

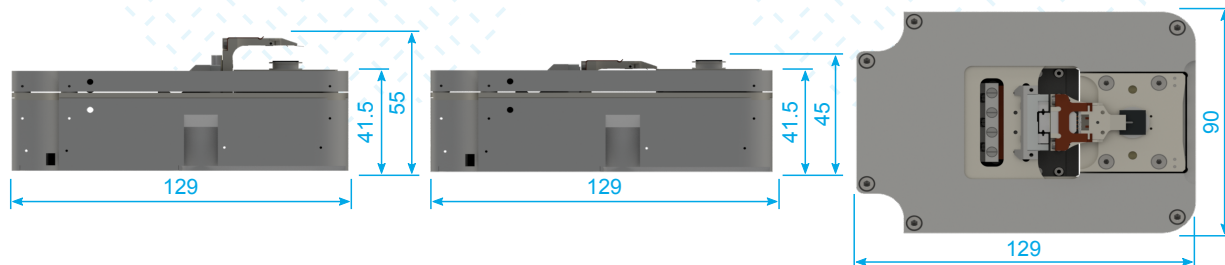
LiteScope™ Technical Specification

Environmental

Operating temperature	+15 °C to +25 °C
Operating pressure	10^{-5} Pa to 10^5 Pa
Dry environment only	

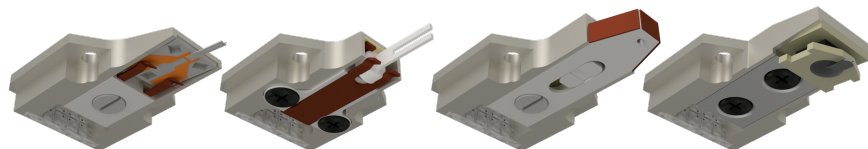
Mechanical

Overall dimensions	129 mm × 90 mm × 45–55 mm
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Weight	650 g
Maximal scanned sample area	22 mm × 11 mm × 8 mm
Coarse approach	<ul style="list-style-type: none"> True orthogonal positioning Calibrated, pre-stressed linear ball bearings Self-locking Minimum incremental motion 50 nm Speed >2 mm/s X travel range 24 mm, Y travel range 12 mm Z travel range 12 mm (Open Loop), 10 mm (Closed Loop)
Scanning unit	<ul style="list-style-type: none"> Based on multi-layer, low-voltage piezoelectric transducer Solid state flexure guide system Open Loop/Closed Loop XYZ-axis movement 100 μm (Open Loop), 80 μm (Closed Loop) Resolution 0.2 nm (Open Loop), 2 nm (Closed Loop)

Fast and easy probe exchange	<ul style="list-style-type: none"> Universal acceptor for different probes Four standard probe holders
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Sample holder for SEM stubs (∅12.7 mm with ∅3.2 mm and 4.6 mm long pin)	Two additional positions for SEM/FIB imaging/machining (not to be measured by SPM)
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Operation and control system

Modes of operation	AFM - contact, AFM - tapping, C-AFM - on request, EFM - on request, STM - on request, MFM - on request
Probes	Akiyama probe, Tuning-fork based probes, Piezoresistive probes, NenoProbes, etc.
Maximal frequency of PLL for dynamic measurements	75 kHz (Higher PLL frequency on request)
2×16 bit DAC per scan axis (scan range, offset) to reach maximal resolution everywhere within the view field	
User selectable piezo amplifier gain	100 μm (<2 nm) 50 μm (<1 nm) 10 μm (<0.2 nm) 5 μm (<0.2 nm)
scan range (vs. resolution)	
5×16 bit auxiliary inputs for simultaneous measurements of user signals ($\pm 10\text{ V}$)	
Input channels could be used in feedback-loop	
Probe signal output/monitor	
External probe excitation	
All necessary connections for using external PLL	
Ethernet connection to the control PC	
110 VAC/230 VAC operation, 200 W	

Software

Web based user interface	
Easy for new users, flexible for experts	
User accounts	Every user has an account Accounts individually configurable – layout, parameters, complexity,...
Remote access to the user data, download of data from control PC to the local workstation	
Remote experiment control via eg. tablet, smart-phone	
Integrated data post-processing, analysis, export, etc.	

