



3D Optical Profiler

Spectroscopic reflectometer



Basic features of your S neox with spectroscopic reflectometer

Spectroscopic reflectometer can be integrated for thin films measurement. Transparent films from 50 nm to 20 μm can be measured in less than one second with a thickness resolution of 0.1 nm and a lateral resolution up to 8 μm . S neox can measure a stack of up to 10 layers.

Spectrometer reflectometer thickness measurement is only available when the system includes the spectroscopic reflectometer USB2000+ or NANOCALCXR hardware option. The spectroscopic reflectometer controller is connected to the S neox system and can be independently operated using the NanoCalc software.

SensoSCAN integrates the spectroscopic reflectometer thickness measurement by starting NanoCalc software at start up, and commanding it to measure and analyze the thin film layer structure. SensoSCAN retrieves the measured thicknesses of the layers (up to 3).

Specifications

CONTROLLER	USB2000+			NANOCALCXR		
Wavelength	400-850 nm			250-1050 nm		
Thickness range ¹	50 nm – 20 μm			10 nm – 100 μm		
Resolution	0.1 nm					
Repeatability	0.3 nm (50nm – 1 μm) -- 1 nm (> 1 μm)			0.3 nm (10nm – 1 μm) -- 1 nm (> 1 μm)		
Absolute Accuracy	< 1% (100 nm – 100 μm)					
Dimensions	89.1 x 63.3 x 34.4 mm			180x152x263 mm		
Weight	~ 190 g			~ 3.5 kg		
OPTIC FIBER						
Diameter (μm)	200			100		
OBJECTIVES	5X	10X	20X	20X	20X	50X
Type				SLWD	ELWD	SLWD
NA ²	0.15	0.30	0.45	0.30	0.40	0.40
WD (mm)	23.5	17.5	4.5	30.0	19.0	22.0
Spot size ³	80	40	20	20	20	8
COMPLEMENTS						
Step wafer	No			Yes		
Support stage	No			Yes		

NOTES

¹ Depending on the materials structure, it can measure layers up to 10 nm. For example, SiO₂ on Si.

² The objective numerical aperture has to be lower than 0.45.

³ The lateral size of the measured spot depends on the optical fiber (FO) and the magnification of the brightfield microscope objective. Spot Size= (2*Diameter FO)/(Objective Magnification).



USB2000+

REVIS10LPACKNEOX00 | Integrated spectroscopic reflectometer VIS-10 layers



REXR10L100SNEOX00 | NANOCALCXR REFLE ESPE XR 10 L 100um SNEOX

Software features

NANOCALC SOFTWARE FEATURES

- Fast Fourier Transform algorithms
- Quick Click Controls including sliders for thickness and N&K parameters
- Easy interface customization
- Easy data export
- Local language software versions
- Windows 7
- Thickness measurements from 10 n m to 250 μ m for up to 10 layers
- Fast curve fit algorithms in <1 s per measurement
- Customized methods with password protection
- Green-Yellow-Red light answers for online applications
- Large materials database

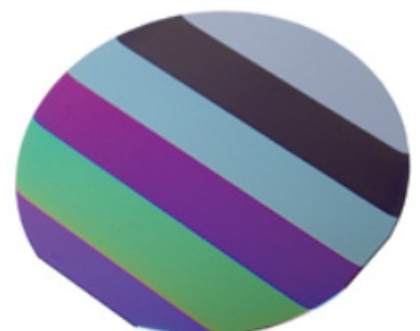
To carry out a thin film thickness measurement, the NanoCalc software uses a reference and a layer structure. In order to check or modify references and layer structures, the NanoCalc software interface must be used.

Complements

REFERENCE STEP WAFER

RE05 | Reference 5 steps (100mm)

It consists of a 4inch Si-wafer with 6 silicon dioxide (SiO₂) steps between 0nm (native Oxide) and 500nm. Each thickness step has a laser marked area for which accurate ellipsometric thickness data are supplied on the corresponding calibration sheet.





SENSOFAR is a leading-edge technology company that has the highest quality standards within the field of surface metrology.

Sensofar Metrology provides high-accuracy optical profilers based on interferometry and confocal techniques, from standard setups for R&D and quality inspection laboratories to complete non-contact metrology solutions for online production processes. Sensofar Metrology offers technology that enables our customers to achieve real breakthroughs, particularly in the semiconductor, precision optics, data storage, display devices, thick and thin film and material testing technology fields.

The Sensofar Group headquarters is located in Barcelona, the technological heart of Spain. The Group is represented in over 20 countries through a global network partners and its own offices in Asia, Japan and the United States.

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