

attoCFM I

low temperature confocal microscope, highly modular and flexible

| Microscope Configuration | |
|------------------------------|---|
| confocal unit | modular beam splitter microscope head outside cryostat, excitation and collection port fully adjustable, free beam optics, optional polarizer, and retarder possible |
| pinhole configuration | two pinholes (fiber apertures), adjustable in x-, y-, z-direction, different illumination and collection wavelength possible, standard configuration for connection of optical fibers |
| 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 μ W |
| port specification | FC/APC-connector for single mode fibers (other connector types on request) |
| Detection | |
| detection mode | e.g. reflection, luminescence, fluorescence, ... |
| detection wavelength | detector on users 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) |
| options | low temperature compatible detector below the sample for transmission measurements (intensity), polarizer and retarder, filters |
| Optical Parameters | |
| pinhole size | dependent on fibers, typically 3 .. 9 μ m mode field diameter |
| spot size | diffraction limited |
| compatible objective systems | systems A, B, or C (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 | coarse positioners ANPxyz101 with piezo scanner ANSxyz100 |
| step size | 0.05 .. 3 μ m @ 300 K, 10 .. 500 nm @ 4 K |
| coarse range | 5 x 5 x 5 mm ³ |
| step scan range | > 200 x 200 μ m ² |
| fine scan range | 40 x 40 μ m ² @ 300 K, 30 x 30 μ m ² @ 4 K |
| sample monitoring | sample / focus monitoring via CCD camera |
| 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 |
| Scan Controller and Software | |
| ASC400 SPM controller | for detailed specifications please see the ASC400 section |

