Upgrade a microscope into a 3-D-Surface device
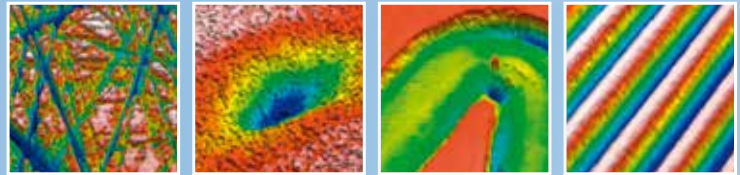
smartWLI
microscope

Highly accurate
Speedytec
Dependable
Economical

Classical optical microscopes can be expanded into a fullfledged 3-D surface instrument, significantly increasing their usefulness. Using this measurement principle high-precision 3-D data can be collected throughout the viewable range of the microscope. Various types of 3-D analyses can then be done with the microscope and smartWLI as a basis.
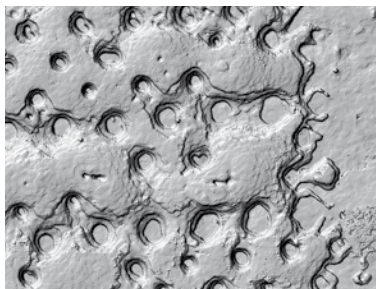
Suitable for all modern microscopes from different manufacturers: Zeiss, Nikon, Mitutoyo, Olympus, Leica...
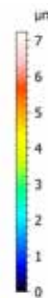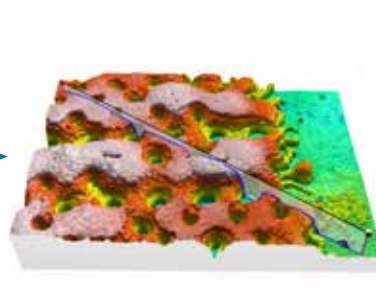
Gesellschaft für Bild- und Signalverarbeitung (GBS) mbH

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smartWLI
microscope

Material Science • Automotive • Micro Systems • Electronics • Solar

2-D image generated by standard microscope

3-D image – new feature after smartWLI upgrade

Measurement System	
Measurement principle	White-light interferometry
Z-Positioning system	piezo objective adjustment system / stepper motor
Height measuring range [µm]	Up to 400 / > 1000 (microscope specific)
Measurement Array [Pixel]	1936 x 1216
Light source	microscope lighting system
Vertical resolution [nm]	PSI 0.1, VSI: 1.0 / VSI: < 100nm (stepper motor)
Max. scan speed [µm/s]	48
Computer, OS	PC or Laptop with Windows 7
Measurement time by z-range 20 µm [s]	< 3
Operating temperature [°C]	10 – 35
Recommended working temperature [°C]	18 – 22

Software	
smartWLI	Windows 7, 64bit Software for measuring the topography and for exporting the 3-D data using a direct interface to the MountainsMap® analysis software
smartWLI-SDK	SDK for measuring the topography for using in customer own software, Matlab or LabVIEW
Export format	ASCII, SUR, BCR-STM, BMP, JPEG, TIFF
MountainsMap®	Extensive analysis software as well as profile and 3-D visualisation, measurement data pre- and post-processing, DIN EN ISO roughness and height determination, serial processing, measurement logging

Objectives						
Magnification (MAG)	2,5 x	5 x	10 x	20 x	50 x	100 x
Numerical Aperture (NA)	0.075	0.13	0.30	0.40	0.55	0.70
Working distance (WD) [mm]	10.3	9.3	7.4	4.7	3.4	2.0
Field of view (FOV)* [µm]	7203 x 4524	3601 x 2262	1800 x 1131	900 x 565	360 x 226	180 x 113
Pixel size* [µm]	3.72	1.86	0.93	0.47	0.19	0.09
Optical resolution by Dawes* [µm]	3.61	2.08	0.90	0.68	0.49	0.39

Accessories	
Motorized XY-stage	Movement dependent on the microscope
Stitching	Automated stitching by using motorized stage

* Approximate values (dependent on the microscope)

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