# 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 - 75 $\mu$m**
**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

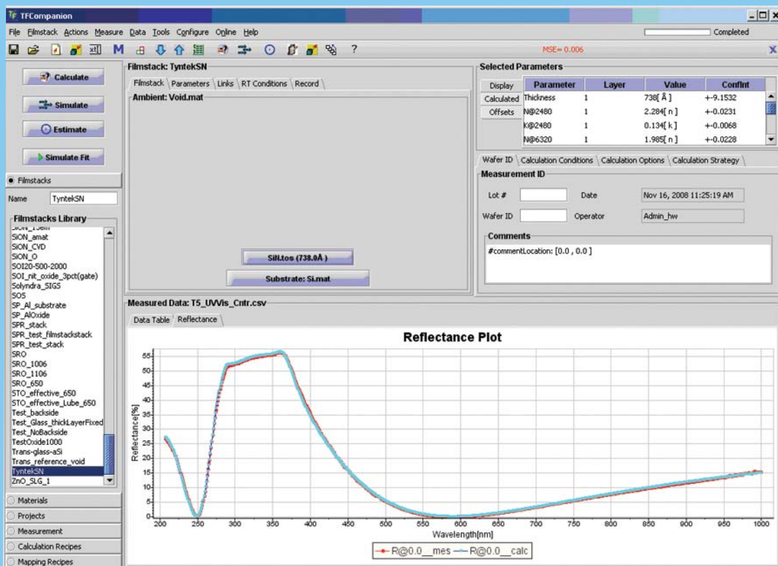
Real time measurement and analysis. Multi-layer, thin,thick, freestanding and nonuniform layers.

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

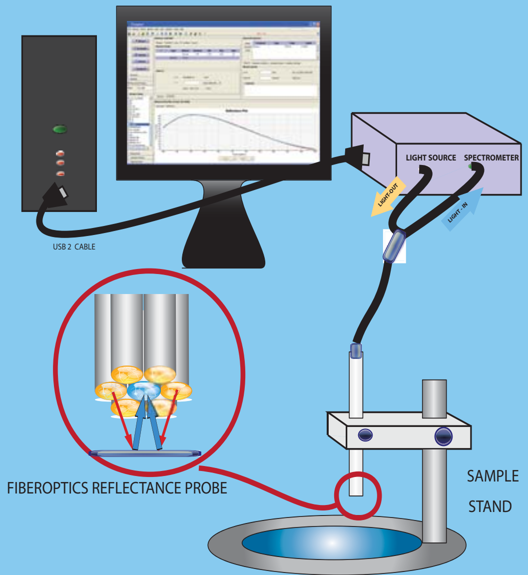
Flexible: Desktop or in-situ, R&D on inline. Easy integration with external system using TCP Modbus interface

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.




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

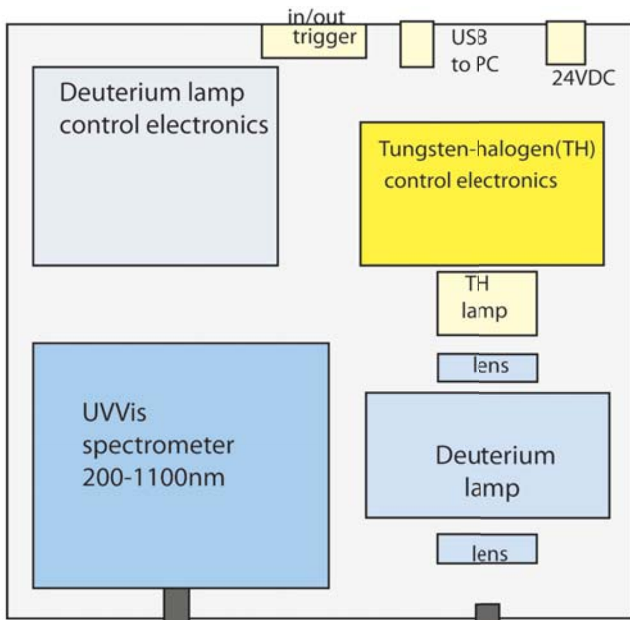



MProbe system diagram

| Precision | <0.01nm or 0.01% |
|---|---|
| Accuracy | <0.2% or 1 nm |
| Stability | <0.02nm or 0.03% |
| Spot Size | 2 mm standard, down to 3 $\mu$m (MSP) |
| Sample Size | from 1 mm |

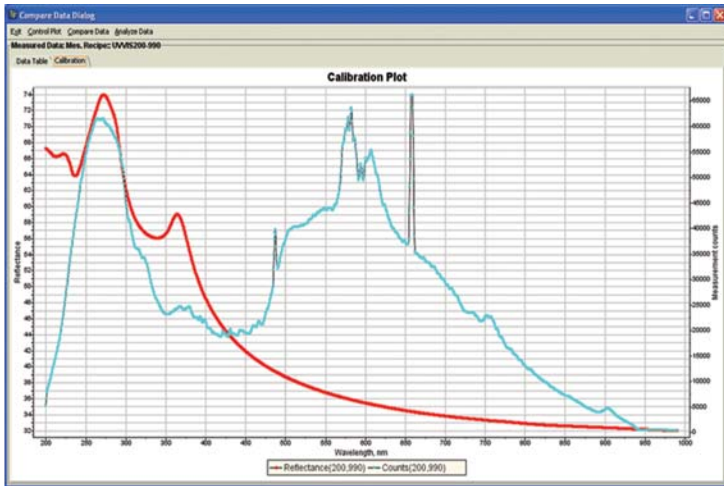
MProbe UVVis system (desktop configuration)

# Specification details



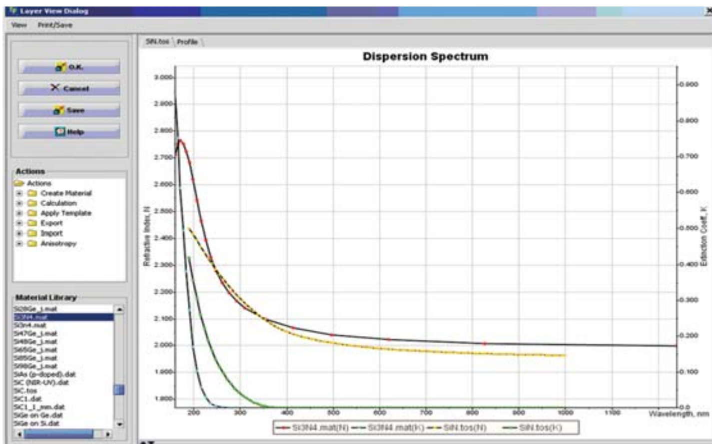

Inside the box

| Spectral range (nm) | 200-1100 |
|---|---|
| Spectrometer/detector | F4 spectrometer, 2048 pixels Si CCD, 16 bit ADC, 200-1100 nm range |
| Spectral resolution | <2 nm |
| Light source | 20W Tungsten-halogen lamp,2000hrs<br>30W Deuterium lamp 2000 hrs |
| Reflectance probe | Fiberoptics (7 fibers assembly), 400$\mu$m 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: <80$\mu$m. |
| -FLUV | Quartz focusing lens. WD: 35mm<br>Spot size: <0.5mm |
| -FDHolder | Face-down sample holder.For measurement of transparent and flexible samples |
| -TO | Transmittance option |
| - 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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