

## attoCFM III

Low temperature confocal microscope, optimized for transmission experiments

Microscope Configuration	
confocal unit	microscope head for transmission and reflection mode; fiber optic based
pinhole configuration	one fiber for illumination and reflection collection, one fiber for transmission collection
Illumination	
excitation wavelength range	400 .. 1500 nm (see objectives description)
light source	fiber coupled laser, typically 635 nm
light power on the sample	typically 1 pW .. 500 $\mu$ W
port specification	FC/APC-connector for single mode fibers (other connector types on request)
Detection	
detection mode	e.g. transmission, reflection, luminescence, fluorescence, ...
detection wavelength	detector on user's choice, typically Si detector (coupling of the light to other detectors possible, e.g. spectrometer, APD, ...)
port specification	FC/APC-connector for single mode fibers (other connector types on request)
Optical Parameters	
pinhole size	dependent on fibers, typically 3 .. 9 $\mu$ m mode field diameter
spot size	diffraction limited
compatible objective systems	systems with different working distances: SWDO, IWDO, LWDO (for details please refer to the objective systems table)
lateral resolution	see specifications of the objectives
Solid Immersion Lens (SIL)	higher optical resolution possible with SIL
Imaging Modes	
single optical sections	xy scans
time lapse imaging	xyt scans
z series and 3D imaging	xyz scans
Sample Positioning	
positioners and scanners	2 sets coarse positioners ANPxyz101 with piezo scanner ANSxy200
step size	0.05 .. 3 $\mu$ m @ 300 K, 10 .. 500 nm @ 4 K
coarse range	5 x 5 x 5 mm <sup>3</sup> (2 sets of xyz-positioners with resistive readout)
step scan range	---
fine scan range	40 x 40 $\mu$ m <sup>2</sup> @ 300 K, 30 x 30 $\mu$ m <sup>2</sup> @ 4 K
sample monitoring	not possible
Operating Conditions	
temperature range	1 .. 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 -Cc, LTSYS -CcADR, LTSYS -CcDIL
Scan Controller and Software	
ASC400 SPM controller	for detailed specifications please see the ASC400 section

