

Automated High-speed Spectroscopic Ellipsometer [UNECS-3000A]

UNECS-3000A is high-speed spectroscopic ellipsometer which can measure thickness and optical parameters of thin films by snap shot measurement method and automated mapping function. Users can use it very easily to get highly accurate measurement results. It can be used for various applications such as R&D purposes and manufacturing lines etc.

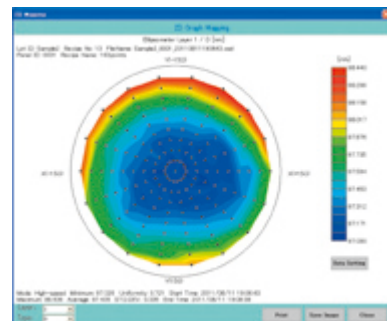


Features

- ▶ **Automated Mapping Function**
Measure and provide the film thickness and optical parameter distribution of a $\phi 300\text{mm}$ substrate automatically with programmable R- θ stage. Moreover, the result of a measurement can be displayed in the color map.
- ▶ **High-speed Measurement**
The snapshot measurement method is realized by the spectroscopic ellipsometry with the high-order retarders, It makes the high-speed measurement of 20ms possible.
- ▶ **Excellent Cost-performance**
Other than the main measurement unit with a $\phi 300\text{mm}$ automated mapping and auto height adjustment functions, a laptop PC with data analysis software is configured as a default. Users can enjoy the excellent cost performance.
- ▶ **Customized Material Tables**
Users can easily to edit and add material table files by themselves.

▶ Multilayer Measurement

It's possible to measure the multilayer film thickness up to 6 layers.



Color map image (Film thickness)

Applications

- ▶ Measured transparent or semitransparent thin films thickness and optical parameter on the substrates equal to or less than $\phi 300\text{mm}$ (Oxide film, nitride film, photo resist film, ITO etc.)

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Specifications

Model	UNECS-3000A	
Measurement method	Spectroscopic ellipsometry	
Film for measurement *1	Transparent film and semitransparent film	
Light source	Halogen lamp	
Light source power	100W	
Spot size	φ1mm (On substrate: 1mm × 3mm)	
Wavelength	530nm to 750nm	
Multilayer film measurement	Film thickness: Max 6 layers Film thickness and optical parameter: 1 layer (Only the top layer)	
Angle of incidence	70° fix	
Film thickness repeatability *2 *3 *4	0.1nm	
Film thickness measurement range *3	1nm to 2μm	
Sampling time *3	20ms to 3000ms (setting is possible)	
Analysis time *2	300ms	
Material data file *5	Si, SiO ₂ , Si ₃ N ₄ , a-Si, BK7, Ta, Cu, Au, Ni, W, etc.	
Sample stage size	φ310mm	
Maximum sample size	φ300mm	
Maximum sample thickness	30mm	
Maximum sample weight	10kg	
Multi site measurement	Max 200 site	
Stage	R	0 to 150mm Programmable Resorution: 0.1mm
	θ	0 to 359.9° Programmable Resorution: 0.1°
	Z	0 to 30mm Auto adjustment
Software function	① Ψ (λ), Δ (λ) measurement ② Setting material data files ③ Calculation of film thickness (D), refractive index (N), extinction coefficient (K)	
Interface	USB (Btype) × 2	
Control PC	Laptop PC	
PC Specifications	OS	Windows 7 (Japanese or English Version)
	CPU	Core™2 Duo Processor or better
	Memory	1GB or more
	HDD	160GB or more
	Drive	DVD Super multi drive
Dimensions W×D×H	Main unit: 450mm×620mm×370mm	
	Controll unit: 204mm×500mm×509mm	
Weight	Main unit: 31kg	
	Controll unit: 19kg	
Power	AC100V/200V Max 3A, 50/60Hz	
Operation enviroment	Ambient temperature	25±5°C
	Humidity	65%RH or less (Non condensing)

*1 The semitransparent film is the upper bound in the measurement film thickness.

*2 When only the film thickness value is assumed to be a fitting parameter, and the SiO₂ film (about 100 nm) on the Si substrate is measured.

*3 When SiO₂ single-layer film on Si wafer is measured.

*4 Standard deviation (1σ) when measuring it continuously ten times.

*5 Material data files can be added by the user.

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▶ This catalog is subject to change without notice to reflect performance improvements, etc.