

# attoCFM Ixs: Free-beam based Confocal Microscope

1008035

## Technical Specifications

<b>General Specifications</b>	
type of instrument	free-beam based room temperature optics head coupled to low temperature objective
sensor head specifics	unique low temperature compatible achromatic objectives with high numerical aperture, optimized for different wavelength ranges
<b>Confocal Unit</b>	
configuration	compact and modular design, two or more optical channels; standard configuration: one excitation and one detection channel
key benefits	quick and reliable alignment of each channel, steering mirror for combined beams long-term stability
quick-exchange of optical components	beamsplitters, filter mounts for up to 4 filters/polarizers, (1" diameter); optional piezoelectric rotator with filter mount
pinhole configuration	two pinholes (fiber apertures), different illumination and collection wavelength possible
pinhole size	dependent on fibers, typically 3 .. 9 $\mu\text{m}$ mode field diameter
compatible LT-objective	LT-APO/VIS, LT-APO/VISIR, LT-APO/NIR (see accessory section for more information)
inspection unit	sample imaging with large field of view: ~25-30 $\mu\text{m}$ (depending on insert length)
<b>Illumination</b>	
excitation wavelength range	400 .. 1000 nm, default 650 nm (others on request)
illumination port specification	FC/ APC-connector for single mode fibers or free-beam configuration
<b>Detection</b>	
detection mode	e.g. reflection, luminescence, fluorescence, Raman (optional)
detection wavelength range	detector upon user's choice, typically Si detector (coupling of the light to other detectors)
detection port specification	FC/ APC-connector for single mode fibers or free-beam configuration
<b>Sample Positioning</b>	
total travel range	3 x 3 x 2.5 mm <sup>3</sup> (open loop)
step size	0.05 .. 3 $\mu\text{m}$ @ 300 K, 10 .. 500 nm @ 4 K
fine scan range	15 x 15 $\mu\text{m}^2$ @ 4 K, 30 x 30 $\mu\text{m}^2$ @ 300 K (optional, open loop)
sample holder	Ti plate with integrated heater and calibrated temperature sensor
<b>Suitable Operating Conditions</b>	
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
<b>Suitable Cooling Systems</b>	
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
<b>Compatibility with Electronics</b>	
scan controller and software	ASC500 basic (optional; for detailed specifications please see attoCONTROL section)
laser	LDM600 laser/detector module (for detailed specifications please see attoCONTROL section)
<b>Options and Upgrades</b>	
in-situ inspection optics	incl. with CFM I external optics head

