



# *pulseCheck* USB

The autocorrelator *pulseCheck* USB is a versatile instrument for measuring the pulse width of different fs and ps laser systems. It covers a broad wavelength range using different Optics Sets<sup>1)</sup>, which can be upgraded in the field.

The *pulseLink* controller controls the measuring process and is connected via USB to the Control Software running on the customer's computer.

Enabled by a special scanner design and a real time position measurement system the instrument offers a linear time scale and different factory calibrated scan ranges. In combination with a high resolution digitization and fast processing, the *pulseLink* provides the measured autocorrelation function and pulse width data at a high refresh rate and with a very high precision.

With the FROG Option the autocorrelator *pulseCheck* USB can be converted into a device which allows for phase-resolved measurements and hence more detailed analysis of ultrafast pulses.

Using an external trigger the measuring process is also optimized for the measurement of low repetition rate lasers.

Equipped with a Software Interface (using TCP/IP) it can also easily be integrated into larger experimental setups and software controlled environments.

Please see the *pulseCheck* USB MIR data sheet for a wavelength range from 2 ... 12  $\mu\text{m}$ .

- Autosegmentation | crystal tuning | signal amplification
- Trigger input - for broad variety of trigger signals
- High resolution data acquisition
- High speed real time measurement
- Standard Software Interface (using TCP/IP)

1) An Optics Set consists of a mounted non-linear crystal as well as a detector. When upgrading Optic Sets, please ask APE or your distributor for details.

Watch the *pulseCheck* and *pulseLink* videos at the support area of our website [www.ape-berlin.de](http://www.ape-berlin.de)

## Specifications

Version	15	50	150
Scan ranges	150 fs ... 15 ps	500 fs ... 50 ps	1.5 ps ... 150 ps
Delay resolution	< 0.5 fs	< 1 fs	< 1 fs
Measurable pulse width	< 50 fs ... 3.5 ps	< 50 fs ... 12 ps	< 50 fs ... 35 ps
	(version for < 20 fs (10 fs @ 800 nm) optional)		
Linearity of position signal	better than 1% of actual scan range		
Sensitivity <sup>1)</sup> for VIS 1, VIS 2, NIR and IR	photomultiplier tube (PMT): $10^{-4} \text{ W}^2$ (higher sensitivity optional) photodiode (PD): $1 \text{ W}^2$		
Wavelength ranges	VIS 1	420 ... 550 nm	
	VIS 2	540 ... 750 nm	
	NIR	700 ... 1100 nm	
	NIR ext range <sup>2)</sup> (PD)	700 ... 1250 nm	
	IR	1000 ... 1600 nm	
	IR ext range <sup>2)</sup> (PD)	1250 ... 2000 nm	
	Extended IR <sup>2)</sup> (PD)	1700 ... 2400 nm	
	Cross 1	360 ... 450 nm (interaction with 720 ... 900 nm)	
	Cross 2	260 ... 320 nm (interaction with 780 ... 960 nm)	
	(other optics sets including Cross between 200 nm and 2.4 $\mu\text{m}$ on request)		
	<i>pulseCheck</i> USB MIR for wavelength ranges between 2 ... 12 $\mu\text{m}$		
Input polarization	linear / horizontal (polarization rotator optionally for vertical input)		
Diameter input aperture	6 mm (open) or 3 mm (in adjustment position)		
Max. input power	up to 1 W (oscillator with a rep. rate of approx. 70 MHz) <sup>3)</sup>		
	up to 10 $\mu\text{J}$ (amplified system with rep. rates in the kHz range) <sup>3)</sup>		
Laser repetition rate	depending on Optics Set		
	PMT > 250 kHz		
	PD > 10 Hz		
Interaction	collinear / non-collinear		
Power supply	95 ... 240 V, 50 ... 60 Hz, 60 W		
Computer interface	USB		
Input trigger (PD-detector only)	level	0.1 ... 5 $V_{\text{rms}}$ @ 50 $\Omega$	
		0.1 ... 8 $V_{\text{pp}}$ @ 1 $k\Omega$	
	impedance	50 $\Omega$ / 1 $k\Omega$	
	repetition rate	10 Hz ... 50 kHz	
	width	> 50 ns	

1) Sensitivity is defined as average power times peak power of the incident pulses  $P_{\text{AV}} * P_{\text{Peak}}$ . When configuring the *pulseCheck* with multiple Optics Sets, custom Optics Sets, or on the *pulseCheck* MIR, sensitivity may be lower than specified above.

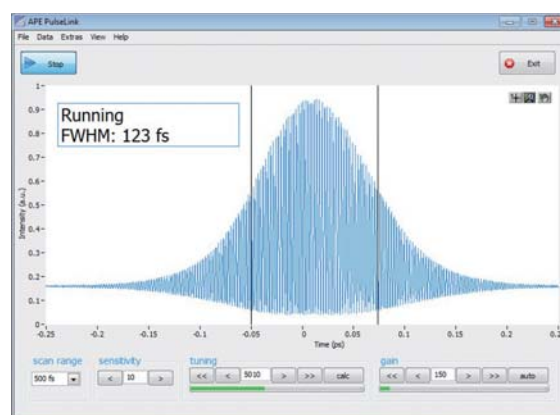
2) With photodiode (PD) only

3) May be lower for systems equipped with broadband optics, on special notice

# *pulseCheck* USB



USB controller *pulseLink*



Screenshot of Control Software



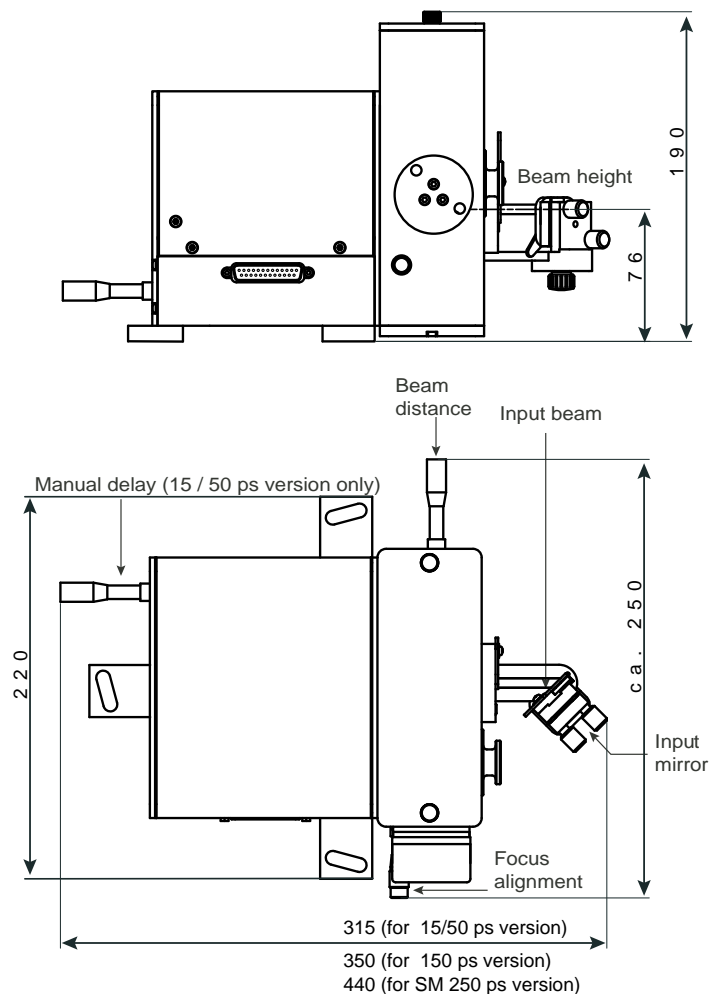
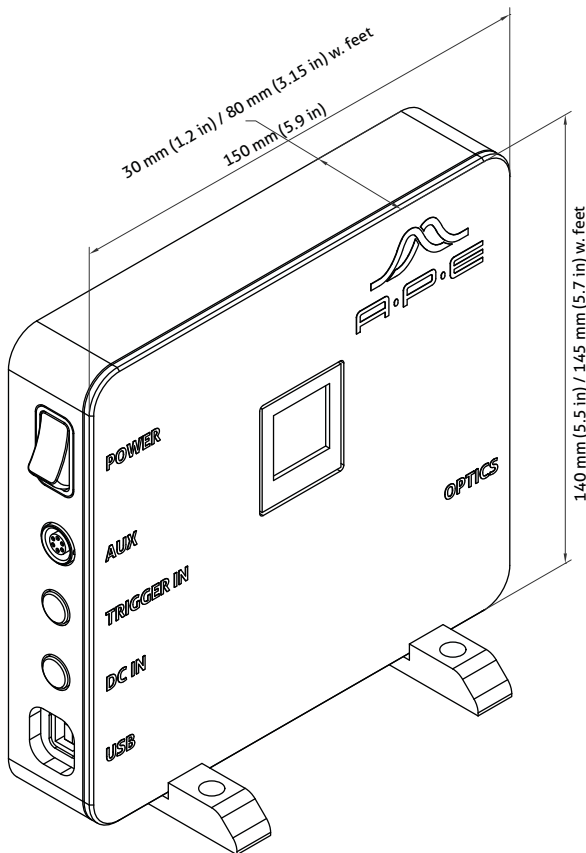
Optical head

## Options

- Additional Optics Sets
- Fiber input
- Input polarization rotator
- Measurement of pulses down to 20 fs (10 fs @ 800 nm) (ShortPulse Option)
- Enhanced sensitivity with dedicated Optics Sets
- Customized wavelength ranges
- FROG Option for phase-resolved measurements

## Dimensions (in mm)

USB controller and Optical head:



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 Therefore, specifications are subject to change without notice.  
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