

DeltaPix **DPX F1000**

Digital 3D Microscope



- Motorized Turret
- 2D & 3D Measurement
- High-speed live video
- Large field of view
- High Magnification
- Surface Texture ISO 25178 / ISO 4287
- Super-fast depth of field imaging (EDF)
- 3D topography & Measurement
- 21MPixel Resolution
- SDM technology for Extreme 3D speed

DPX F1000

Uncompromising Image Quality and precision.

The DPX F1000 digital microscope is a high precision motorized/automated digital microscope designed for advanced imaging and measuring applications. Featuring up to five Olympus BF/DF objectives, a 21MP Invenio 20ExIV C/M camera, and fully software-controlled functionality, this microscope delivers unparalleled clarity, precision, and automation at an affordable price. Ideal for industrial inspections, material science, and advanced research.

Ease of operation

The DPX F1000 offers a wide magnification range of 269X–10751X¹ with a motorized turret, resolving down to 250nm in all 3 dimensions, allowing seamless transitions between macro and micro inspections in a single system. This streamlined workflow enhances efficiency and freeing up valuable time for critical tasks. With a fully integrated imaging, measurement, analysis, and reporting system, users can work smarter and more productively within a powerful, user-friendly, platform.



Possible applications

Material science Metrology Quality control Dark Field
Bright Field Semiconductor inspection

2D Measurement tools:

DeltaPix Insight software provides a comprehensive suite of powerful measurement tools, available for both manual operation and automated measurement using advanced edge detection. This enhances accuracy while making the process faster and more efficient.

Measurement results and actual dimensions can be saved directly on captured images or exported to Excel, CSV, or PDF files. Use the included templates for seamless reporting, or create custom templates tailored to specific needs. Additionally, measurements from multiple specimens can be consolidated into a single CSV file for streamlined statistical analysis.

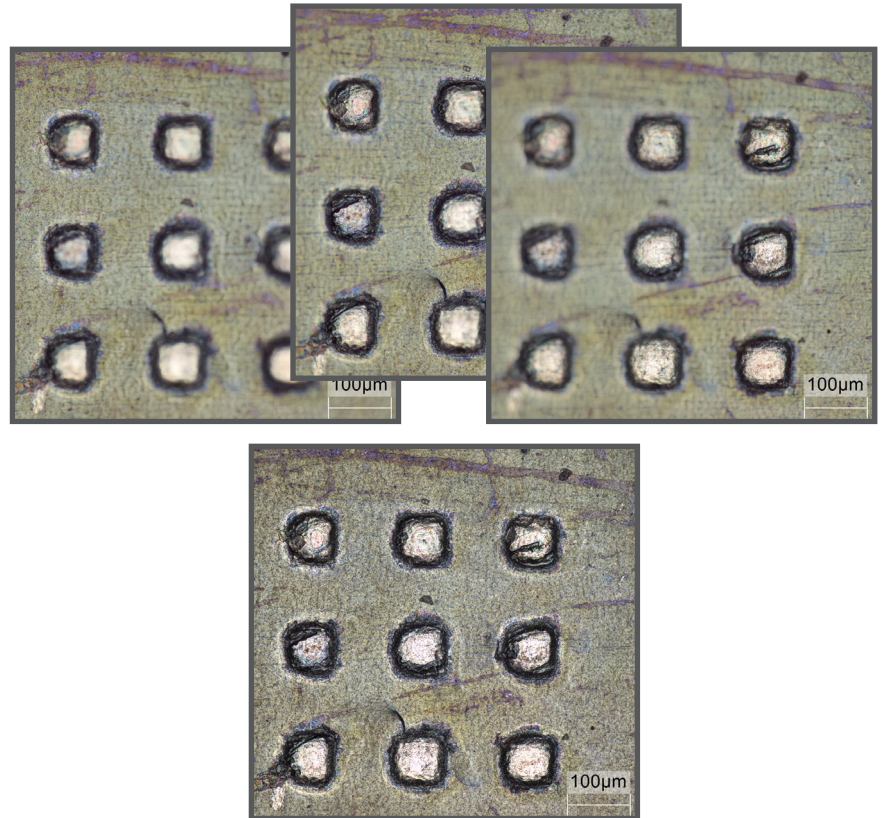
- Ruler
- Ellipse
- Polygon
- Freehand measurement
- Rectangle
- Protractor
- Circle
- Circle center distance
- Point to line distance
- Angle

Extended Depth Of Field (EDF)

Super fast extended depth of field imaging.

The DeltaPix DPX F1000 digital microscope delivers high-resolution, extended depth-of-field images at remarkable speed. By capturing images at multiple focal planes and utilizing state-of-the-art algorithms combined with DeltaPix SDM technology, it enables ultra-fast depth of field imaging—a true leap forward in microscopy.

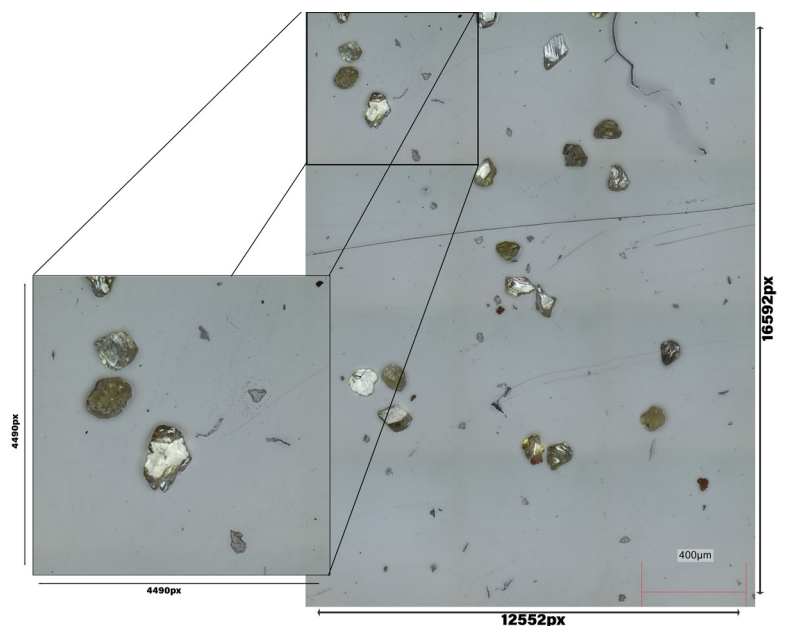
This advanced technique extends the standard focal depth of the objective and is also compatible with stereo microscopes. The required number of images for each extended focus capture is automatically determined based on the depth of field at a given magnification, ensuring seamless and efficient image processing.



Auto Stitching (EDF)

The DPX F1000 sets a new standard with its large field of view, delivering high resolution, exceptional accuracy. Equipped with a motorized XY stage featuring a 100mm x 100mm travel range, it enables extensive imaging, making it ideal for scanning large samples with microscopic resolution (better than 0.250µm in XY and Z).

Designed for efficiency, the DPX F1000 simplifies image stitching by eliminating complex user calculations. Simply position the stage at two opposite corners of your region of interest using the joystick or keyboard, and the software takes care of the rest—automatically stitching images to create a large, seamless field of view with stunning microscopic detail.



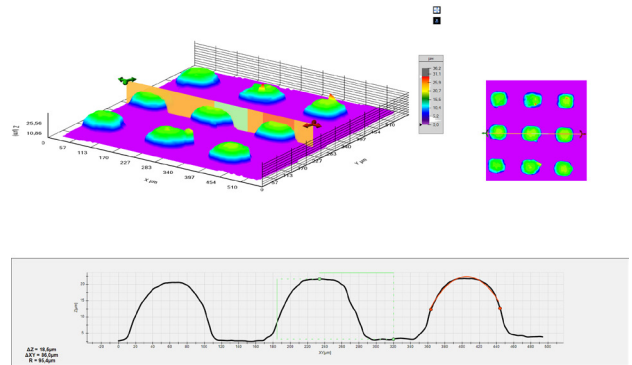
3D Topography

Extend the visualization and measurement from 2D to 3D.

The DPX F1000 is the ideal digital microscope for 3D

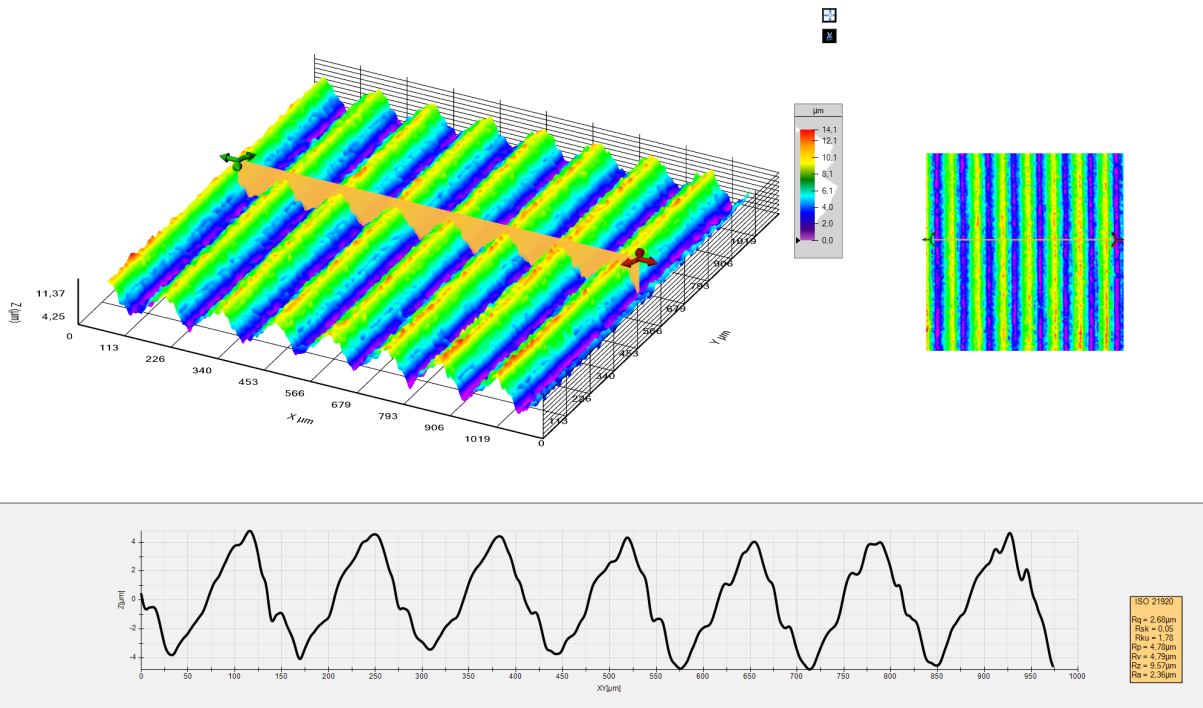
Topography provide 3D Topography, to display a 3D

model of the specimen under observation. Additionally, this feature allows the user to perform 3D measurements and automated extended depth of field . 3D tools: Height measurements (delta Z), angle and radius.



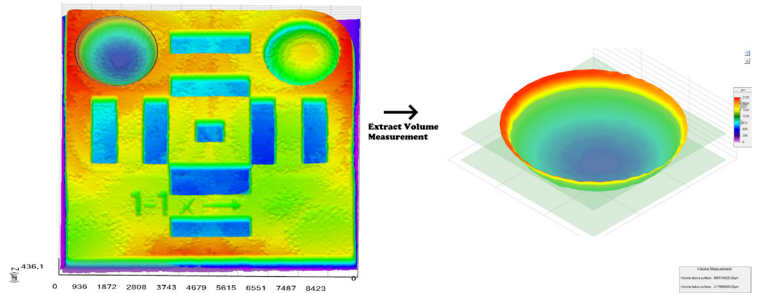
Roughness Measurement.

Ex Surface Texture ISO 25178 / ISO 4287



DeltaPix DPX F1000 can be applied to measure the height parameters for the roughness surface and the waviness surface, along with the volume parameters, thereby avoiding the need for third party applications for most texture analysis. The surface texture analysis can also be performed on extracted profiles according to ISO 4287. DeltaPix InSight can level the data and remove form by fitting a plane, sphere, cylinder, or polynomial to the topography. Gaussian, Double Gaussian and Robust Gaussian filters are available to extract the roughness and waviness data. The results can be exported to an Excel spreadsheet.

Using DeltaPix InSight it is easy to measure volumes in 3D topographies. The relevant surface area can be specified using the selection tools, and the volume can then be extracted. The volume measurement can be adjusted by using the two cutting planes to truncate the volume.



Specifications

Bright field/ Dark field objectives

Function	2.5X	5X	10x	20X	50X	100X
NA	0.08	0.15	0.3	0.45	0.8	0.9
Resolution(μm)	3.5 μm	1.86 μm	0.93 μm	0.622 μm	0.350 μm	0.311 μm
Focal depth (μm)	43 μm	12.4 μm	3.11 μm	1.383 μm	0.438 μm	0.346 μm
Working Distance	8.7mm	12mm	6.5mm	3mm	1mm	1mm

Magnification	269X	537x	1075x	2150x	5375x	10751x
Field of View	4.9mm x 4.9mm	2.46mm x 2.46mm	1.23mm x 1.23mm	615 μm x 615 μm	256 μm x 256 μm	123 μm x 123 μm

Bright field/ Dark field objectives long WD

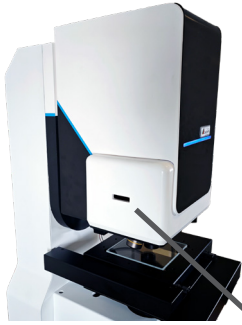
Function	20X	50X	100X
NA	0.4	0.5	0.8
Resolution(μm)	0.700 μm	0.560 μm	0.350 μm
Focal depth (μm)	1.750 μm	1.120 μm	0.438 μm
Working Distance	12mm	10.6mm	3.3mm

Magnification	2150x	5375x	10751X
Field of View	615 μm x 615 μm	246 μm x 246 μm	123 μm x 123 μm

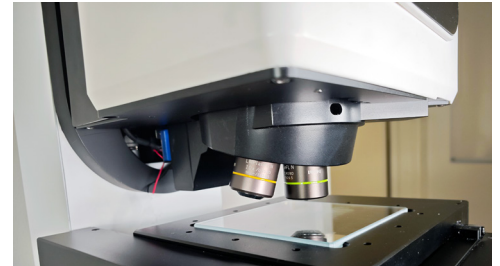
Note:

1. Maximum magnification and minimum FOV are calculated based on a 28" monitor with 1920x1080 pixels, at 100% zoom at maximum still image camera resolution.

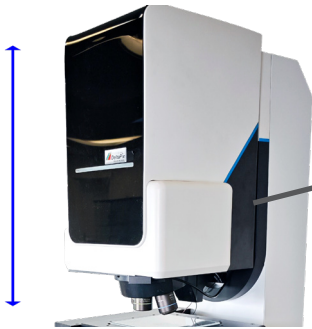
Microscope Details



Option to use Polarizer/Analyzer (Coaxial light). DIC.



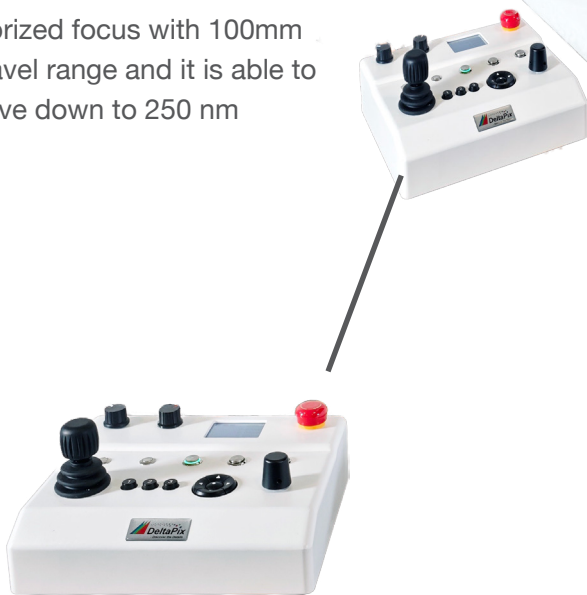
Motorized turret with the option to have up to 5 pcs BF/DF objectives (Olympus at present)



Motorized focus with 100mm of travel range and it is able to resolve down to 250 nm



Motorized XY stage with travel range of 100mm x 100mm Repeatability: $\leq \pm 1.5 \mu\text{m}$ Resolution: $\leq 0.5 \mu\text{m}$ ax Max speed: $\leq 30 \text{mm/s}$



Controller with easy-to-use joystick and preset buttons



High quality 20X zoom lens, providing great quality images and flexibility Can also be used with infinity corrected objective lens.

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