

Optical Film Thickness Mapper

SM230

Features:

- Maximum spectral range: 200nm – 1000nm, 400nm – 1000nm or 900nm – 1700nm;
- Non-contact, non-destructive measurement system;
- Long-life light source with high luminous efficiency;
- High-resolution, high-sensitivity spectrometer for more accurate and reliable results;
- Intuitive software interface for easy and efficient operation;
- Fast mapping, supports multi-point mapping and site map plotting;
- Supports 2D/3D thickness distribution mapping;
- High-precision, long-life 3-axis rotation stage;
- Historical data storage for more convenient and faster data processing;
- Desktop design for versatile usage scenarios;
- Low maintenance cost, easy to maintain;

Applications:

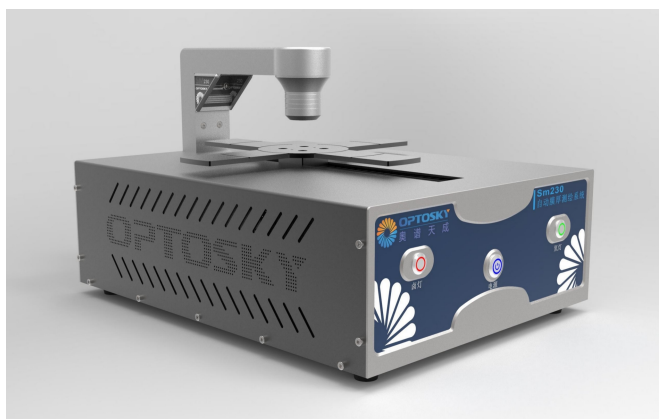
- Semiconductor coating: photoresist, oxide, nitride, silicon - on- insulator, wafer backside grinding;
- LCD: cell gap, polyimide, ITO transparent conductive film;
- Optical coating: hard coat, anti-reflective layer;
- Microelectromechanical systems: photoresist, silicon-based films, printed circuit boards;
- Biomedical: medical devices, Parylene

Description:

SM230 is an automatic film thickness mapper developed based on the principle of interference of light reflected from thin films. It uses light with a maximum wavelength range of 200–1700 nm incident perpendicularly onto the film surface. As long as the film has a certain degree of transmission, the SM230 can calculate the film thickness and other optical constants such as reflectivity, refractive index, and extinction coefficient by fitting the interference spectrum of the reflected light. Its maximum measurable thickness range can reach 5 nm – 250 μ m.

SM230 automatic optical film thickness mapper consists of a mapping host, a mapping stage, a Y-shaped fiber, and host computer software. Its core components include a high-resolution, high-sensitivity spectrometer and a high-precision rotation stage. Combined with Optosky's unique algorithm technology, it provides users with a new generation of leading automatic optical film thickness mappers.

Model	Features
SM230-UV	Spectral range: 200-1000 nm deuterium-halogen lamp
SM230	Spectral range: 400-1000 nm deuterium-halogen lamp
SM230-NIR	Spectral range: 900-1700 nm tungsten-halogen lamp



1 Model

Mdoel	Features
SM230-UV	Capable of measuring thin film samples with thickness from 1 nm to 30 μm
SM230	Capable of measuring medium thickness film samples from 20 nm to 60 μm
SM230-NIR	Capable of measuring thick film samples from 100 nm to 2500 μm
Notes	1. Depends on material; 2. The larger value applies, and depends on material; 3. Optional up to 1 mm – 5 mm;

2 Parameters

Parameters	SM230-UV	SM230	SM230-NIR
Optical Parameters			
Spectral range	200-1000 nm	400-1000 nm	900-1700 nm
Light source	Deuterium-halogen lamp		Tungsten halogen lamp
Thickness measurement range	5 nm – 10 μm	20 nm- 60 μm	100 nm – 250 μm
Accuracy	±2 nm or 0.2 %		±3 nm or 0.4 %
Incident angle	90°		
Number of film layers	1–3 layers		
Sample material	Transparent or semi-transparent films		
Measurement mode	Single-point / Multi-point / Automatic		
Spot size	2 mm²		
Sample size	Diameter from 1 mm to 30 mm, or larger		
Electrical Parameters			
Operating system	Windows 10/11		
Indicators	Deuterium lamp indicator, halogen lamp indicator	Halogen lamp indicator	
Buttons	Power button, deuterium lamp, halogen lamp	Power button, halogen lamp switch	
External infertaces	Power socket, USB 2.0, fiber input, fiber output		
Scanning stage	Rotation + X-axis movement		
Travel range	150 mm × 360°		
Material	Aluminum alloy		
Power supply	AC 100–240 V, 50–60 Hz		
Storage temperature	–20 °C to +65 °C		
Operating temperature	0 °C to 45 °C		
Operating humidity	< 90 % RH		
Physical Parameters			
Size	520×450×320 mm		
Weight	26.6kg		

3 Accessories

Standard Accessories	
1	Standard film thickness sample
2	Power cord
3	Communication cable
4	USB drive (software and related drivers) and dongle

4 Images

