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MProbe UVVisSR

Thin Film Measurement System

It is easy to be an expert with MProbe

Majority of translucent or lightly absorbing films can be measured quickly and reliably:Oxides,Nitrides, Photoresists, Polymers, Semiconductors (Si, aSi, polySi), Hard coatings (SiC, DLC), Polymer coatings (Paralene, PMMA, Polyamides), thin metal films and many more.

Thickness Range: 1 nm - 50 μm
Wavelength Range: 200nm -1000 nm

LCD, FPD application: ITO, Cell Gaps, Polyamides. Optical Coatings: dielectric filters, hardness coating, anti-reflection coating Semiconductor and dielectics: Oxides, Nitrides, OLED stack

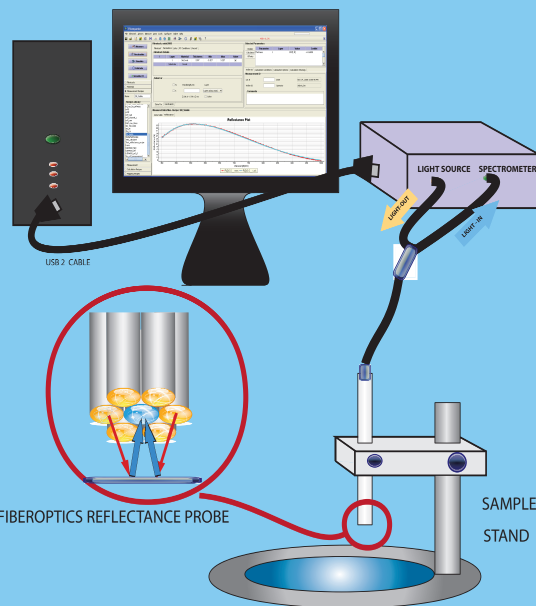
Real time measurement and analysis. Multi-layer, thin,thick, freestanding and nonuniform layers.

Extensive materials library (500+ materials) - new materials easily added. Support of parameterized materials: Cauchy, Tauc-Lorentz, Cody-Lorentz, EMA and many more....

Flexible: Desktop or in-situ, R&D on inline. Easy integration with external system using TCP Modbus interface

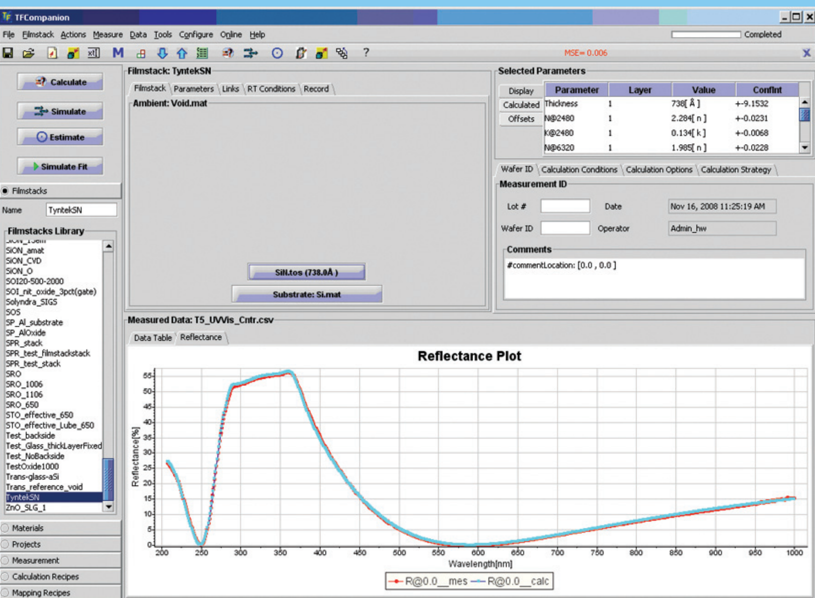
Measurement: thickness, optical constants, surface roughness

User friedly and powerful: One-click measurement and analysis. Powerful tools: simulation & sensitivity, background and scaling correction,linked layers and materials, multisample measurements, dynamic measurement and production batch processing.

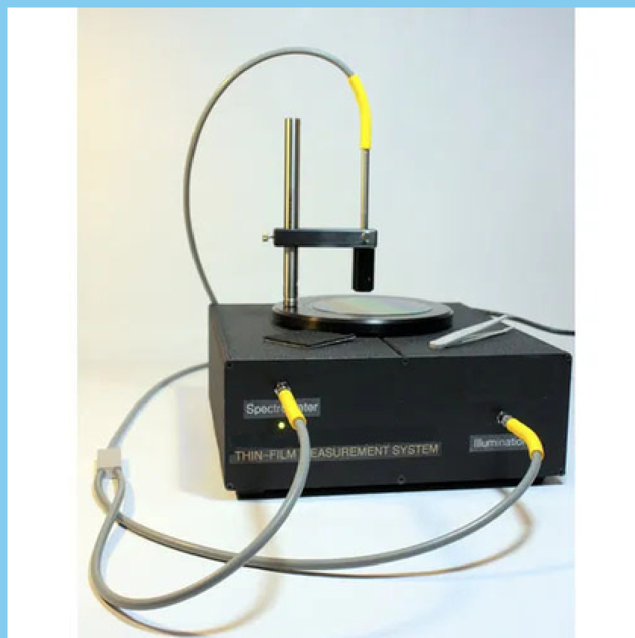


MProbe system diagram

Precision	<0.01nm or 0.01%
Accuracy	<0.2% or 1 nm
Stability	<0.02nm or 0.03%
Spot Size	3 mm standard, down to 3 μm
Sample Size	from 1 mm



Measurement of 73nm SiN film (Thickness, n&k)
Measure vs. model data



MProbe UVVis system (desktop configuration)

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MProbe2 UVVisSR

Thin Film Measurement System

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Thickness Range: 5 nm - 40 μm
Wavelength Range: 190nm -1100 nm

LCD, FPD application: ITO, Cell Gaps, Polyamides. Optical Coatings: dielectric filters, hardness coating, anti-reflection coating Semiconductor and dielectics: Oxides, Nitrides, OLED stack

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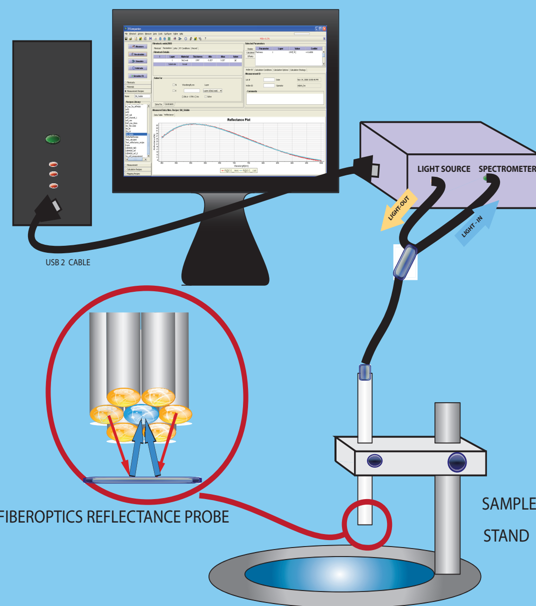
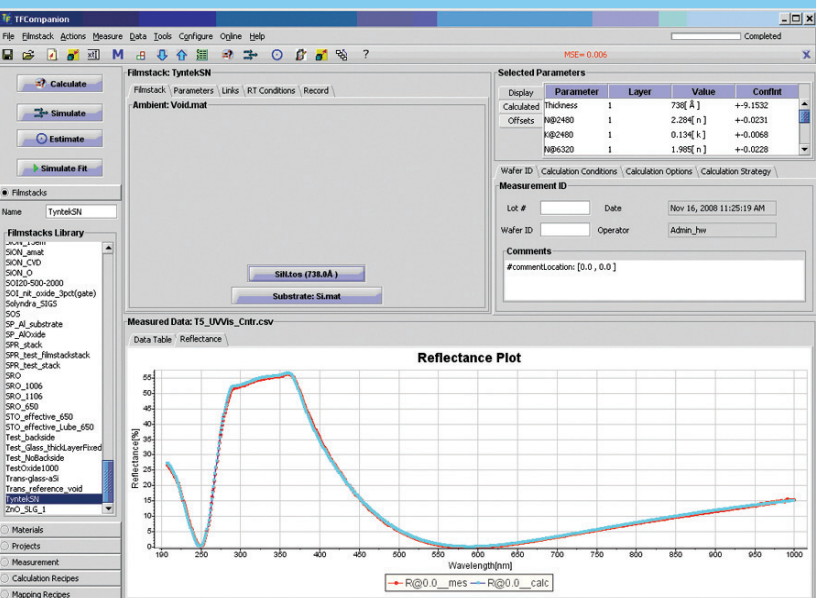
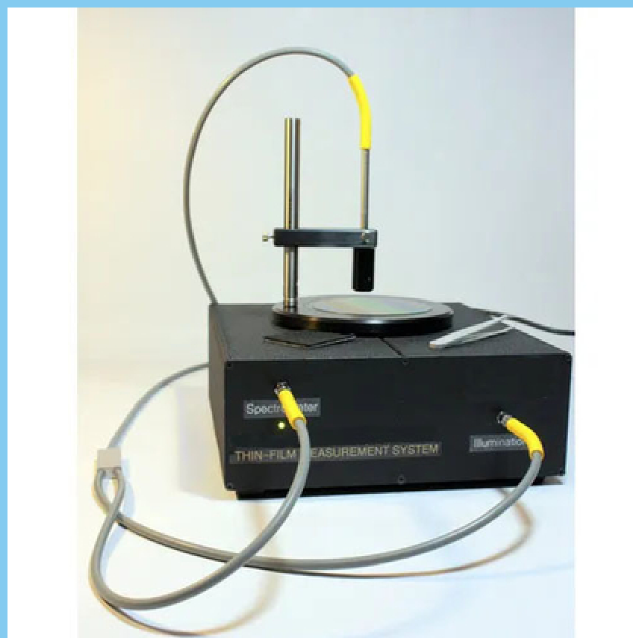


MProbe system diagram

Precision	< 1 Å
Accuracy	≤ 0.5 %
Stability	<0.02nm or 0.03%
Spot Size	≤ 6.5 mm
Sample Size	from 1 mm

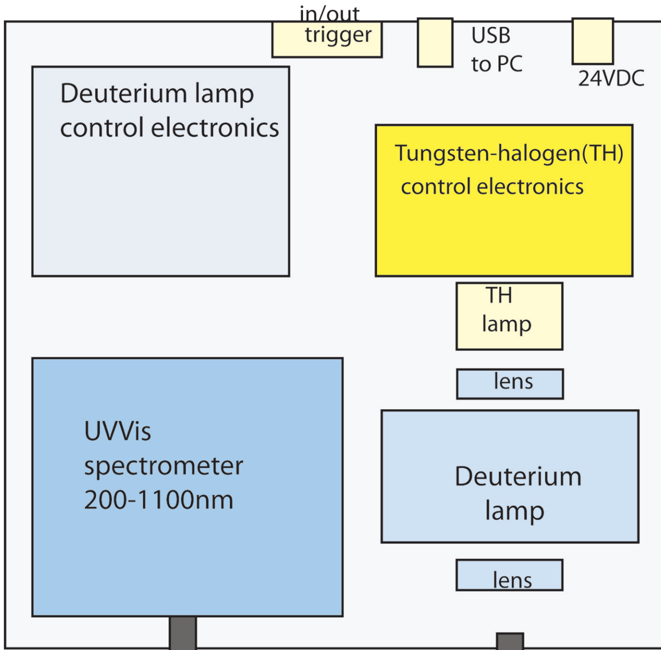


Measurement of 73nm SiN film (Thickness, n&k)
Measure vs. model data



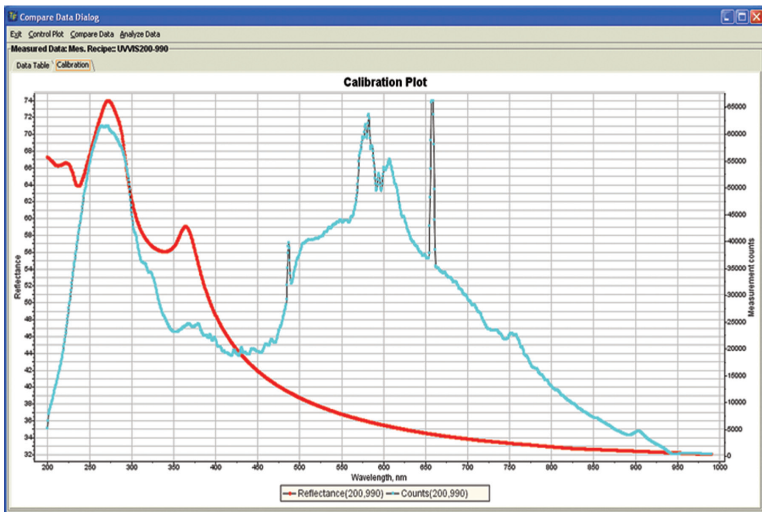
MProbe UVVis system (desktop configuration)

Specification details



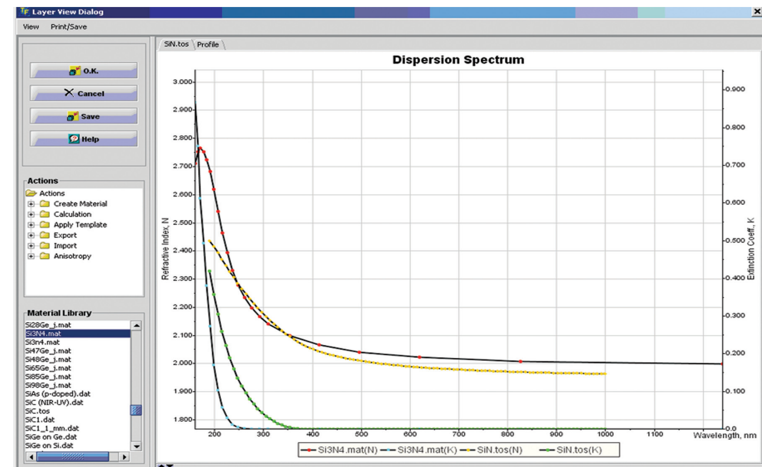
Inside the box

Spectral range (nm)	190-1100
Spectrometer/detector	F4 spectrometer, 3600 pixels Si CCD, 16 bit ADC, 190-1100 nm range
Spectral resolution	<1 nm
Light source	20W Tungsten-halogen lamp,4000hrs 30W Deuterium lamp 4000 hrs - Adjustable
Reflectance probe	Fiberoptics (7 fibers assembly), 400μm fiber core solarization resistant.
Precision	<1 Å
Accuracy	≤ 0.5 %
Weight (main unit)	4 kg
Size (main unit)	8”x 10” x 4” (WxDxH)
Power	100-250VAC, 50/60 Hz 20W



Calibration plot: Si reflectance(red) vs. Intensity(blue). Max intensity: 16 bit. Integration time: 20ms

Options	
-FLUVNIR	UVNIR achromatic triplet lens (CaF2/Quartz). WD:25mm. Spot size: <80μm.
-F2LUV	Quartz focusing lens.WD: 35mm Spot size: <6.5mm (tandard), Optical down to ≤ 500 µm
-FDHolder	Face-down sample holder.For measurement of transparent and flexible samples
-TO	Transmittance option
-TO Switch	2 channel switch, allows to combine reflectance and transmittance measurement.
- TR	In/Out trigger 5V TTL. 1 External (in) trigger to start measurement, 6 out triggers
- MOD	remote control (TCP) based on Modbus protocol
- CM	continuos measurement with specified number of measurement and/or delay between them



Measured n,k dispersion of SiN vs. library data. n,k dispersion represented using Tauc-Lorentz model

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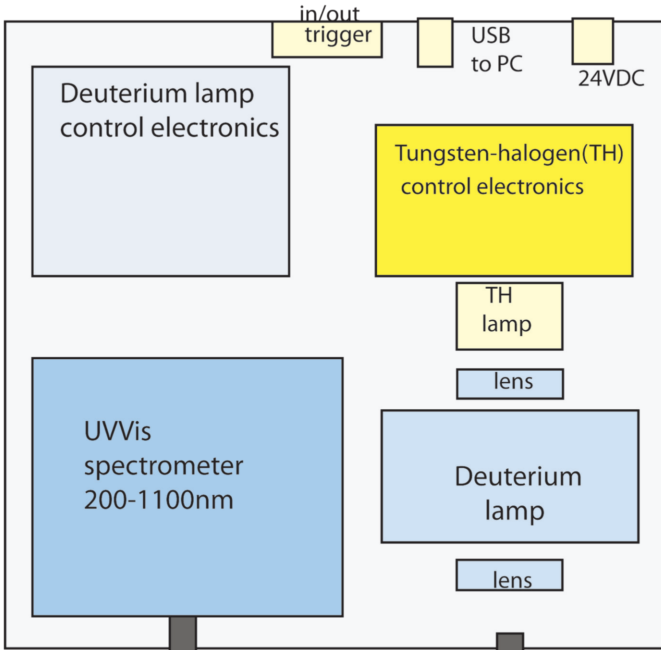
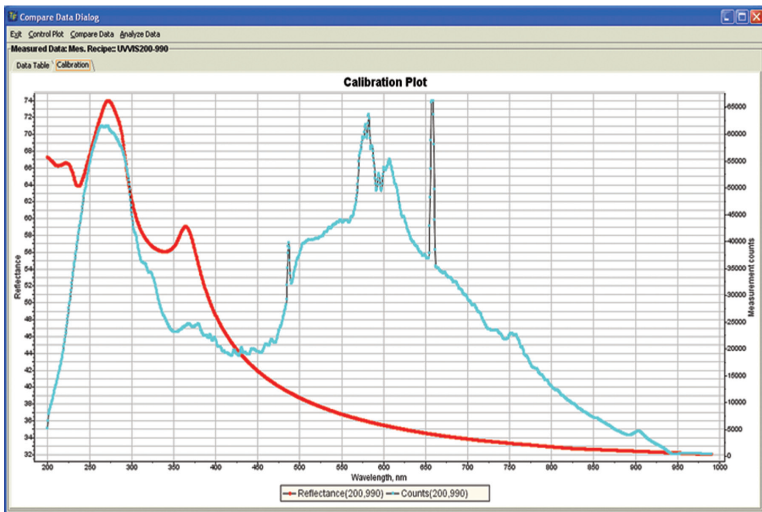
Note : Detection system & software impotred and Sample assembly indigenous

Specification details



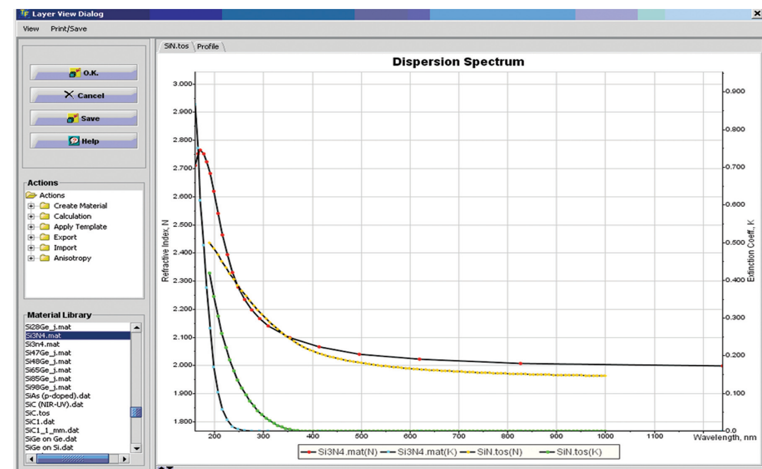
Inside the box

Spectral range (nm)	200-1100
Spectrometer/detector	F4 spectrometer, 3600 pixels Si CCD, 16 bit ADC, 200-1000 nm range
Spectral resolution	<2 nm (standard) <1 nm (option)
Light source	20W Tungsten-halogen lamp,2000hrs 30W Deuterium lamp 2000 hrs
Reflectance probe	Fiberoptics (7 fibers assembly), 400μm fiber core solarization resistant.
Precision	<0.01 nm or 0.01%
Accuracy	<1nm or 0.2%
Weight (main unit)	4 kg
Size (main unit)	8”x 10” x 4” (WxDxH)
Power	100-250VAC, 50/60 Hz 20W



Calibration plot: Si reflectance(red) vs. Intensity(blue). Max intensity: 16 bit. Integration time: 20ms

Options	
-FLUVNIR	UVNIR achromatic triplet lens (CaF2/Quartz). WD:25mm. Spot size: <80μm.
-FLUV	Quartz focusing lens. WD: 35mm Spot size: <0.5mm
-FDHolder	Face-down sample holder.For measurement of transparent and flexible samples
-TO	Transmittance option
-TO Switch	2 channel switch, allows to combine reflectance and transmittance measurement.
-HR	upgrade spectrometer for <1nm resolution
- TR	In/Out trigger 5V TTL. 1 External (in) trigger to start measurement, 6 out triggers
- MOD	remote control (TCP) based on Modbus protocol
- CM	continuos measurement with specified number of measurement and/or delay between them



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