Super-Resolution Microsphere Microscopes

The OptoNano™ microsphere-assisted microscope breaks through the 200nm diffraction limit to deliver super resolution imaging at an affordable price. Use of microsphere technology simplifies the imaging process by not requiring special environments or preparation for the sample. These microscopes feature fully motorized xyz sample stages, built-in coaxial and optional below-sample illumination, and image stitching to combine up to 100 separate images.

- Turn-key super-resolution microscope system
- Effective resolution to 137nm
- Fully integrated motorized sample and objective stages
- Coaxial and sample-stage illumination options
- Also functions as standard light microscope

OptoSigma Corporation
Www.optosigma.com
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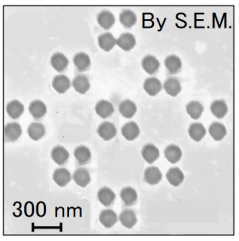
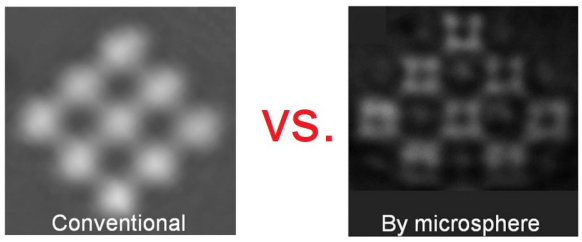
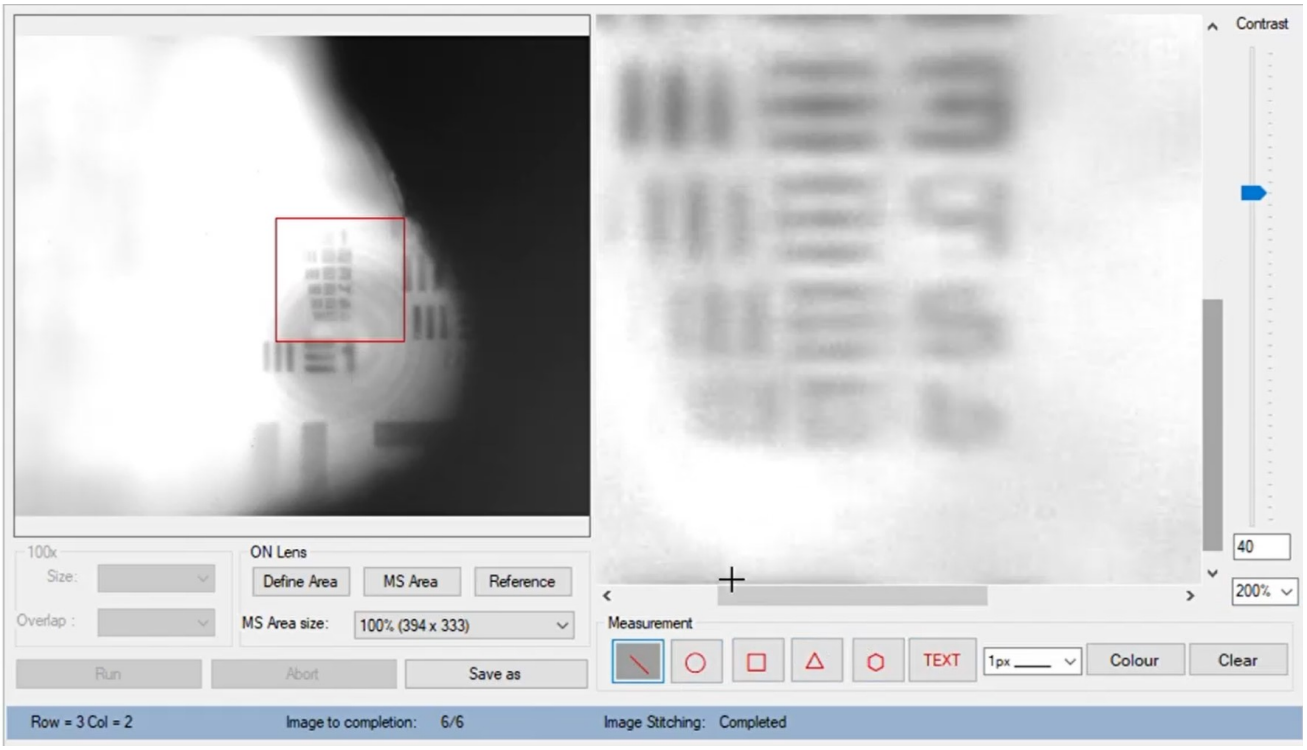
Imaging Comparisons





A comparison of images taken with a conventional vs. a microsphere assisted microscope. The groups of four dots, with features below the diffraction limit, are not distinguishable on the conventional microscope but are with the microsphere assisted microscope.



The OptoNano™ software showing on the left a resolution test target image captured through the microsphere and, on the right, a 6X6 stitched image of resolution group 11 where the line pairs of number 5 are clearly visible.

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System Elements

Microscope Body

- Fully assembled with enclosure
- Provides standard or super-resolution imaging
- Fully motorized 3-axis sample positioning
- Built-in white light or blue light Illumination
- Four–Position Objective Turret

Objectives (Included)

- Microsphere objective for sub 200nm resolution
- 10X objective for standard microscope operation
- Alternative 5X, 20X, 50X, and 100X objectives available

Camera (Installed)

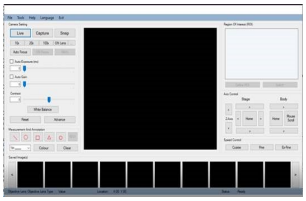
- 5 mega-pixel sensor, 2/3 in. (2448×2048 pixels)
- Color or monochrome
- 35.8 frames per second, frame rate
- C-Mount interface
- USB 3.0 super speed interface

Light Sources (Installed)

- Blue (460nm) or White (~700nm) light LED
- Luminance flux: 27.4 lm for blue, 116 lm for white
- 700mA maximum rated current
- Manual dimming control

Stage Motor Controller (Included)

- 4-axis controller for 5-phase stepper motors
- 250 micro-step driver
- Control from PC via USB virtual COM port
- Includes hand-held control pad



System Software (Included)

- Auto focus and image capture
- Remote motorized sample positioning
- Automated image stitching to 10X10
- Feature measurement accurate to 35nm

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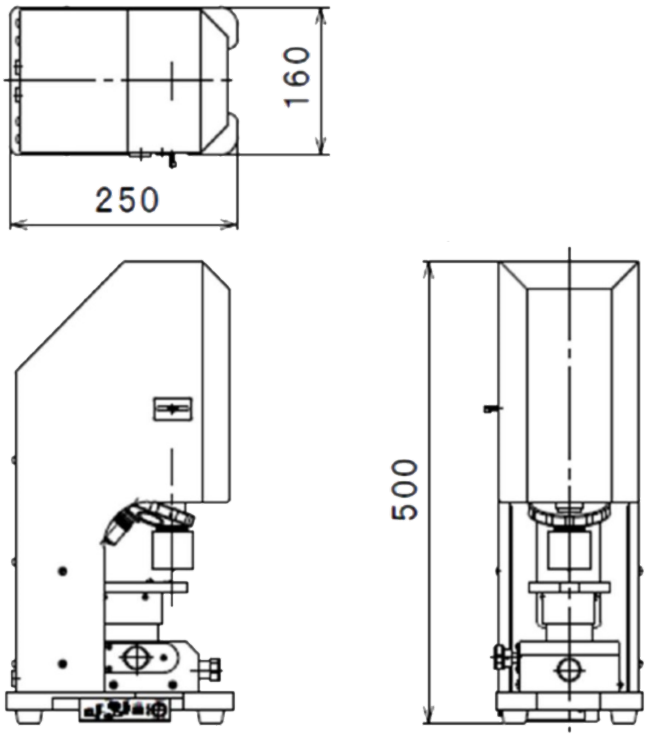
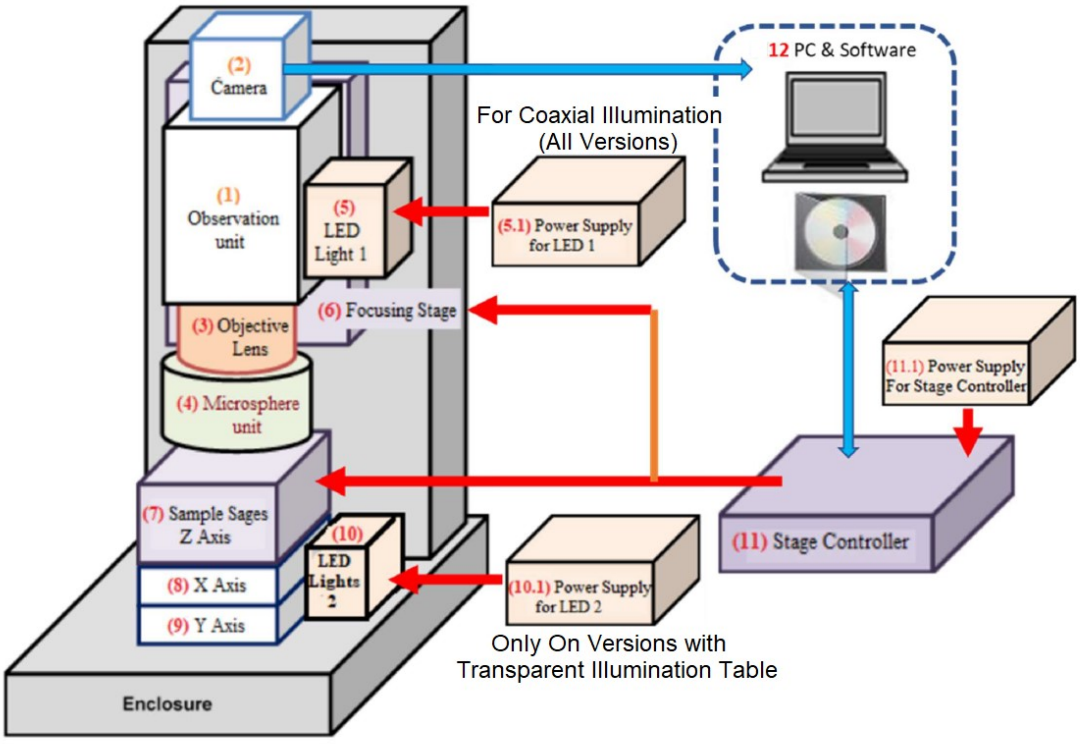
Drawings and Diagrams



OptoNano™ Microscope Outline Drawing



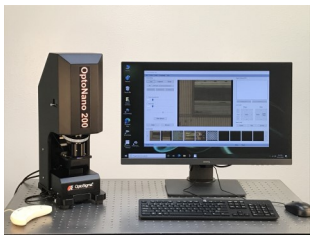
Block Diagram of OptoNano™ Microscope

Ordering

OptoNano™ Super-Resolution Microscopes

Effective Resolution*1	Illumination Light Color	Illumination Center Wavelength	Illumination Direction	Camera Type	Model Number
137nm	Blue Light	460nm	Top Only	Monochromatic	PT-ON200V01-MB-MXY
154nm	While Light	~700nm	Top Only	Color	PT-ON200V01-CW-MXY
137nm	Blue Light	460nm	Top and Bottom	Monochromatic	PT-ON200V1-MB-MXY-FLIS
154nm	While Light	~700nm	Top and Bottom	Color	PT-ON200V1-CW-MXY-FLIS

*1 Resolution value requires included microsphere objective



Additional Objectives and Accessories*2

Description	Additional Specifications	Model Number
5X Infinity-Corrected Objective	11.6mm working distance, RMS threads	EPL-5
20X Infinity-Corrected Objective	11.1mm working distance, RMS threads	EPL-20
50X Infinity-Corrected Objective	8.2mm working distance, RMS threads	EPL-50
100X Infinity-Corrected Objective	2.0mm working distance, RMS threads	EPL-100
Electronic Vibration Isolation Platform	500x600mm platform	OSDVIA-T56
Red LED Light Source, 633nm	Coaxial illumination only, 47.9lm	SLSI-22R
Blue LED Light Source, 460nm	Coaxial illumination only, 27.4lm	SLSI-22B
Green LED Light Source, 525nm	Coaxial illumination only, 88.1lm	SLSI-22G
White LED Light Source, ~700nm	Coaxial illumination only, 116.1lm	SLSI-22W

*2 Windows® 10 Computer, monitor, keyboard, and mouse purchased separately (Windows is a registered trademark of Microsoft Corporation)