SENSOFAR

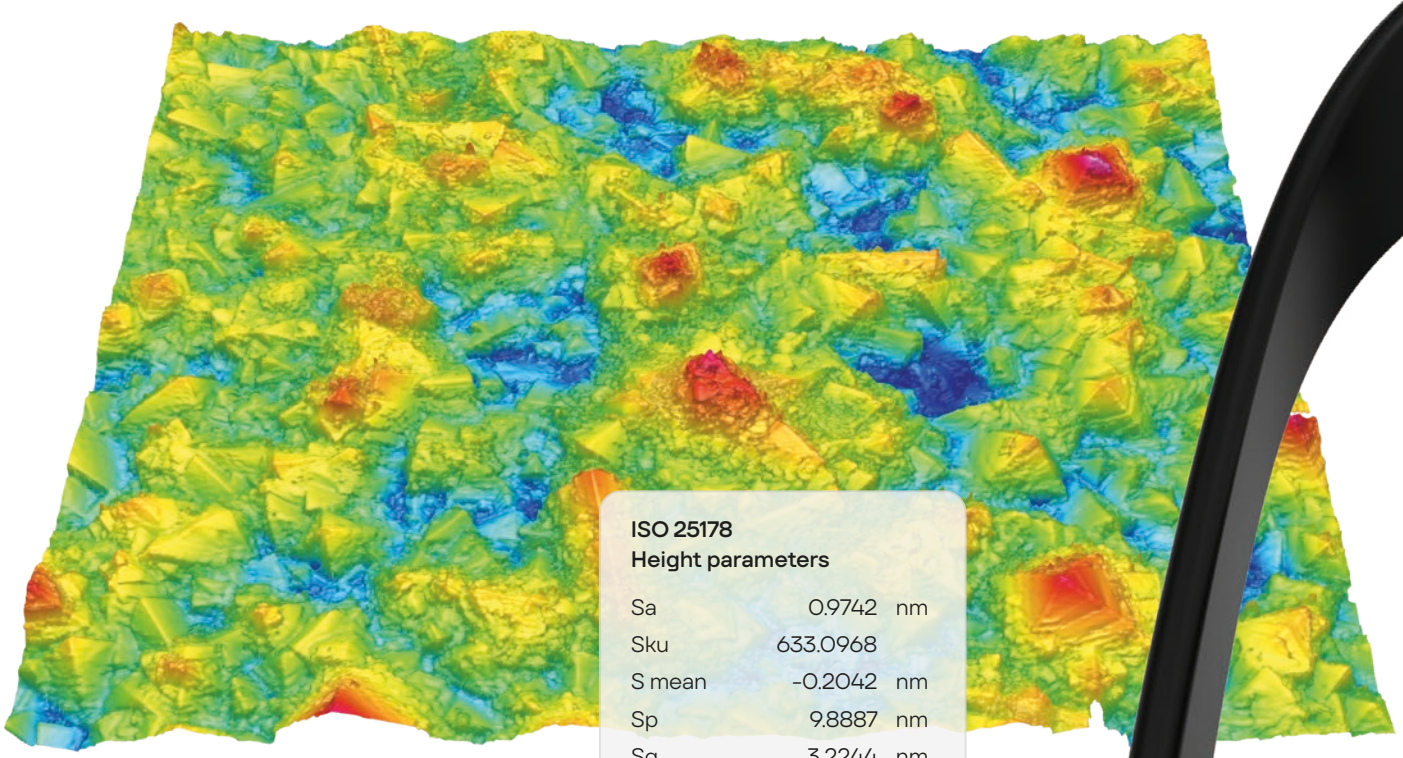
S NEOX 6



3D optical profiler

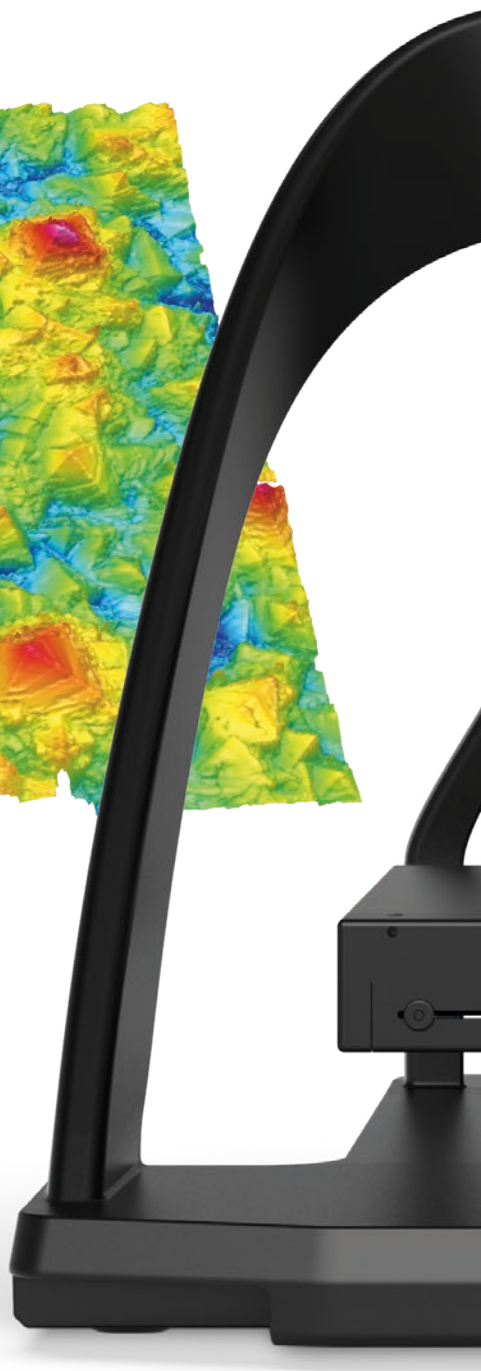
Built to see further

The S neox 6 helps users expand advanced 3D surface characterization with greater speed, precision, and flexibility. Its multi-technology architecture, high-speed acquisition, advanced algorithms, and refined user experience work together to support demanding metrology workflows from setup to analysis.



ISO 25178
Height parameters

Sa	0.9742	nm
Sku	633.0968	
S mean	-0.2042	nm
Sp	9.8887	nm
Sq	3.2244	nm
Ssk	22.8511	
Sv	103.38	nm



Performance beyond specifications

Obtain precise 3D surface data through refined optical design, enhanced imaging, high-speed acquisition, and advanced algorithms.



Versatility that drives productivity

Adapt the measurement approach to each sample with multi-technology capability, motorized positioning, and flexible system configurations.

Higher acquisition speed

Previous generation

UP TO X2

NEW S neox 6

Faster workflow from setup to results

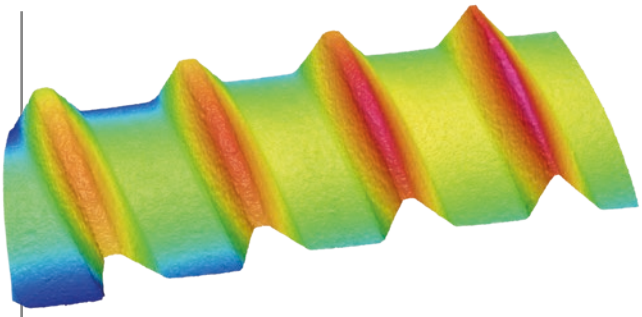
Reduce measurement time with smart automation, streamlined acquisition, enhanced processing, and more fluid data interaction.

Key features

- Autolevel faster with a motorized tip-tilt
- Move further with a 100 mm motorized Z range
- Focus instantly with the new direct AF
- Automate workflows with greater ease
- Measure with enhanced stability and robustness

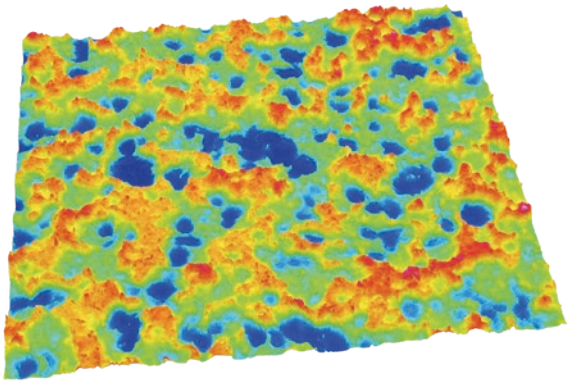
One system, multiple measurement technologies

Designed from the outset as a high-performance optical profiler, the S neox 6 combines multiple 3D optical metrology techniques in a single platform. This multi-technology approach allows users to adapt the measurement strategy to each sample and application requirement.



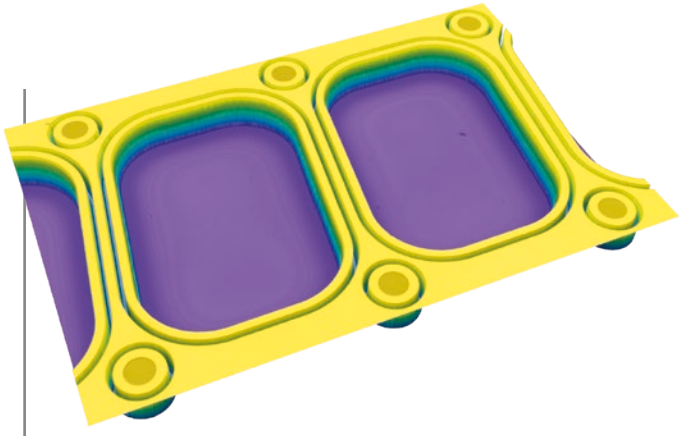
Ai FOCUS VARIATION

Enables efficient 3D shape measurement over large, rough, and steep surfaces by combining focus-based optical profiling with active illumination.



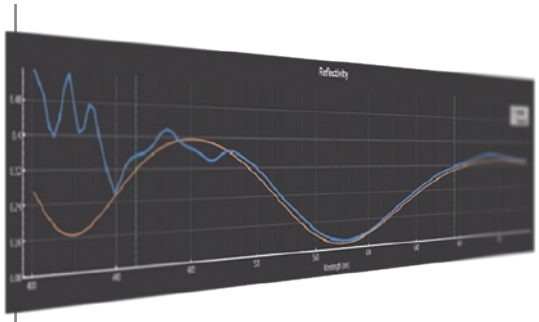
CONFOCAL

Delivers high lateral resolution for 3D surface measurement across smooth to very rough surfaces.



INTERFEROMETRY

Provides exceptional height resolution for precise measurement, with PSI, ePSI, and CSI modes.

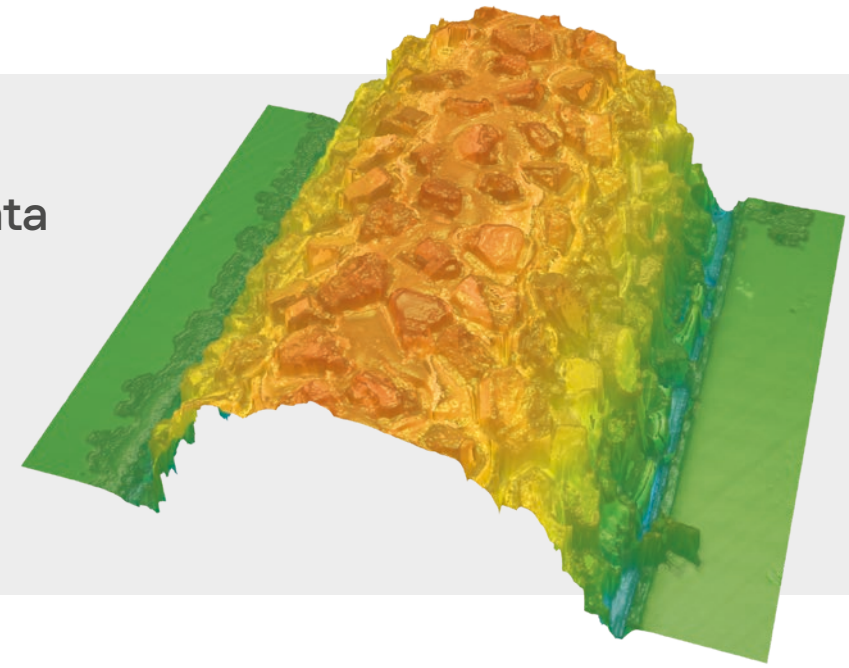


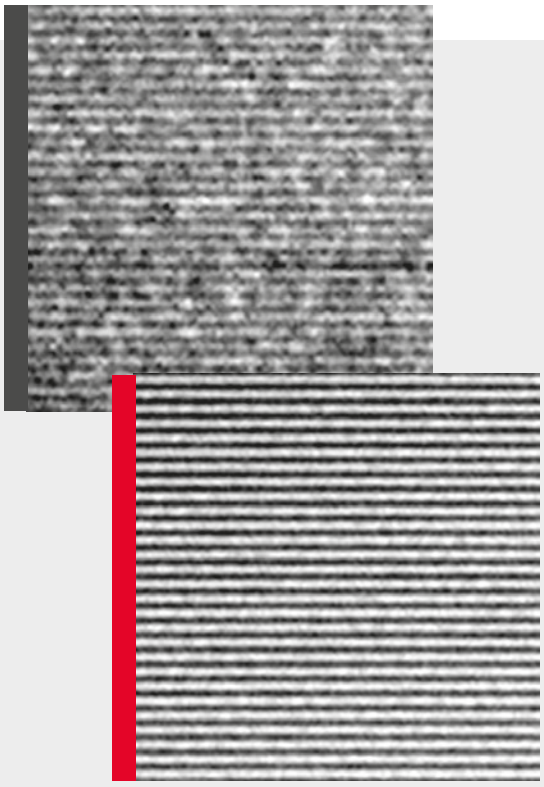
SPECTROSCOPIC REFLECTOMETRY

Measure transparent thin films and layered materials quickly and non-destructively.

Adaptive acquisition for stable surface data

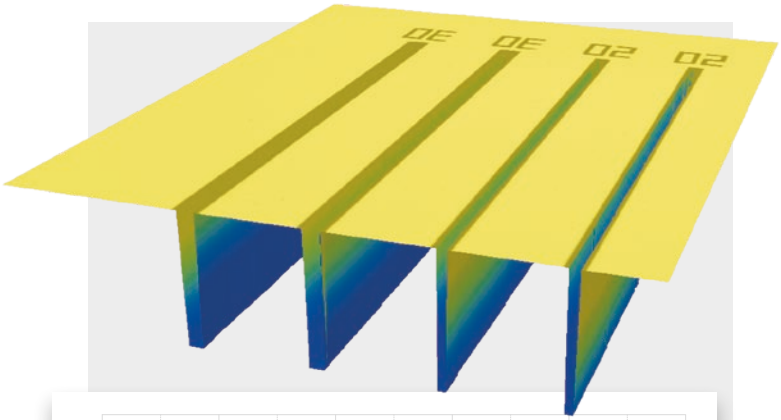
Surface Adaptive Mode adjusts system behavior during acquisition to deliver stable, consistent topography results across a wide range of samples and measurement conditions. It helps maintain a faithful surface representation when signal quality varies.

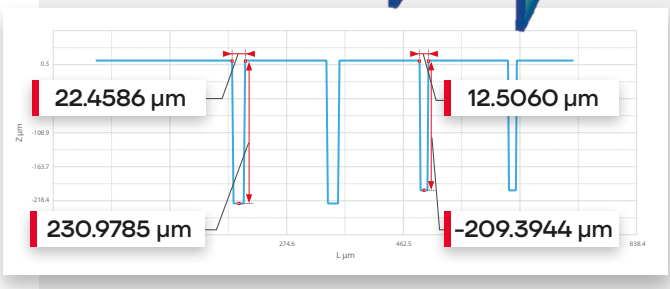




Sharper data with Boosted Resolution

Boosted Resolution improves high-resolution reconstruction, revealing finer surface details with increased sharpness. Designed for image-based acquisition, it helps users capture more detailed surface data with improved clarity and contrast for the finest structures.





24:1

Accurate data for high-aspect-ratio microstructures

Lower-magnification, lower-NA objectives improve optical access and signal robustness inside deep features, enabling consistent characterization of High Aspect Ratio microstructures, including vias and trench patterns, up to approximately 24:1.

Faster from inspection to analysis

Faster system responses, smarter automation, and enhanced processing capabilities help users prepare samples, acquire data, and review results more efficiently.



SensoSCAN 8

SensoVIEW 3

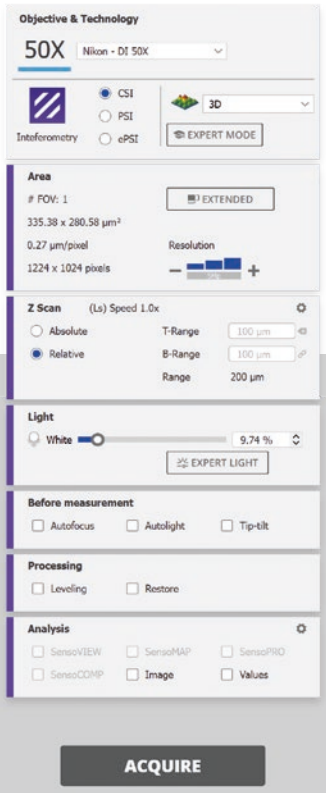
SensoPRO 5

SensoCOMP

Higher throughput, simpler operation

The S neox 6 accelerates inspection, acquisition, and analysis through a complete in-house software ecosystem that supports the full measurement workflow, from visualization to automation, inspection, and reporting. This helps users increase throughput, simplify operation, and spend less time on each measurement.



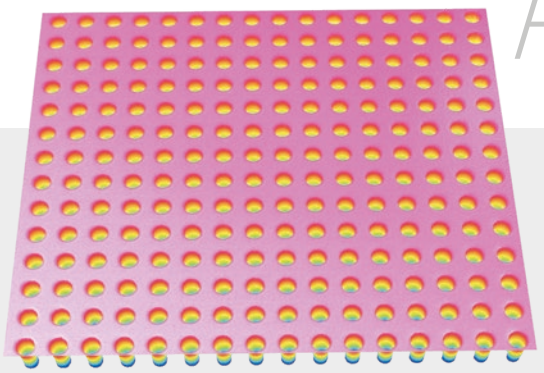


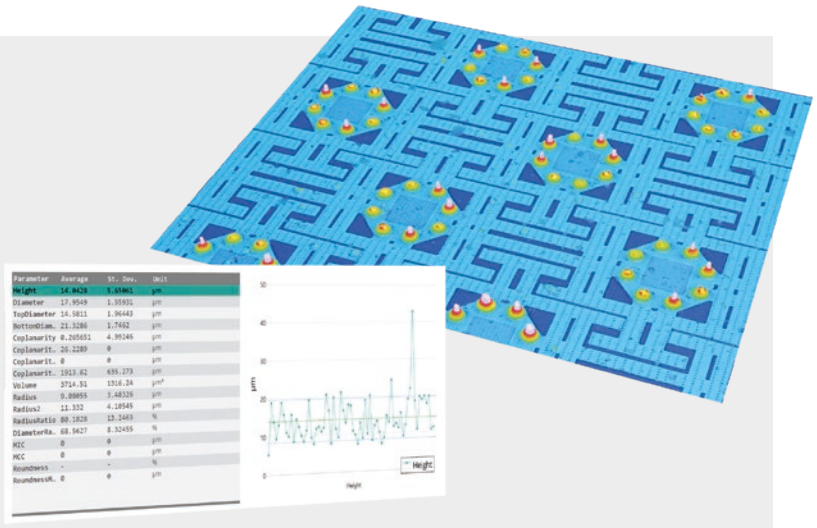


Ready for any operator level

SensoSCAN adapts the acquisition experience to the user's needs, guiding operators through automated procedures when simplicity is essential, and giving experienced users direct access to the parameters required for more demanding applications.

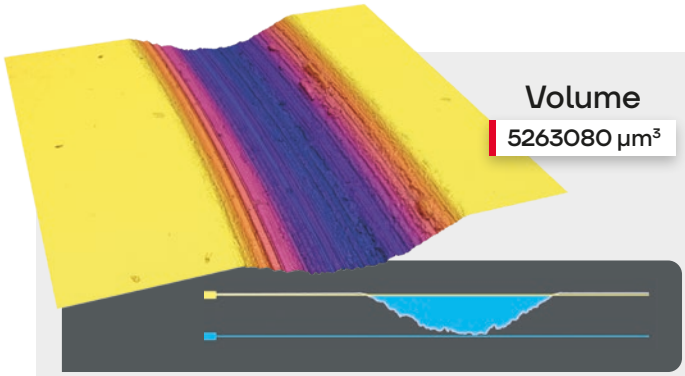
APPLICATIONS





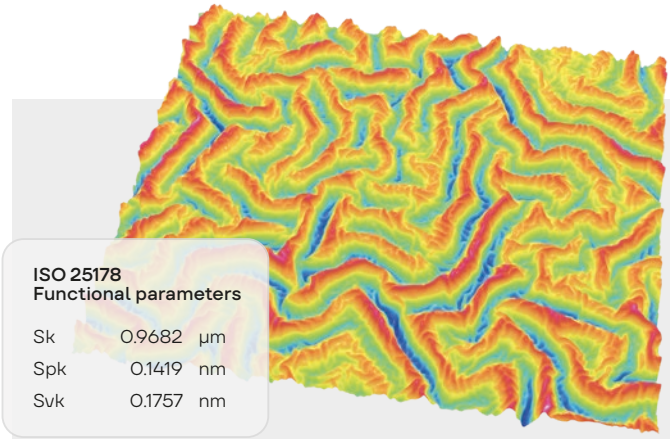
Semiconductors and advanced packaging

Control critical surface features, thin films, defects, and packaging structures using high-resolution 3D data.



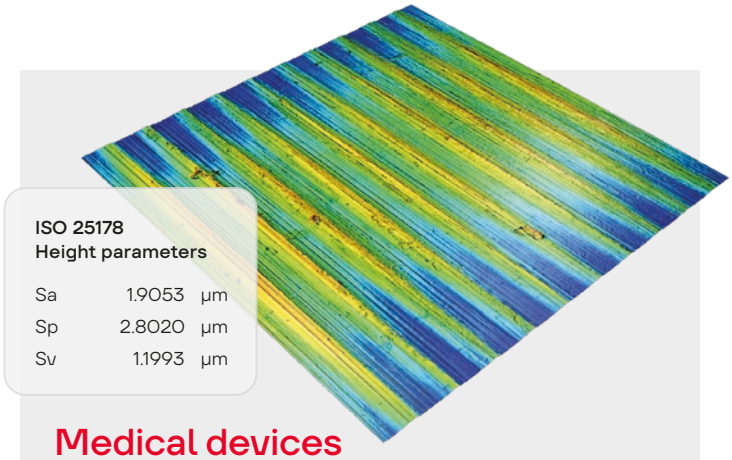
Precision manufacturing

Measure functional surfaces and critical features with nanometer-level accuracy to support failure analysis, lifetime prediction, material optimization, and process improvement.



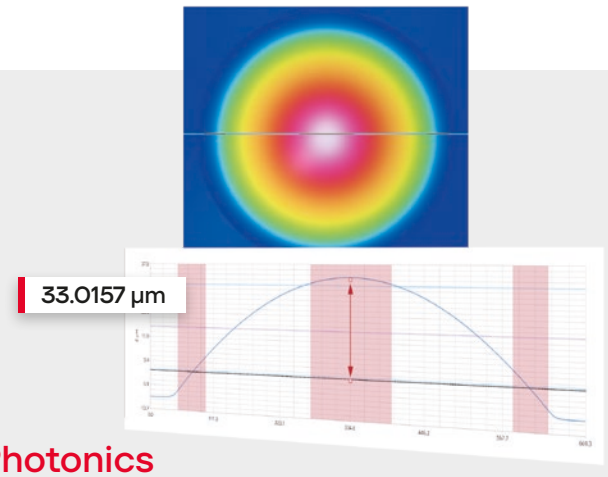
Aerospace and security

Inspect high-value components with precise 3D surface data for dimensional evaluation, defect analysis, and technical reporting.



Medical devices

Validate critical surface features without contact and obtain roughness, shape, and dimensional data to support device performance and quality control.



Photonics

Characterize smooth, super-smooth, and micro-optical surfaces for form, roughness, waviness, flatness, and defect evaluation.

Specifications

Objective lenses

	Brightfield						Interferometry						
MAG[1]	5X BF	10X BF	20X BF	50X BF	100X BF	150X EPI	5X MC	10X MC	10X MR	20X MC	20X MR	50X MR	100X MR
NA	0.15	0.30	0.45	0.80	0.90	0.90	0.14	0.10	0.28	0.10	0.38	0.50	0.70
WD (mm)	20.00	15.80	3.00	1.00	1.00	1.50	13.00	25.00	8.00	16.70	6.00	3.60	2.00
FOV[2] (µm)	3354 x 2806	1677 x 1403	838 x 701	335 x 281	168 x 140	112 x 94	3354 x 2806	1677 x 1403	1677 x 1403	838 x 701	838 x 701	335 x 281	168 x 140
Spatial sampling[3] (µm)	1.37	0.68	0.34	0.14	0.07	0.05	1.37	0.68	0.68	0.34	0.34	0.14	0.07
Optical resolution[4] (µm)	0.92	0.46	0.31	0.17	0.15	0.15	0.98	1.37	0.49	1.37	0.36	0.27	0.20
Measurement noise[5] (nm)	115	30	8	4	3	2	PSI/ePSI 0.1 nm (PSI 0.01 nm with Piezoelectric scanner); CSI 1 nm						

System specifications

Measuring principle	Confocal, Interferometry (CSI,ePSI, PSI), Ai Focus Variation and Thin Film
Observation types	Brightfield, Sequential RGB color, Confocal, HDR, Dark field.
Maximum slope	On smooth surfaces, up to 71°. On scattering surfaces, up to 86°.
Measurement types	Image, 3D, 3D thickness and coordinates
Camera	5Mp: 2448x2048 pixels (106 fps)
Total magnification	53X - 25400X (27" screen)
High display resolution	0.001 nm
Field of view	from 0.11 to 6.7 mm (single shot)
Max. ext. measuring area	11x11 (Max. Resolution); 99x99 (Low resolution) (600 Mp)
Confocal frame rate	106 fps (5Mp); 204 fps (HD)
Vertical scan range	Linear stage: 100 mm range; Piezoelectric scanner: 200 µm (Optional)
Max. Z measuring range	PSI 20 µm; CSI 24.5 mm; Confocal & Ai Focus Variation 36.5 mm
XY stage range	Motorized: 154x154 mm, 302x302 mm
LED light sources	Red (620 nm); green (520 nm); blue (450 nm) and white (590 nm; center)
Ring light illumination	Green ring light, compatible with selected objectives (optional)
Nosepiece	6 position motorized
Sample reflectivity	0.05 % to 100%
Sample weight	up to 25 Kg
Max. sample height	100 mm
User management rights	SensoUSER
Analysis software	SensoVIEW (included), SensoPRO, SensoCOMP, SensoMAP
Voltage range	Line Voltage 100-240 V AC; frequency 50/60 Hz single phase
Computer	Latest INTEL processor
Screen	3840x2160 pixels resolution (4K) (27")
Operating system	Microsoft Windows 64 bit
Environment	Temperature 10 °C to 35 °C; Humidity <80 % RH; Altitude <2000 m

38+ objectives supported

Download the full list from **My Sensofar**

Accuracy and repeatability [6]

Standard	Value	U , σ	Technique
Step height	50 µm	U=300 nm, σ=10 nm	Confocal & CSI
	20 µm	U=150 nm σ=8 nm	Confocal & CSI
	10 µm	U=79 nm, σ=5 nm	Confocal & CSI
	1 µm	U=7 nm, σ=1 nm	Confocal & CSI
	10 nm	U=0.5 nm, σ=0.05 nm	PSI
Areal roughness (Sa)[7]	0.79 µm	U=0.04 µm, σ=0.0005 µm	Confocal, AiFV & CSI
Profile roughness (Ra)[8]	2.40 µm	U=0.03 µm, σ=0.002 µm	Confocal, AiFV & CSI
	0.23 µm	U=0.005 µm, σ=0.0002 µm	Confocal, AiFV & CSI

1 BF: Sensofar, EPI: Nikon, MC: Michelson and MR: Mirau. **2** Maximum field of view with 1/1.8" camera and 0.5X optics. **3** Pixel size on the surface. **4** L&S: Line and Space. Values for blue LED. **5** Measurement noise measured as the difference between two consecutive measures on a calibration mirror placed perpendicular to the optical axis. For interferometry objectives, PSI, 10 phase averages, values obtained in a VC-E vibration environment. The 0.01 nm are achieved with Piezoelectric scanner and temperature controlled room. Values for green LED (white LED for CSI/ePSI, red LED for PSI). Resolution HD. **6** Objective used for Confocal and Ai Focus Variation 50X 0.80 NA and for CSI and PSI 50X 0.50NA. Resolution 1220x1024 pixels. All measurements are done using Piezoelectric scanner. Uncertainty (U) according to ISO/IEC guide 98-3:2008 GUM:1995, K=2 (level of confidence 95%). σ according to 25 measures. **7** Area of 1x1 mm. **8** Profile of 4 mm length.

System configurations







Dimensions	600×604×662 mm (23.6×23.8×26.1 in)	1200×740×1550 mm (47.2×29.1×61 in)	218×281×588 mm (8.6×11.1×23.2 in)
Weight	68 Kg (149 lbs)	590 Kg (1301 lbs)	20.5 Kg (45.2 lbs)

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