

# MProbe In-situ Thin film measurement

*It is easy to be an expert with MProbe*

Any translucent films can be measured quickly and reliably: Optical coatings, Oxides, Nitrides, Photoresists, Polymers, Semiconductors (Si, aSi, polySi), Compound Semiconductors (AlGaAs, InGaAs, CdTe, CIGS), Hard coatings (SiC, DLC), metal oxides, thin metal films and many more.

**Thickness Range: 1 nm - 500 μm**

**Wavelength Range: 200nm - 1700nm**

**Flexible integration:** inside or outside the deposition chamber.

Outside: Optical heads are placed outside the windows and light is focused on the sample. Optical system is customized to fit the chamber design.

Inside: Reflectance probe is welded with vacuum flange (feedthru) and placed above the sample.

**Real time measurement** and analysis. No moving parts, parallel (CCD or PDA) data acquisition, fast measurement and trend-chart data display.

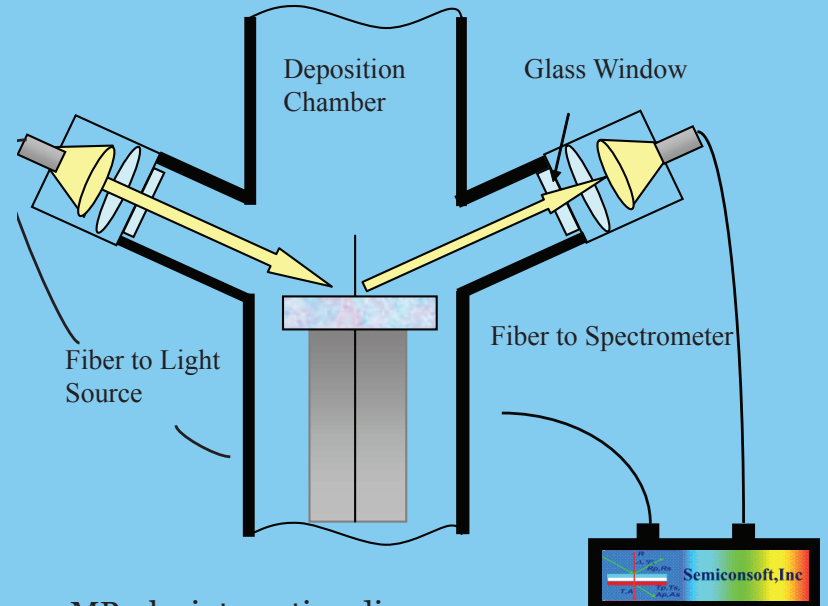
**Extensive materials library** (500+ materials) - new materials easily added. Support of parameterized materials: Cauchy, Tauc-Lorentz, Cody-Lorentz, EMA and many more....

**Control software integration:** Easy integration with external system using TCP or Modbus interface. Hardware triggers (5V TTL) or RS232 command (start/stop)

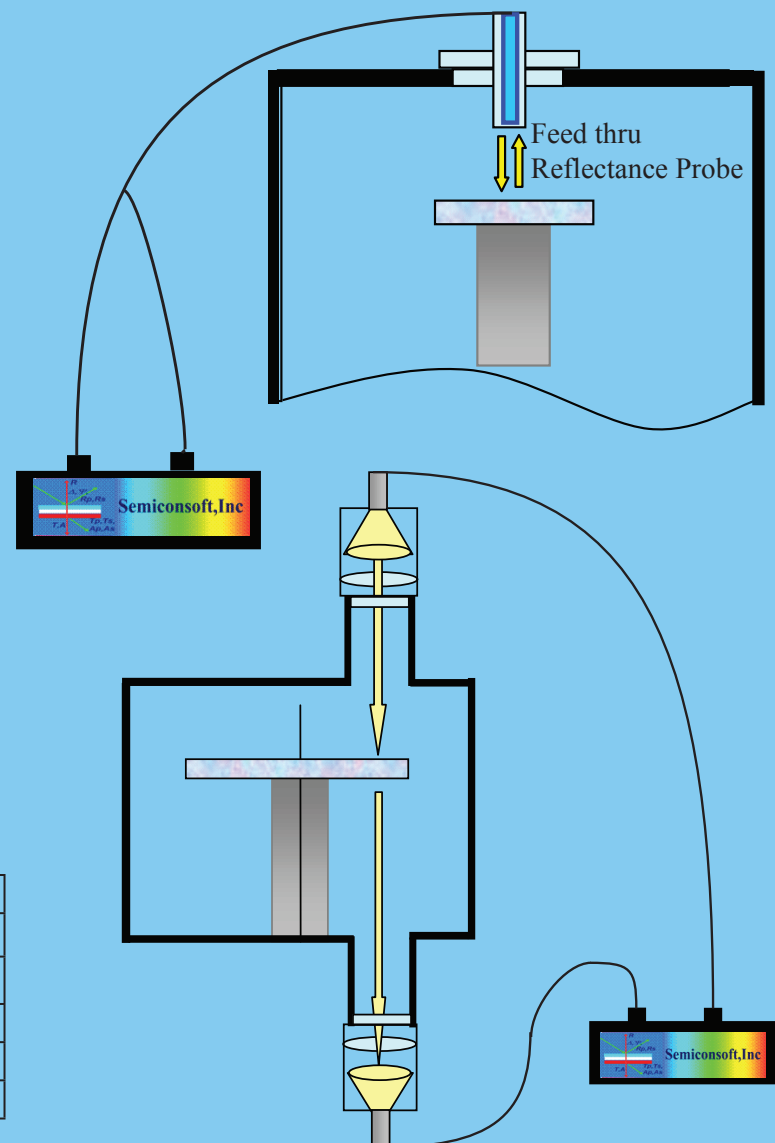
**Measured parameters:** thickness, optical constants, surface roughness. Additional: Color coordinates (CIE), bandgap, free carriers/conductivity

**User friendly and powerful:** Easy measurement and analysis set-up. Background and scaling correction, linked layers and materials. Offline data analysis: simulation & sensitivity analysis, multi-sample measurements, production batch processing.

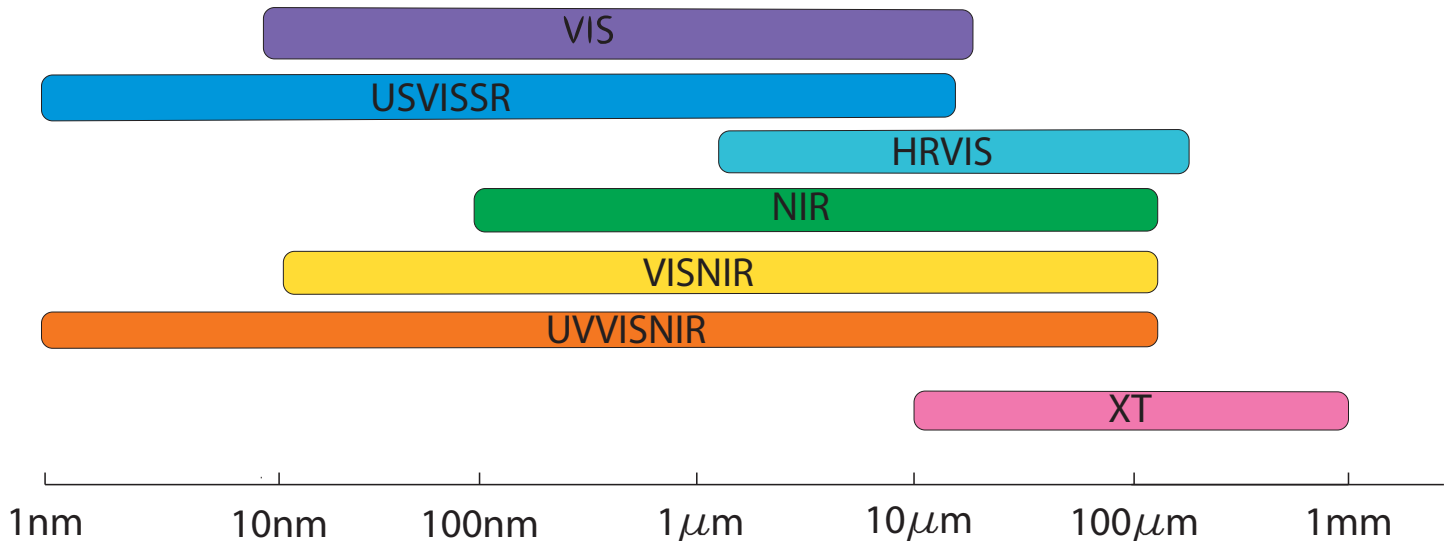
Precision	0.01nm or 0.01%
Accuracy	0.2% or 1 nm
Stability	0.02nm or 0.03%
Spot Size	3 mm typical (depends on configuration)
Sample Size	from 4 mm
Measurement	< 1 s (20ms to 200ms typical)



MProbe integration diagrams (typical configurations)



# In-Situ System models



Model	Wavelength range	Spectrometer/Detector/Light source	Thickness range*
<b>VIS</b>	400-1100 nm	Spectrometer F4/Si 3600 pixels/ Tungsten - Halogen light source	15 nm to 20 $\mu\text{m}$ (option: up to 50 $\mu\text{m}$ )
<b>UVVisSR</b>	200-1100 nm	Spectrometer F4/ Si CCD 3600 pixels/ Deuterium & Tungsten-Hal- ogen light source	1 nm to 20 $\mu\text{m}$ (option: up to 50 $\mu\text{m}$ )
<b>HRVIS</b>	700-1000 nm	HR Spectrometer F4/Si 3600 pix- els/ Tungsten - Halogen light source	1 $\mu\text{m}$ to 400 $\mu\text{m}$
<b>NIR</b>	900-1700nm	Transmission Spectrometer (TVG) F2/512 InGaAs/Tungsten-Halogen light source	100 nm-200 $\mu\text{m}$
<b>VISNIR</b>	400-1700 nm	Spectrometer F4 Si CCD 3600 pixels(Vis channel);Transmission Spectrometer (TVG)F2/512 InGaAs PDA( NIR channel) Tungsten-Halogen light source	15 nm to 200 $\mu\text{m}$
<b>UVVIS- NIR</b>	200 -1700 nm	Spectrometer F4 Si CCD 3600 pixels(Vis channel);Transmission (TVG) F2/512 InGaA ( NIR channel) Deuterium & Tungsten-Halogen light source	1 nm -200 $\mu\text{m}$
<b>XT</b>	1590nm -1650nm	Transmission Spectrometer (TVG) F2/512 InGaAs/Tungsten-Halogen light source	10 $\mu\text{m}$ - 1 mm

\* T, n & k measurement in 40nm - 5 $\mu\text{m}$  thickness range  
Other configuration are available. OEM inquiries and custom development projects are welcome.  
One year limited warranty on labor and materials for all system.