

UVISEL VIP - Film Thickness Measurement with High Spatial Resolution for Patterned and Multilayer Materials

An Integrated Spectroscopic Ellipsometer and Reflectometer for Accurate Thin Film Metrology



- Measures film thickness, optical constants and reflectivity of thin films and multilayer stacks ranging from a few angstroms to tens of microns
- 10 μm light spot for the characterization of patterned samples found on semiconductor wafers, display materials, and biosensors
- Covers a large spectral range from 190 to 2100 nm with a complete application database for advanced research engineering
- Features advanced automation and fast uniformity mapping capabilities for use in production and pilot plant
- Fully integrated software package

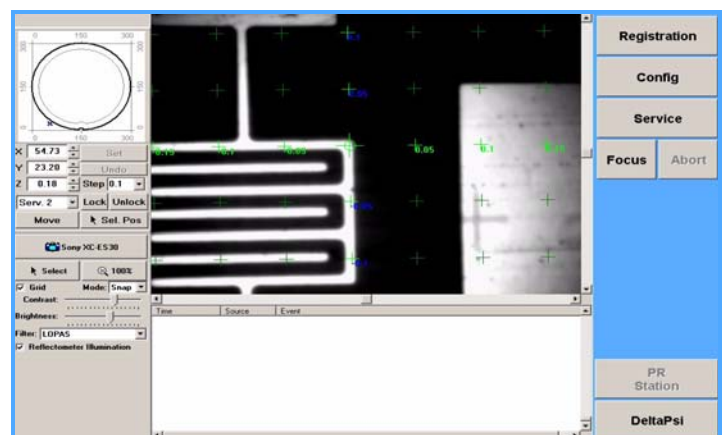
«The combination of ellipsometry with reflectometry, both driven from the same software package makes the UVISEL VIP a complete thin film metrology solution for demanding production, pilot plant and research applications.»

DeltaPsi2 - Fully Integrated Software Package

The integrated DeltaPsi2 software platform controls the UVISEL VIP and provides a simple interface for simultaneous access to key system functions.

Routine tasks are performed using recipe procedures that automate data acquisition, analysis and mapping including statistics. Recipes integrate robust pattern recognition for identifying and measuring patterned features on samples.

Additional features include a powerful suite of tools for data manipulation, report generation and data import/export.



Integrated pattern recognition software

Extensive Application Capabilities

Display Devices

TFT-LCD, PDP, OLED technologies, flexible electronics devices

Semiconductor

Dielectrics, high k, low k, silicon, metals, photoresist, compound alloys, nanostructures

Optical coatings

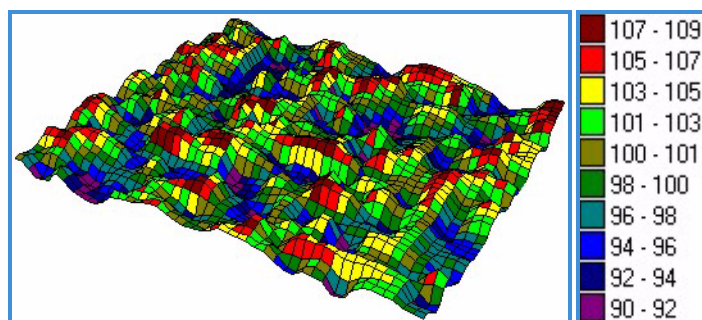
Photovoltaic cells, wave guides, surface treatment and modification, ARC, mirrors

Biological and chemical engineering

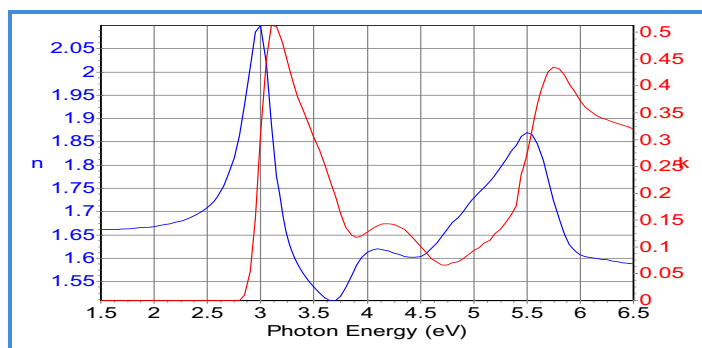
Biodevices, adsorption kinetics, liquid ambient and interfaces, surface functionalization, proteins, self-assembled monolayers, polymers

Telecommunications

Data storage, IR materials, non linear optical devices



Film thickness uniformity mapping of a panel display (150 x 200 mm)



Complex optical constants of a polymer material

UVISEL VIP - Technical Specifications

Standard Configuration	Spectroscopic Ellipsometer	Spectroscopic Reflectometer VIS	Spectroscopic Reflectometer DUV
Light source	Xenon	Internal halogen	External deuterium/halogen
Spectral range (nm)	240 - 830	450 - 850	220 - 800
Spot size	0.05 - 0.1 - 1 mm	10 μ m	20 μ m
Sample stage	150 mm, manual height (20 mm), tilt and theta adjustment		
Options			
Spectral range (nm)	190 - 830; 260 - 2100; 190 - 2100	/	190 - 800
Microspot	Automatic switch: 0.06 - 0.12 - 0.25 - 1.2 mm	5 μ m	/
Automated sample stage	200 or 300 mm - others sizes upon request		
Automatic goniometer	Automatically adjustable angle from 40 to 90° in steps of 0.01°		
Pattern recognition	Cognex® software, autofocus upon request		
System Performance			
Measurement time	From 3 to 6 min	< 1 s	4 s
Thickness range	1Å - 50 μ m	20 nm - 20 μ m	1Å - 10 μ m
Accuracy*	\pm 0.25 Å	\pm 1 nm	\pm 0.5 nm

* NIST 100nm SiO₂/c-Si

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