

attoSNOM III

fiber based, low temperature scanning near-field optical microscope, tuning fork sensor

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Microscope Setup	
SNOM sensor unit	non-optical, non-contact tuning fork sensor with mounted glass fiber tip
tip-sample distance control	tuning fork shear force detection (non-contact mode)
titanium housing diameter	47 mm (others on request)
Operation Modes	
feedback	PI feedback loop with additional PLL
topography	shear force mode (non contact)
light detection	transmission, collection through fiber
optional	low temperature compatible detector below the sample for transmission measurement (intensity)
Sample Positioning	
positioners and scanners	coarse positioners ANPxyz101 with piezo scanner ANSxyz100
coarse range	5 x 5 x 5 mm ³
step size	0.05 .. 3 μm @ 300 K, 10 .. 500 nm @ 4 K
fine scan range	40 x 40 μm ² @ 300 K, 9 x 9 μm ² @ 4 K (larger range on request)
sample monitoring	sample / tip monitoring via CCD camera (optional)
Operating Conditions	
temperature range	mK .. 300 K (dependent on cryostat)
magnetic field range	0 .. 15 T+ (dependent on magnet)
operating pressure range	1E-6 mbar .. 1 bar (designed for exchange gas atmosphere)
Cooling Specifications	
bore size	designed for a 2" (50.8 mm) cryostat/magnet bore
cryostat	LTSYS-He4, LTSYS-He3, LTSYS-HeDIL on request
Probes	
probe design	designed for fiber based SNOM probes e.g. attocube's sub-wavelength aperture probes
Noise	
measured z-noise density	< 50 pm/√Hz
z bit resolution full range mode	7.6 pm
z bit resolution small range mode	0.12 pm
Scan Controller and Software	
ASC500 SPM controller	for detailed specifications please see attoCONTROL section

