

Mini TPA Compact and Tuning-free Autocorrelator

Compact and Tuning-free Autocorrelator

- The Mini TPA by APE is the perfect combination of tuning-free autocorrelation measurement, compact size and high sensitivity.



- Exchangeable Optics Sets for spectral coverage from 250 nm to 3200 nm
- Tuning-free TPA detection process
- UV measurement without cross-correlation
- Compact design for minimum space requirements and maximum portability
- Ultra-precise delay resolution
- Hybrid collinear intensity autocorrelation
- Gaussian, Sech², and Lorentzian fitting routines
- Including software and USB interface
- TCP/IP remote control with standardized command set for easy programming
- NIST traceable calibration
- Aluminium carrying case

... with Exchangeable Optics Sets

Tuning-Free Wavelength Matching

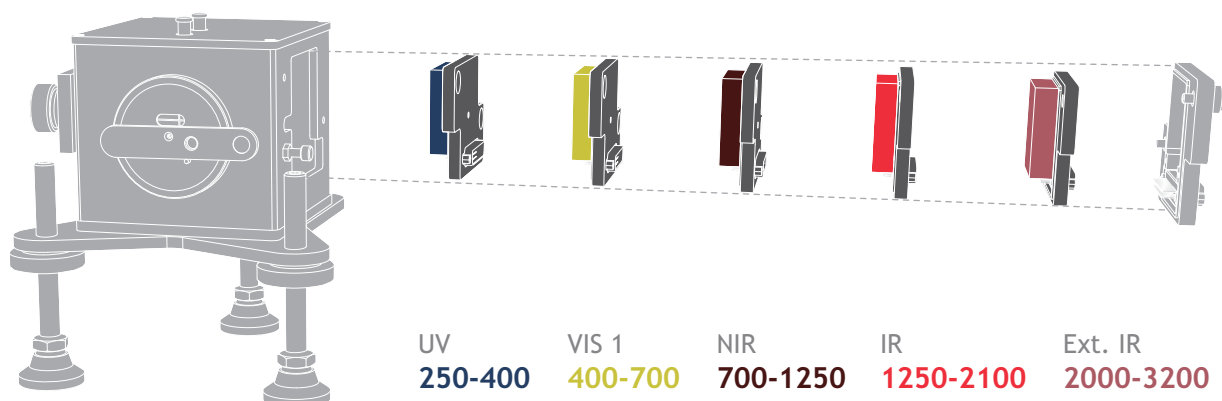
- Conventionally, autocorrelators used to split an optical pulse into two replicas and recombine them for the Second Harmonic Generation (SHG) in a nonlinear crystal. The APE Mini TPA instead benefits from the two photon absorption principle. This eliminates the need of SHG crystal angle tuning and makes the wavelength tuning process unnecessary.

UV Range without Cross-Correlation

- Together with an UV Optics Set, the Mini TPA provides simple pulse width measurement in the UV range, from 250 nm to 400 nm – without the need for cross-correlation. Elimination of the cross-correlation approach also makes the data evaluation easier, by cutting the conventional two-step process to a single-step solution.


Ultra-wide Wavelength Coverage in Compact Design

- APE provides a selection of exchangeable Optics Sets, ranging from UV at 250 nm to IR at 3200 nm, for sensitive measurements across an extremely broad wavelength region. Due to its compact footprint, the Mini TPA is also the perfect answer to your space-saving and easy portability requirements.



Mini TPA Specifications

Specifications



Measurable Pulse Width Range	50 fs ... 3.5 ps; Optional: down to 35 fs
Wavelength Range	250 nm - 3200 nm, depending on Optics Set
Optics Sets	Exchangeable
Delay Resolution	< 0.001 % of scan range
Delay Linearity	< 1 %
Sensitivity	Typically 0.1 W ² *, UV range < 500 W ² * (depending on Optics Set)
Recommended Repetition Rate	> 300 Hz; For UV only: upper limit 2 MHz
Type of Measurement Mode	Collinear intensity
Mode Switching	No
SHG Tuning for Phase Matching	Not required
Trigger Mode	300 Hz ... 50 kHz
Input Polarization	Linear horizontal, vertical available as option
Max. Input Power	300 mW or 5 μJ (whichever results in lower value)
Input Aperture	6 mm (free-space)
Input Beam Coupling	Free-space; Optional: fiber coupling FC/PC, FC/APC, SMA
Beam Input Height	86 ... 150 mm; Optional 50 mm
Software	Included; Real-time display of pulse width and central wavelength, different fitting routines
Fitting Routine	Gaussian, Sech ² , Lorentz
Connection	USB
Remote Control	Possible via TCP/IP (SCPI command set)
Calibration	NIST traceable calibration certificate included

Options

- Various Optics Sets incl. detector
- Short pulse option
- Fiber coupling
- Input polarization rotator
- Reduced input beam height

Dimensions and Power

Dimensions	160 x 220 (or 140**) x 155 mm (W x H x D) (See appendix for details)
Power	95 ... 240 V, 50 ... 60 Hz, 60 W

* Measured sensitivity including Optics Set, defined as average power times peak power of the incident pulses $P_{AV} * P_{Peak}$

** Optional for 50 mm input beam height