

## Thin Film measurements

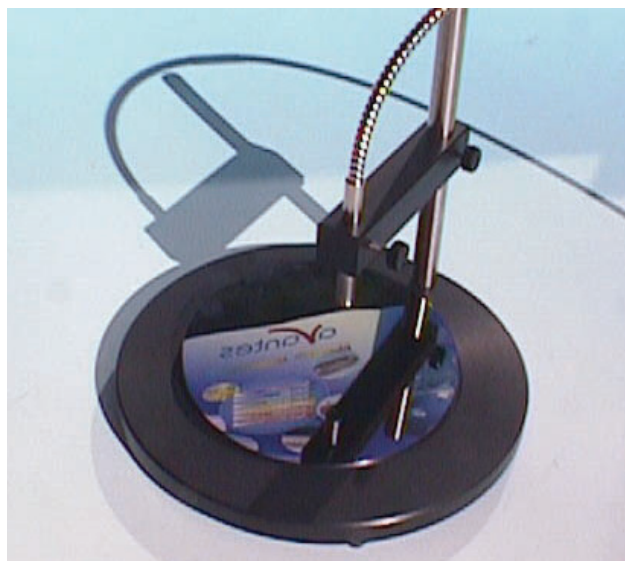
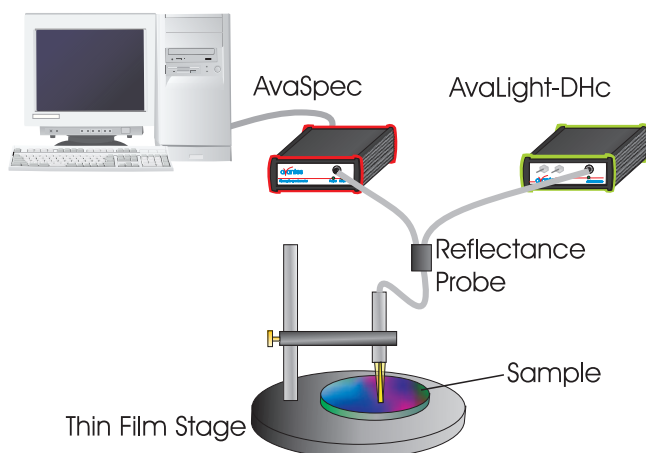
The Thin Film measurement system is based on white light interference measurement to determine optical thickness. This white light interference pattern is translated through mathematical functions into optical thickness calculation. For single layer systems the physical thickness can then be calculated when the n and k values of the materials are known.

The AvaSoft-ThinFilm software has an extensive built-in database of n and k values for most common used materials and coatings.

The AvaSpec Thin Film system can measure layers of 10 nm - 50µm, with a resolution of 1 nm.

Thin Film measurement is frequently used in the wafer industry, where plasma etching and deposition processes need to be monitored. Other applications are in fields where optical transparent coatings on metals and glass substrates need to be measured.

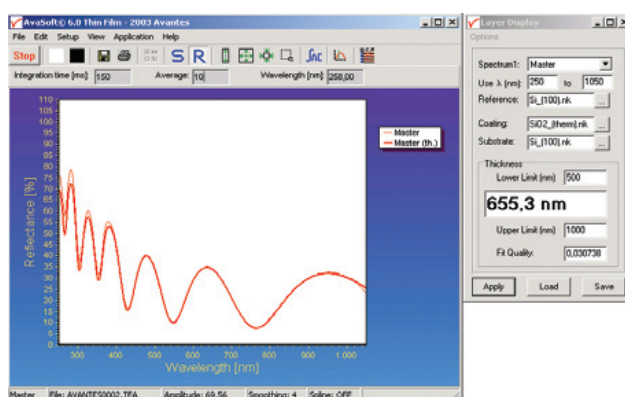
The AvaSoft-Thin film application software enables on-line monitoring of layer thickness and has the possibility to be



combined with other AvaSoft applications, such as XLS export to Excel and Process control.

The Thinfilm-standard with 2 calibrated different thickness layers of SiO<sub>2</sub> and a reference layer is available to test the feasibility of the instrument.

A typical setup for Thin Film measurements is depicted on the left.



Components used in the Thin Film measurement setup are depicted in the following table:

<b>Spectrometer</b>	AvaSpec- 2048 Grating UA (200-1100nm), DCL-UV/VIS, 100 µm slit, DUV coating, OSC-UA
<b>Layer thickness</b>	10 nm- 50 µm, 1nm resolution
<b>Software</b>	AvaSoft-Thinfilm
<b>Lightsource</b>	AvaLight-DHC Compact deuterium-halogen light source
<b>Fiber optics</b>	FCR-7UV200-2-ME reflection probe UV/VIS, 2m, SMA
<b>Accessories</b>	THINFILM-STAGE to hold reflection probe Thinfilm-standard Tile with 2 calibrated different thickness layers of SiO <sub>2</sub> and a reference layer