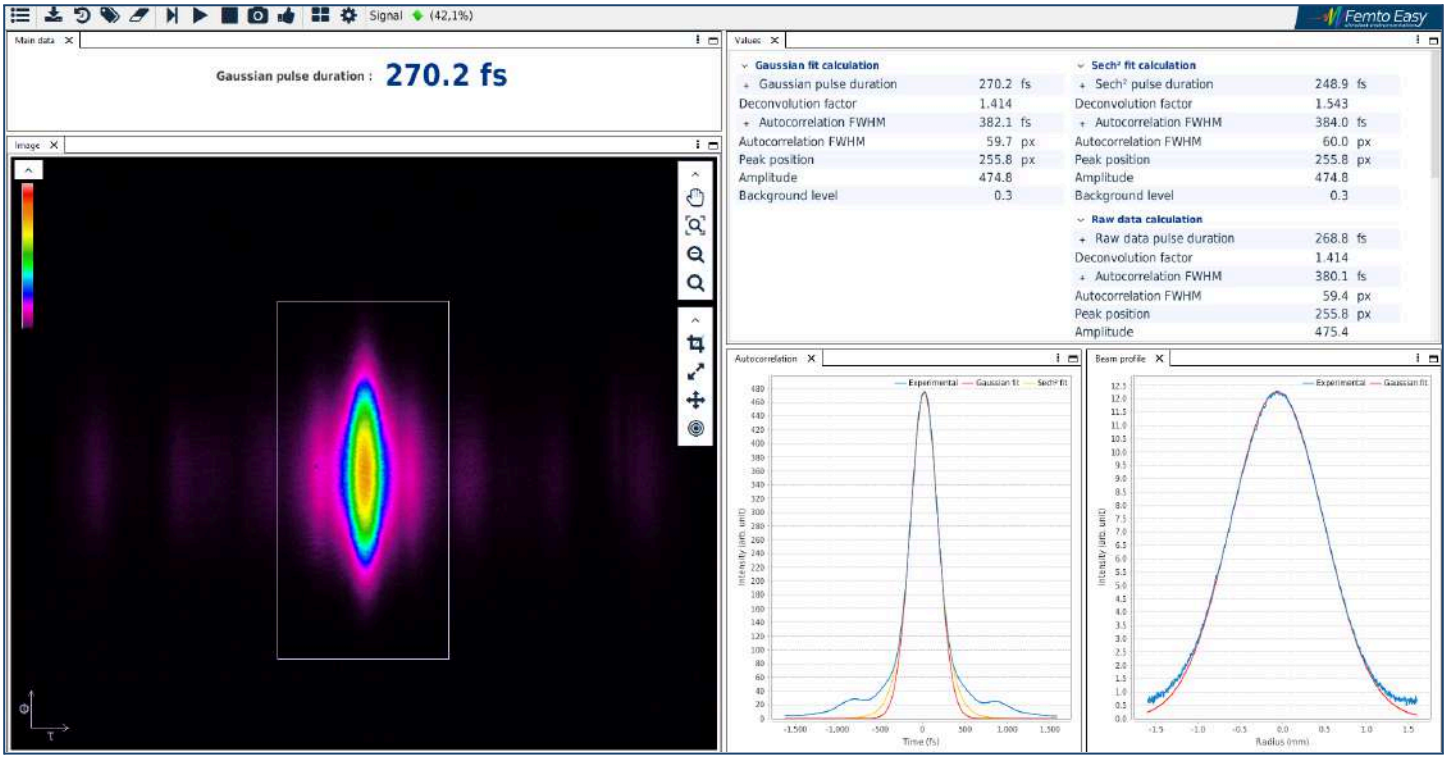
- Phase matching
- Trigger
- Integrated attenuation (ND filter wheel)
- High dynamic range
- Enhanced detection

Specifications

ROC Models		FC	FS10	FS20	PS1	PS3	PS5	PS10
Pulse duration range	min	5 fs	10 fs	20 fs	50 fs	70 fs	100 fs	300 fs
	max	150 fs	250 fs	500 fs	1 ps	3 ps	5 ps	10 ps
Accessible spectral range (nm)		480 - 2100 [1]						800 - 2100 [1]
Input pulse repetition rate		single-shot to GHz [2]						
Single-pulse measurement		up to 125 kHz laser repetition rate (with Trigger and Enhanced Detection options, or 18 kHz without)						
Min input pulse energy [3]	Single-shot	1 µJ at 30 fs			1 µJ at 300 fs			
	40 MHz	500 pJ at 30 fs			300 pJ at 300 fs			
Input polarization		linear horizontal (vertical if mounted on the side)						
Detection		CMOS 12 Bits – 3 Mpx – 72 dB						
PC Interface		USB 3.1						
Beam height (mm)		Adjustable from 30 mm						
Dimensions (mm)		55 x 56 x 233	55 x 56 x 265	55 x 56 x 233	55 x 56 x 195			

[1] Effective spectral bandwidth to be defined within the accessible spectral range according to customer's requirements.
[2] The measurements are averaged over several pulses for lasers with repetition rate higher than 62.5 kHz (with Enhanced detection option).
[3] Those values give an order of magnitude for a 1030 nm laser. The exact sensitivity depends on many parameters (pulse duration, beam profile, wavelength...) Higher sensitivity can be obtained with MS-ROC
Custom versions available on request. For lower power and wider pulse duration ranges, Multi-Shot scanning versions are available (MS-ROC).

STAR Software



- Live extraction of shot to shot pulse duration
- Different calculation methods available for proper pulse estimation (Raw data FWHM, Gaussian fit, sech2…)
- Enhanced background & hot pixels treatment, for optimum dynamic and signal to noise ratio
- Client / Server interface, allowing remote control through network
- All data exportable into most common formats

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. Product specifications are subject to change without prior notice