



scanDelay USB

The *scanDelay USB* is a device for introducing a well-defined linear translation and positioning of an optical element, e.g. in interferometers, pump-probe configurations, correlators, or fast scan modules.

The heart of the A.P.E optical delay line series *scanDelay USB* is a special linear translation stage that is supplied together with appropriate control and drive electronics. The linear drive has been designed especially for optical applications. It combines low moving mass with compactness, reaching a high speed, as well as high precision and resolution. Because of spring bearings the movement is frictionless.

Thus *scanDelay USB* is capable of generating fast wide scans as well as smallest delays without any stick-slip effects. The actual position is measured in real time by an analog photo-electric system with high resolution and wide dynamic range.

The linear drive allows precise predictions of the scanner movement and leads to an excellent scan-to-scan reproducibility.

The control electronics contain the motor driver and a quartz stabilized signal synthesizer. It can be synchronized with an external clock for a precise, phase-locked scanner movement. A software user interface allows easy control and setup of the scanner. A set of LabView drivers allows an easy integration into existing measurement software. The *scanDelay USB* can be operated over a wide range of scanning frequencies with various scan modi, the motor driving force can be sinusoidal, triangular, sawtooth-like, or even of a user defined shape. The scanner movement will respond to this within the physical limitations imposed by a harmonic system.

- Control Software | LabView drivers
- User defined delay patterns
- Scan rate phase-locked to external source
- Linear and calibrated scaling due to position measurement

Specifications

Version	15	50	150
Max. scan range	15 ps (± 1.125 mm)	50 ps (± 3.75 mm)	150 ps (± 11.25 mm)
Scan modes			
Internal generator ¹⁾	0.1 ... 20 Hz	0.1 ... 20 Hz	0.1 ... 10 Hz
Externally triggered ¹⁾	0.01 ... 20 Hz	0.01 ... 20 Hz	0.01 ... 10 Hz
External trigger input	TTL, 20 Hz ... < 50 kHz (fast frequency divider for approx. 80 MHz input optional)		
Trigger output (programmable position)	TTL		
Position output signal	± 10 V ²⁾ 15 ps	± 10 V ²⁾ 50 ps	± 10 V ²⁾ 150 ps
Linearity of position signal	< 0.5 %		
Computer interface	USB		
Optics (high precision retro reflector)			
Clear aperture	1 "	1/2 "	1/2 "
Coating	protected Ag (other coatings on request)		

1) Internal position sampling and indication of amplitude (maximum delay) in Control Software from 0.4 ... 20 Hz only.
 Below 0.4 Hz scan frequency, only partial (smaller than maximum delay) scan position is displayed.
 Full position information is available via analog position output signal.

2) x10, x100 switchable

Compatibility of the Control Software with Windows 8 operating system is being tested.
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Optical head



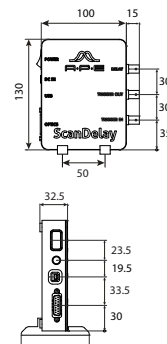
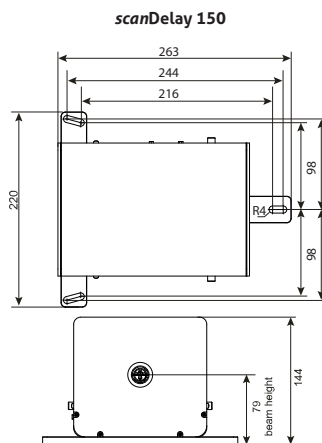
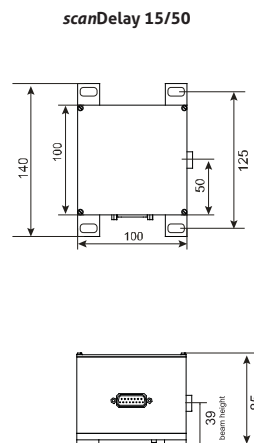
Control electronics



Dimensions (in mm)

Optical unit

Control electronics



Contact:

A-P-E Angewandte Physik & Elektronik GmbH
 Plauener Str. 163-165 | Haus N | 13053 Berlin | Germany
 T: +49 30 986 011-30 | E: sales@ape-berlin.de | www.ape-berlin.com

or
 A-P-E America (for the Americas)
 45401 Research Avenue | Suite 141 | Fremont, CA 94539 | USA
 T: +1 (888) 690 3250 | E: sales@ape-america.com | www.ape-america.com

A-P-E follows a policy of continued product improvement.
 Therefore, specifications are subject to change without notice.
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