attoAFM Ixs: Atomic Force Microscope

1012529

Technical Specifications

General Specifications	
type of instrument	cantilever based AFM/MFM with interferometric deflection detection
sensor head specifics	attoAFM I+ head feat. alignment-free cantilever holder, tip exchange in less than 2 minutes
alignment-free cantilever holder (default)	compatible with PointProbe® Plus XY-Alignment Series by Nanosensors
conventional cantilever holder (optional)	compatible with standard commercial cantilevers
Modes of Operation	
imaging modes	contact mode, non-contact mode, constant height, constant force
slope compensation	2 axis scan plane correction
z feedback	constant force
	PI feedback loop for amplitude modulation (AM), phase modulation (PM) or frequency modulation (FM) using included PLL, constant force
incl. standard techniques	AFM
optional upgrades	MFM, KPFM, PFM, conductive-tip AFM
Resolution	
measured RMS z-noise (constant force @ 4 K, 5 ms pixel time)	< 0.05 nm (expected), < 0.15 nm (guaranteed for PPMS without reliquefier; RL off; EverCool I/II)
z deflection noise density	< 3 pm/vHz (dependent on laser system)
lateral resolution	< 20 nm (guaranteed for PPMS without reliquefier (RL) / RL off; EverCool I/II off)
z bit resolution @ 4 K	7.6 pm at 2 µm scan range
Sample Positioning	
total travel range	3 x 3 x 2.5 mm^3 (open loop)
step size	0.05 .. 3 µm @ 300 K, 10 .. 500 nm @ 4 K
fine scan range	30 x 30 x 4.2 $µm^3$ @ 300 K, 15 x 15 x 2 $µm^3$ @ 4 K (open loop)
closed loop scanning	not compatible
sample holder	Ti plate with integrated heater and calibrated temperature sensor
Suitable Operating Conditions	
temperature range	1.5 K..300 K (dependent on cryostat); mK compatible setup available on request
magnetic field range	0..14 T (dependent on magnet)(16 T compatible version available on request)
operating pressure	designed for He exchange gas
Suitable Cooling Systems	
titanium housing diameter	23.9 mm
bore size requirement	designed for 1" (25.4 mm) cryostat/magnet bore size (e.g. PPMS)
compatible cryostats	see PPMS compatibility chart
Compatibility with Electronics	
scan controller and software	ASC500 (for detailed specifications please see attoCONTROL section)
laser	LDM1300 laser/detector module
Options and Upgrades	
additional AFM head with manual alignment	conventional cantilever holder, compatible with standard commercial cantilevers

Product Image

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