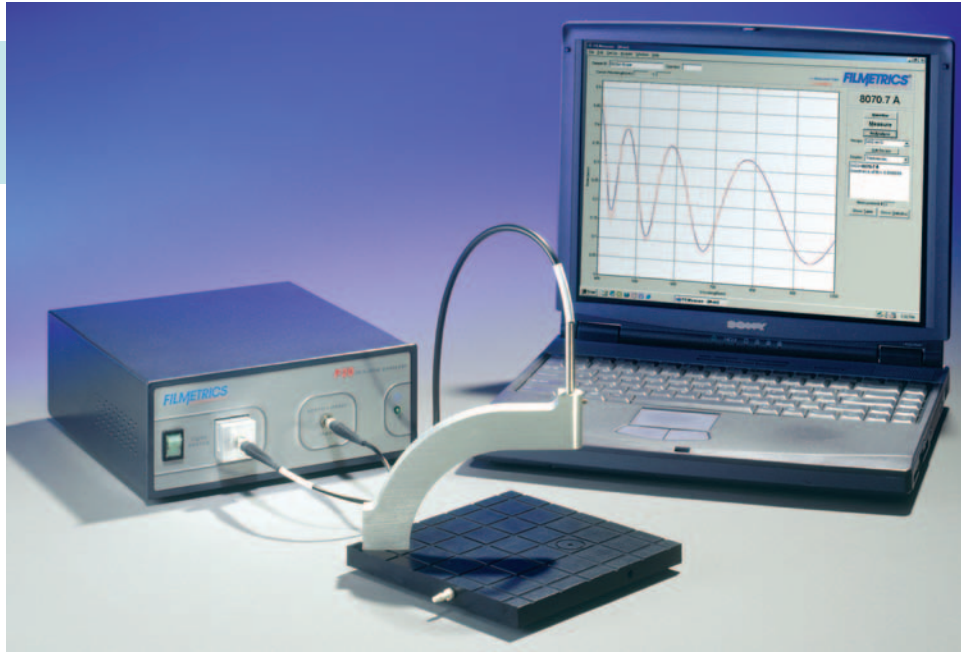


F20



An Advanced Thin-Film Measurement System at an Affordable Price

Thickness and optical constants (n and k)* are measured quickly and easily with the F20 advanced spectrometry system. Spectral analysis of reflectance from the top and bottom of the thin film provides thickness, refractive index, and extinction coefficient in seconds. The entire desktop system sets up in minutes and can be used by anyone with basic computer skills.

The F20 includes everything required for measurements: spectrometer, light source, fiber optic cable, sample stage, and Windows™ application software — just add your computer.

Example Layers

Virtually any smooth, translucent, or lightly absorbing film may be measured. This includes most dielectrics and semiconductors, for example:

SiO ₂	SiN _x	DLC
Photoresist	Polymer layers	Polyimide
Polysilicon	Amorphous Silicon	Silicon

Example Substrates

For thickness measurements, all that is required in most cases is a smooth, reflective substrate. For optical constant measurements, a flat specularly reflecting substrate is required; and if the substrate is transparent, the substrate backside must be prepared so that it is not reflective.

Examples include:

Silicon	Glass	Aluminum
GaAs	Steel	Polycarbonate
Polymer films		

*Measurement of optical constants (n and k) require purchase of additional software upgrade.



APPLICATIONS

SEMICONDUCTOR FABRICATION

- Photoresist
- Oxides
- Nitrides

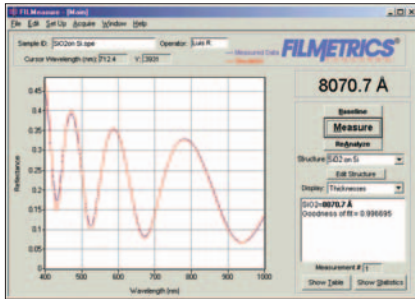
LIQUID CRYSTAL DISPLAYS

- Cell Gaps
- Polyimide
- ITO

OPTICAL COATINGS

- Hardness Coatings
- Anti-Reflection Coatings
- Filters

F20



The F20 analyzes spectral reflectance data with advanced simulation routines for user-friendly thin-film measurements.

Standard configurations and specifications:

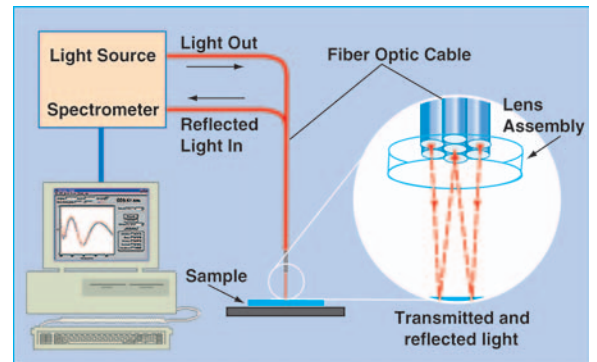
	F20-UV	F20	F20-NIR	F20-EXR
Thickness only *	30 Å to 20 µm	150 Å to 50 µm	1000 Å to 250 µm	150 Å to 250 µm
Thickness with n and k *	500 Å to 5 µm	1000 Å to 5 µm	3000 Å to 10 µm	1000 Å to 10 µm
Wavelength range	220-850 nm	400-1000 nm	950-1700 nm	400-1700 nm
Accuracy *	The greater of 0.4% or 10 Å			
Precision ¹	1 Å		2 Å	1 Å
Stability ²	0.7 Å		1.2 Å	0.7 Å
Spot Size	Adjustable 500 µm to 1 cm			
Sample Size	From 1 mm to 300 mm diameter and up			
Detector Type	512-element Si	512-element InGaAs	512-element Si & InGaAs arrays	
Light Source	Regulated Tungsten-Halogen			
Computer Requirements	5 MB hard disk space 2 MB free memory Available USB port			
Power Requirements	100-240 VAC, 50-60 Hz, 0.3-0.1 A			

Custom wavelength combinations available

* Typical values, layer stack dependent.

¹ Standard deviation of 100 thickness readings of 500 nm SiO₂ film on silicon substrate. Value is average of standard deviations measured over twenty successive days.

² Two sigma based on daily average of 100 reading of 500 nm SiO₂ film on silicon, measuring over twenty successive days.



Filmetrics, Inc.
 9335 Chesapeake Drive
 San Diego, CA 92123
 Tel: (858) 573-9300
 Fax: (858) 573-9400
 Email: info@filmetrics.com
 www.filmetrics.com

Filmetrics, Inc. was founded in 1995 with the goal of providing major advances in thin-film measurement technology. From our factory in San Diego, California we supply users worldwide through a network of International Resellers. Please contact us directly or visit our Web site (www.filmetrics.com) to locate your nearest supplier.