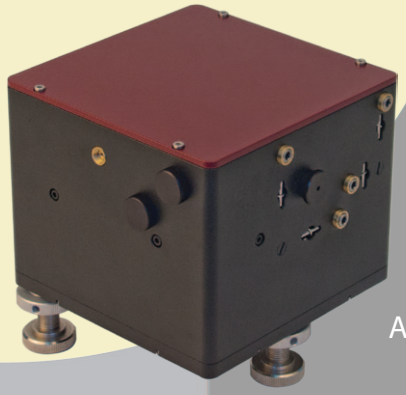
Diagnostics

AA-20DD Scanning Autocorrelator

- 20-30000 fs pulse duration range (10 fs optional)
- Scanning rate: 0.1-20 Hz
- Linear distortion: <1%
- USB connection and software
- All-reflective optics
- Position measurement
- Fringe-resolved autocorrelation function
- Frictionless movement
- Optional fiber input



AA-20DD

Product overview

The AA-20DD real-time autocorrelator offers smooth and fast measurement of femtosecond and picosecond pulse duration. The autocorrelator can cover several wavelength ranges by using up to 3 interchangeable photodetectors and optics. Input pulse duration varies from 10 fs to 30 ps for easy monitoring of different laser systems, especially femtosecond and picosecond oscillators (for amplifier monitoring please see our ASF-20 single-shot autocorrelator).

The device features USB interface and can be easily hooked up to a PC with Windows OS, as well as via the included LabView drivers. The software is supplied with the device and comprises several useful tools. The acquired pulse duration data can be visualized, stored or exported to a .txt or .dat file. Autocorrelation function and final FWHM pulse duration in femtoseconds are calculated and displayed in real-time. Moreover, Gaussian or sech^2 fitting options are enabled, intensity function may also be observed. The statistical viewer feature allows the comparison of data acquired from several separate pulse measurements.

The tiny body of the AA-20DD flawlessly fits any experimental setup with strict space requirements. We also offer an optional fiber input for fast and reliable pulse duration measurement in various optical fibers. Moreover, the autocorrelator in this case still maintains the free-space measurement capability.

AA-20DD technical specifications

Wavelength range, nm	450-700 (AA-20DDV) 700-1300 (AA-20DD) 1300-2000 (AA-20DDR) 450-2000* (AA-20DD+R+V)
Pulse duration range, fs	20-6000** (default); 20-30000** (-30PS option)
Input repetition rate	>10 kHz (default); >10 Hz (-S option)
Typical sensitivity	100 mW^2
Input polarization, linear	horizontal (vertical upon request)
Scanning rate, Hz	0.1-20
Linear distortion, %	<1%
Collinear (interferometric and intensity) autocorrelation	yes
PC connection	USB
Necessary equipment	PC with Windows OS or oscilloscope
Fiber input (optional)	FC/PC or FC/APC (other types available upon request)
Signal source and detector	two-photon conductivity in semiconductor
Dimensions, mm	132x129x117 (optical unit) 225x190x45 (electronic unit)

** - the AA-20DD unit may cover either one range of customer's choice, two separate ranges (i.e. 450-1300 or 700-2000) or all three ranges (450-2000 nm) with interchangeable optics and photodetectors (1, 2 or 3 sets included respectively). Please request for more information.*
*** - pulse duration range from 10 fs is available upon request.*

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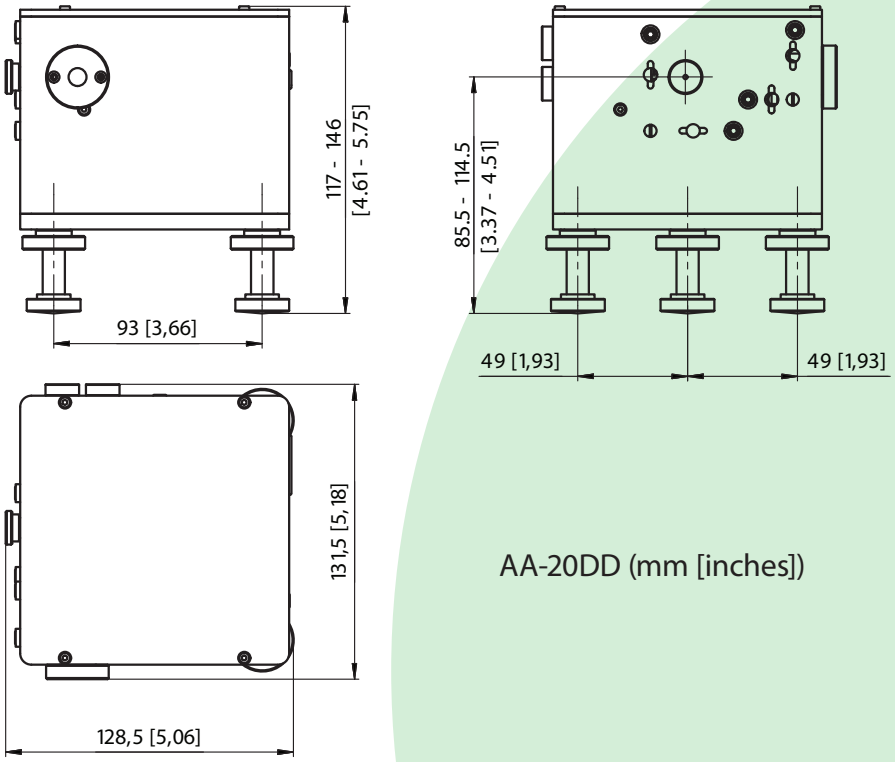
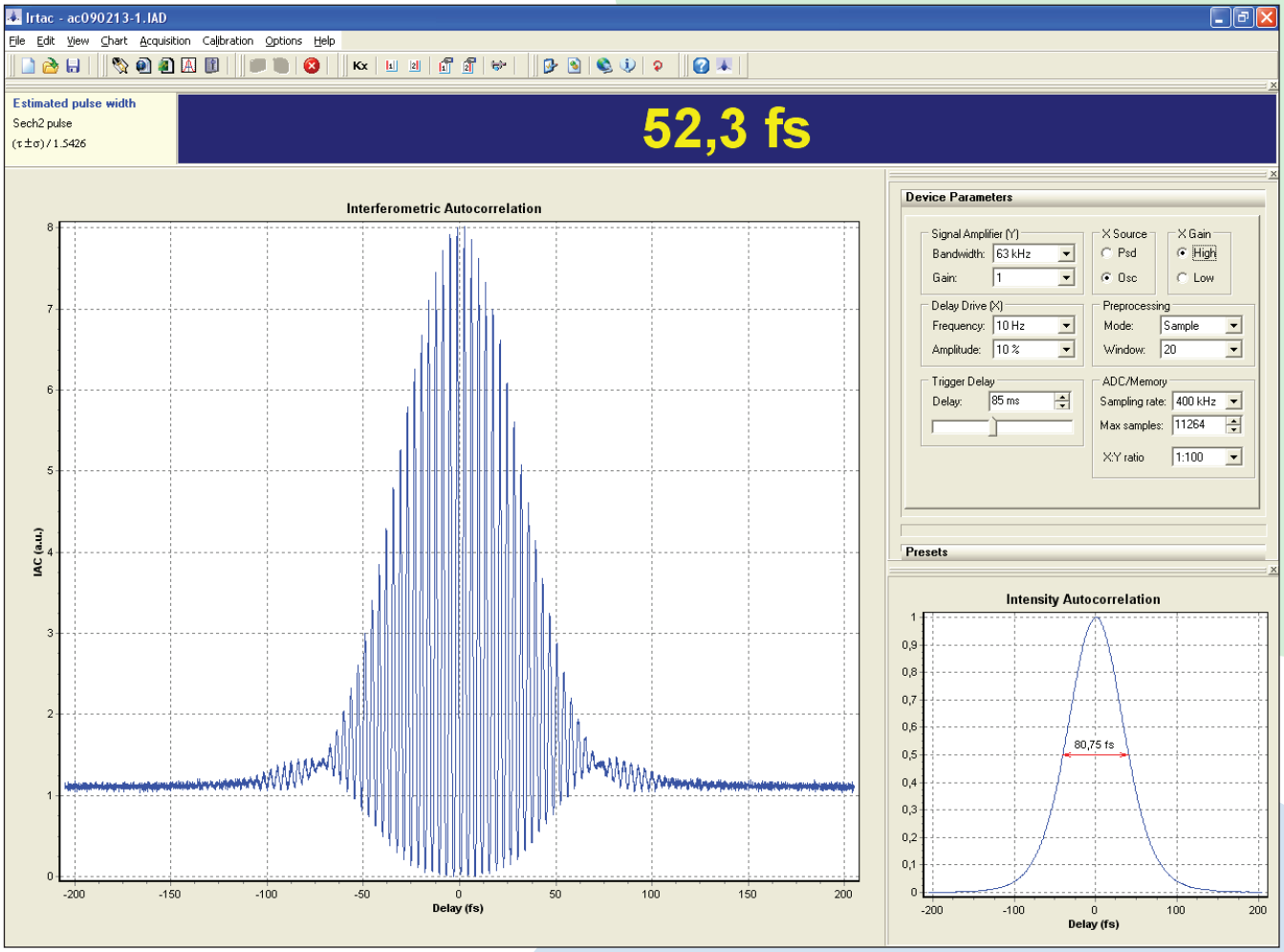


AA-20DD (mm [inches])



AA-20DD acquisition software Irtac

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Diagnostics

AA-M Scanning Autocorrelator for Microscopy

- 20 fs - 12 ps pulse duration range
- External and internal photodetectors
- Scanning rate: 0.1-20 Hz
- Linear distortion: <1%
- USB connection and software
- All-reflective optics
- Position measurement
- Fringe-resolved autocorrelation function
- Frictionless movement
- Bypass function

AA-M with its external photodetector

Product overview

The AA-M provides two simultaneous measurement points: one at the focal plane of the microscope and the other being the point where the optical head of the device is placed, i.e. somewhere before the microscope input. The comparison of the pulse duration value obtained in these two measurements determines the pulse broadening introduced due the dispersion of the microscope's optical elements. In most cases of application of ultra-short pulses in microscopy it is essential to characterize the temporal and spatial profile of the beam in the focal spot of the microscope. These measurements are vital for any experiment as the shorter is the pulse the higher is the efficiency of the nonlinear imaging process (2-photon excitation) and less excitation energy is needed for successful experiment. Such beam characterization is also necessary when determining exposition of the sample. It ensures image optimization and correct intensity level estimation, as incorrect values may even lead to sample damage.

The device features USB interface and can be easily hooked up to a PC with Windows OS. The software is supplied with the device and comprises several useful tools. The acquired pulse duration data can be visualized, stored or exported to a .txt or .dat file. Autocorrelation function and final FWHM pulse duration in femtoseconds are calculated and displayed in real-time. Moreover, Gaussian or sech^2 fitting options are enabled, intensity function may also be observed. The statistical viewer feature allows the comparison of data acquired from several separate pulse measurements.

AA-M technical specifications

Wavelength range, nm	450-700 (AA-MV) 700-1300 (AA-M) 1300-2000 (AA-MR) 450-2000* (AA-MM)
Pulse duration range, fs	20-12000
Number of photodetectors	two (incl. one external)
Input repetition rate	>10 kHz
Sensitivity	100 mW^2
Input polarization, linear	horizontal (vertical upon request)
Scanning rate, Hz	0.1-20
Linear distortion, %	<1%
Collinear (interferometric and intensity) autocorrelation	yes
PC connection	USB
Necessary equipment	PC with Windows OS or oscilloscope
Signal source and detector	Two-photon conductivity in semiconductor
Dimensions, mm	210x164x132 (optical head) 225x190x45 (electronic unit) 70x55x16.5 (external photodetector)

** - model AA-MM may cover either all three ranges (450-2000 nm) or two separate ranges (i.e. 450-1300 or 700-2000 nm) with interchangeable optics and photodetectors (3 or 2 sets included). Please specify the desired range with your RFQ.*

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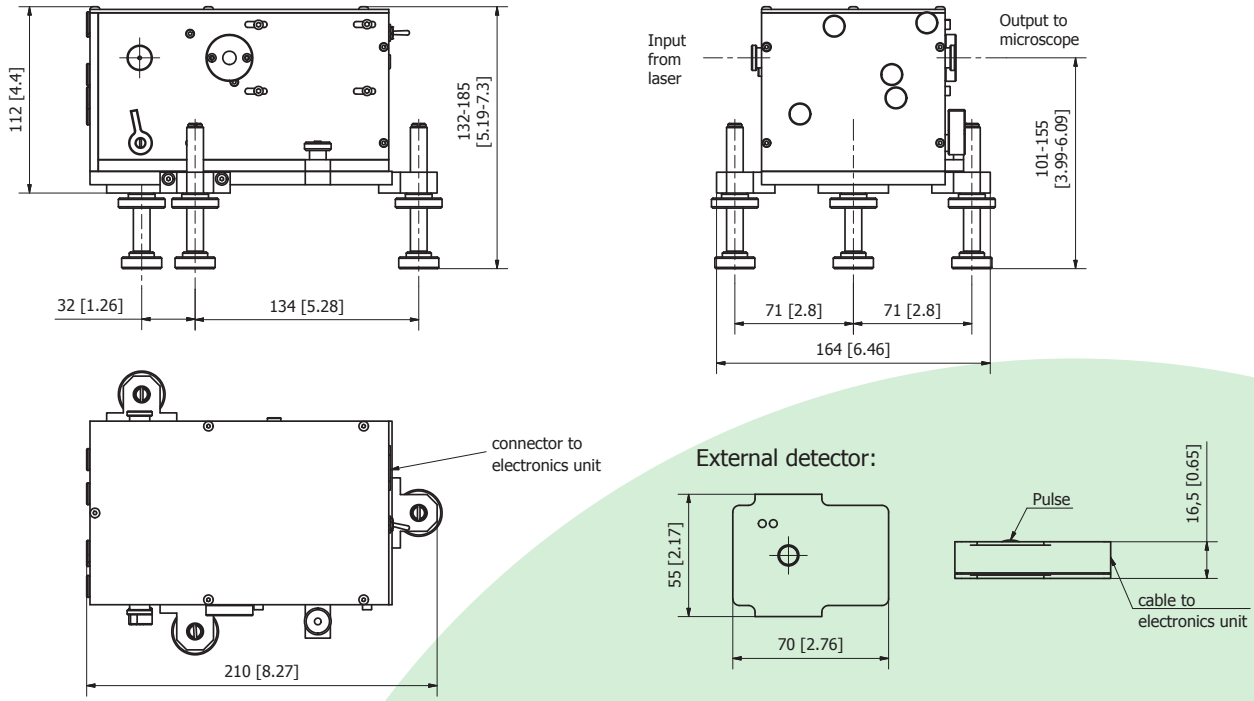
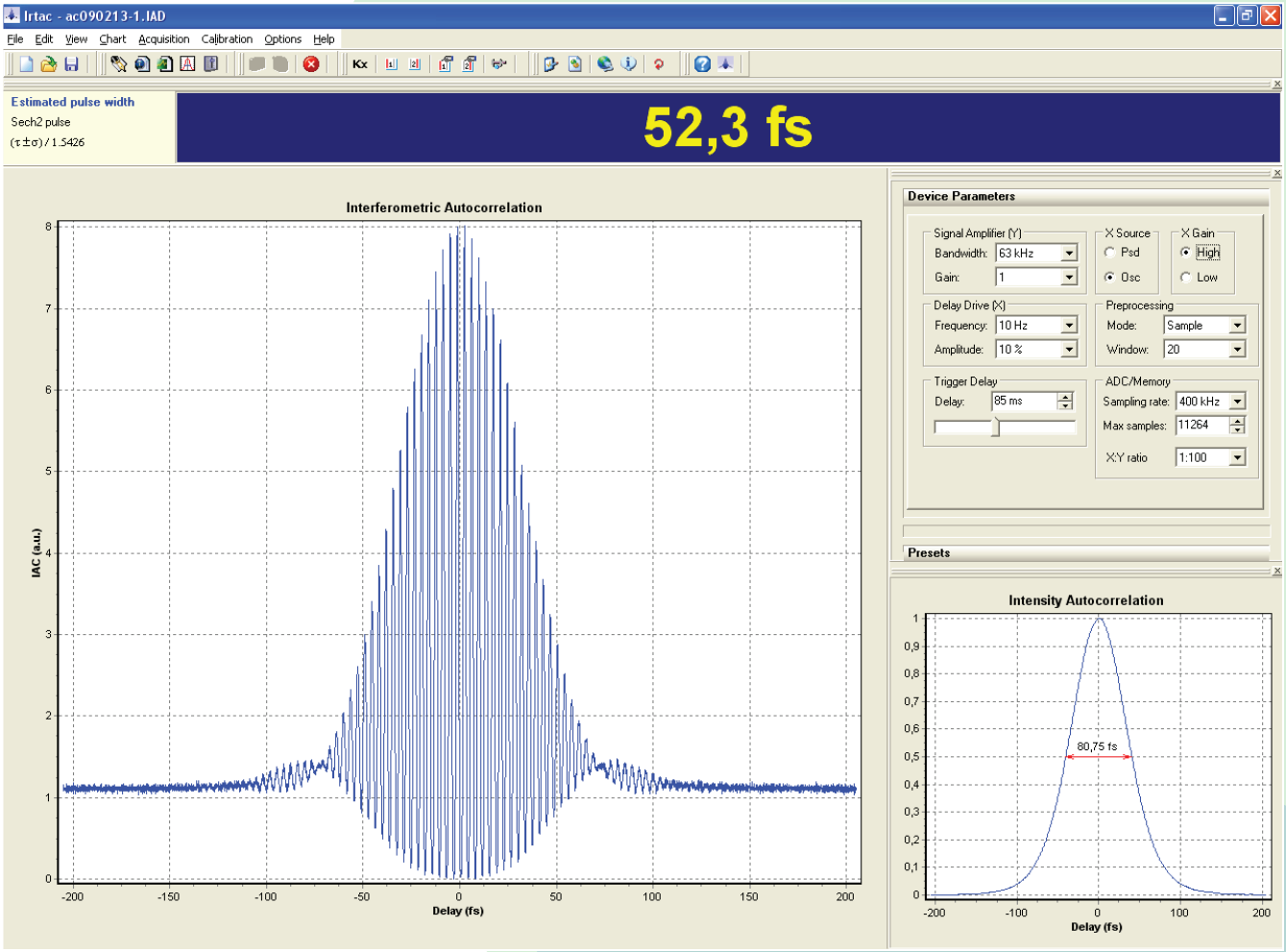


AA-M (mm [inches])



AA-M acquisition software Irtac

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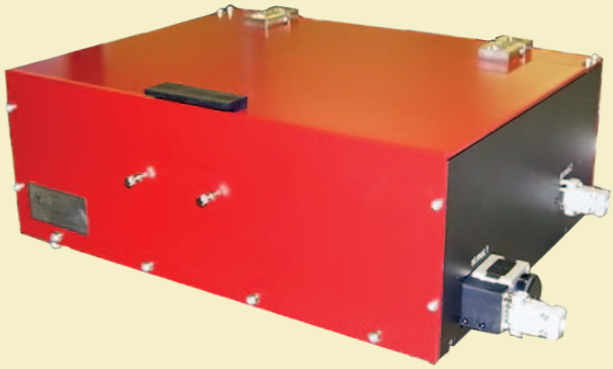
Diagnostics

IRA-0.45-3 Scanning Autocorrelator

- Pulse duration range 50 fs - 250 ps
- Wavelength range 450-3000 nm
- USB connection



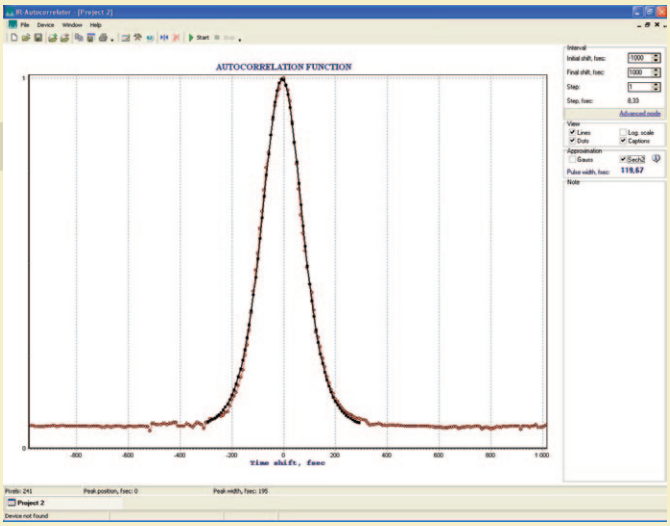
IRA-0.45-3 Scanning Autocorrelator

Product overview

The IRA-0.45-3 autocorrelator is specifically developed for measurement of pulse duration and near contrast ratio of ultrafast radiation generated by ultrafast amplifiers and oscillators.

The IRA includes opto-mechanical assembly and electronics with USB interface. The system is easy to operate and includes a full set of user friendly software tools for data collection and analysis. Approximation with Gauss and Sech² profile is also available. The unit implements a robust scanning mechanism.

The acquisition and analysis software is fully compatible with Windows, USB drivers are included.



	IRA-0.45-3
Input wavelength ranges*	450-700 nm 700-1300 nm 1300-2100 nm 2100-3000 nm
Input pulse duration vs. required input pulse energy	full range: 50 fs - 250 ps 1) 50 fs - 300 fs (E>1 nJ, thin crystal) 2) 300 fs - 1 ps (E>5 nJ, thin crystal) 3) 1 ps - 250 ps (E>1 uJ, thin crystal or E>50 nJ, thick crystal)
Input beam polarization	linear, horizontal
Input pulse repetition rate	10 Hz - 100 MHz
Temporal resolution	8.3 fs (at input duration 50-100 fs) >16.6 fs (at input duration >100 fs)
Full scan range	850 ps
Power requirements	220/110 V AC; 50/60 Hz
Necessary equipment	PC with USB, Windows OS
Dimensions, mm	optical unit: 450x250x210 control unit: 250x180x90

** - each range is covered by an exchangeable set of crystals, beam splitter and filters; one set for one range of customer's choice is supplied by default, other ranges are optional. Just let us know the desired full wavelength range and our sales team will quote the required setup.*

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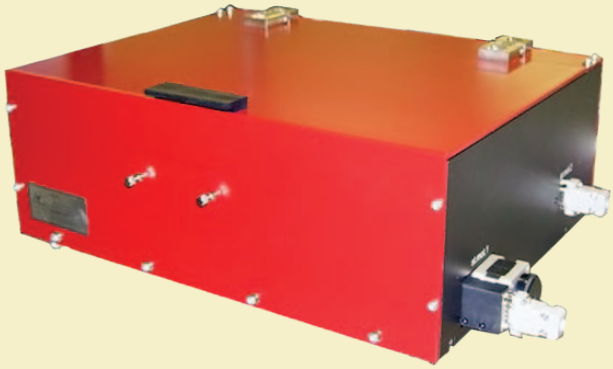
Diagnostics

IRA-3-10 Autocorrelator

- Pulse duration range 30 fs - 50 ps
- Wavelength range 3-10 μm
- USB connection and software



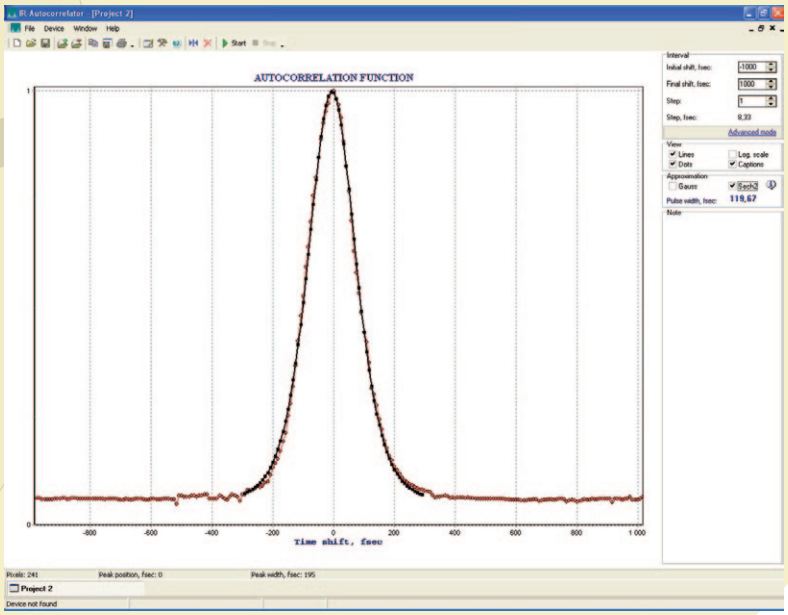
IRA-3-10 autocorrelator

Product overview

The IRA-3-10 autocorrelator is specifically developed for measuring pulse duration and near contrast ratio of IR ultrafast radiation (wavelength 3–10 μm) that is usually generated by the ultrafast OPAs.

The IRA includes opto-mechanical assembly and electronics with USB interface. System is easy to operate and includes a full set of user friendly software tools for data collection and analysis. Approximation with Gauss and Sech² profile is also available. The opto-mechanical assembly consists of optical box and mechanical kit for additional delay of reference pulse.

The acquisition and analysis software is fully compatible with Windows XP, USB drivers are included.



	IRA-3-10
Wavelength range, μm	3-10*
Pulse duration range	30 fs - 50 ps
Input repetition rate, kHz	<3
Input polarization, linear	horizontal (vertical upon request)
Input pulse energy, μJ	<10
Temporal resolution, fs	8.3
Temporal range, ps	150
PC connection	USB
Necessary equipment	PC with Windows OS
Power supply	220/110 V AC; 50/60 Hz ±10%
Dimensions, mm	400x250x210 (optical unit) 250x180x90 (electronic unit)

** - the wavelength range is subdivided into three subranges: 3-5.5, 5.5-7 and 7-10 μm that are covered by exchanging the crystal and selecting filter. Please specify the desired wavelength range when requesting a quote.*

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