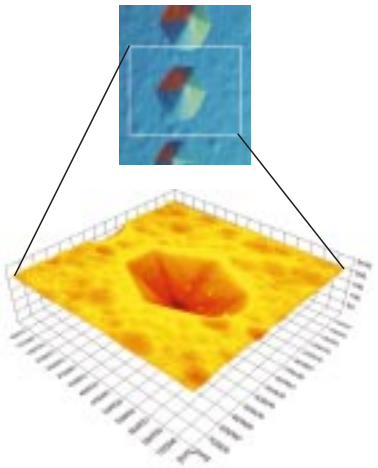
Product-information

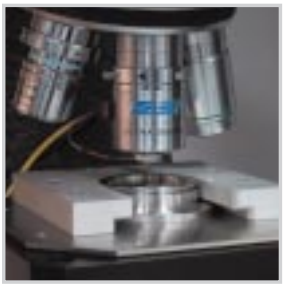
SURFACE IMAGING SYSTEMS

The *NANO*Station *II*

High-power scanning probe microscopy

The *NANO*Station *II* combines optical microscopy and scanning probe microscopy (SPM) in a single, optimized set-up. The combination of the tried and trusted S.I.S. *ULTRA*Objective scanning probe microscope and a powerful optical microscope allows unequalled productivity during the high-resolution inspection of surfaces. The pre-selection of interesting structures for the SPM is greatly simplified through the use of a high-quality optical microscope. The base of the *NANO*Station *II* is a very sturdy microscope stand which has been optimized against vibrations and thermal drift. Equipped with a high-power Zeiss optical microscope and the S.I.S. *ULTRA*Objective scanning probe microscope, the *NANO*Station *II* is an exceptionally versatile inspection microscope.



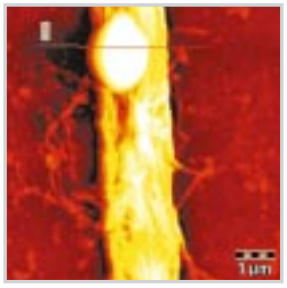


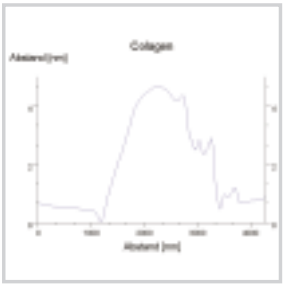
Measuring modes

All *ULTRA*Objective measuring modes are available

Top: Optical image of an etched GaAs crystal (DIC)
3D image of the aforementioned etching, measured in non-contact mode with the *NANO*Station *II*

Far left: *NANO*Station *II* with special table to inspect CDs
Left: *NANO*Station *II* with special holder to inspect contact lenses in a physiological solvent





Applications

The *NANO*Station *II* can be easily adapted to special requirements and customers´ wishes.
Example 1, CD and DVD inspection: A special table was developed, which uses a suction component to lock the sensitive discs in place without stress.
Example 2, Contact Lens Inspection: A holder securing the lenses and permitting measurements at defined points was developed to allow inspection of contact lenses in a liquid.

Far left: 2D image of a collagen fibre, measured in non-contact mode with the *NANO*Station *II*
Left: Cross-section through the image to the left

Specifications of the *NANO*Station *II*-SPM-System

Scan range:	20 µm x 20 µm x 3 µm 40 µm x 40 µm x 4 µm 80 µm x 80 µm x 5 µm 100 µm x 100 µm x 10 µm 200 µm x 200 µm x 10 µm hardware linearized scan motion in X-Y-direction (optional in Z-direction)
Noise level:	0,1 nm rms in vertical direction (Z)
Lateral accuracy:	typically within 1%, closed loop scanning
Scan speed:	typ. 1 to 10 Hz
Detection principle:	fiber optical interferometry, noise level < 0,01 nm rms
Tips:	silicon tips, various types
Tip change:	adjustment free
Digital input resolution:	16 bit A/D
Digital output resolution:	16 bit D/A
Output voltage:	± 165 V, with 2 µV rms

Input channels:	max. 4 simultaneous
External inputs:	max. 3 high speed with 16 bit resolution
Image size:	freely selectable, from 128 to 1024 pixels, even rectangular sizes
Processing:	internal 32 bit DSP, typ. 50 MHz
Computer interface:	USB (standard universal serial bus)
Operating system:	MS-Windows 2000®
Microscope:	Zeiss Axiotech optional with bright/dark field or differential interference contrast (DIC)
Positioning:	manual translation stage 25 mm x 25 mm other sizes available on request
Weight:	approximate 50 kg
Material:	granite

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