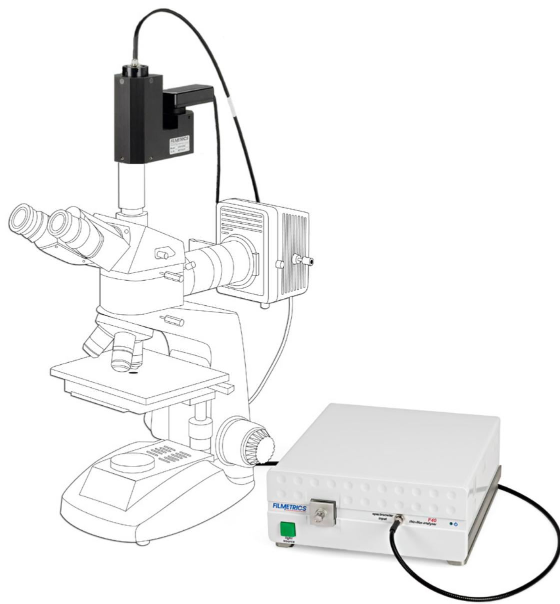
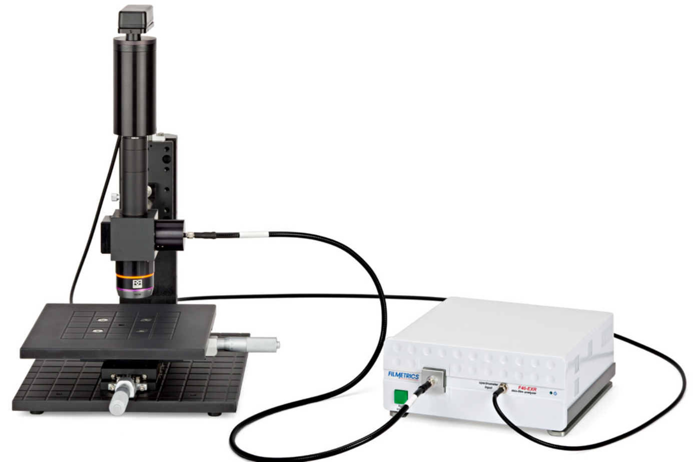
F40

Thin-Film Analyzer





F40-EXR on Filmetrics SS-Microscope-EXR-1

Turns Your Microscope into a Thin-Film Measurement Tool

Thickness and optical constants are measured quickly and easily with Filmetrics advanced spectrometry systems. Spectral analysis of reflectance from the top and bottom of the thin film provides results in seconds.

For measurements on patterned surfaces and other applications that require a spot size as small as 1 micron, just add the F40 to your microscope. Step-through calibration for each objective lens provides precise absolute reflectance across the spectrum, resulting in optimum thickness accuracy and enabling the measurement of the refractive index. For common microscopes, the F40 is a simple bolt-on attachment, complete with a C-mount and a CCD camera. Integrated video provides on an on-screen display of the sample as well as the measurement location.

The Filmetrics Advantage

- World's leader in tabletop thin-film measurement
- 24-hour phone, e-mail, and online support
- Intuitive analysis software standard with every system

Additional Features

- Built-in online diagnostics
- Standalone software included
- Sophisticated history function for saving, reproducing, and plotting results

Applications

SEMICONDUCTOR FABRICATION
- Photoresist
- Oxides/Nitrides
- Si and Other Semiconductor Films

MEMS
- Photoresist
- Silicon Membranes
- AlN/ZnO Thin Film Filters

BIOMEDICAL DEVICES
- Polymer/Parylene Layers
- Membrane/Balloon Wall Thickness
- Drug Coatings on Implants

LIQUID CRYSTAL DISPLAYS
- Cell Gaps
- Polyimide
- ITO

FILMETRICS
A KLA Company

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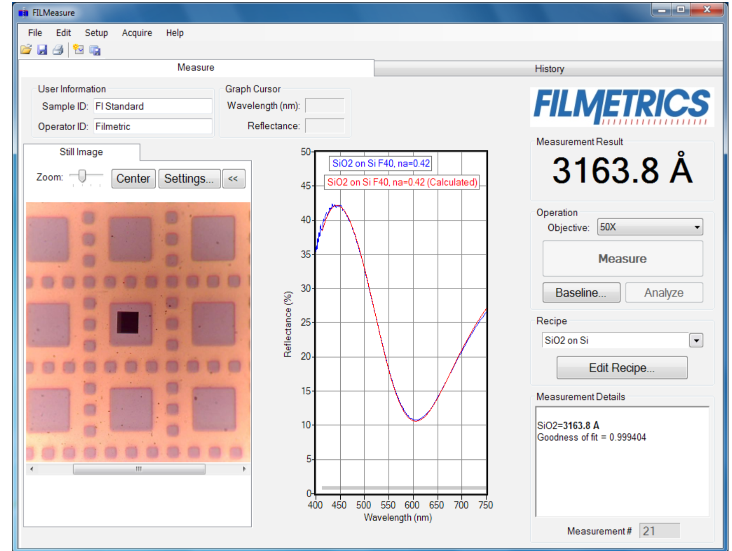

Measurement Specifications	F40-UV	F40-UVX	F40	F40-EXR	F40-NIR	F40-XT
Thickness Range w/ 2X Obj.*:	-	-	20nm-50µm	20nm-150µm	100nm-150µm	0.2µm-350µm
Thickness Range w/ 5X Obj.*:	-	-	20nm-40µm	20nm-120µm	100nm-120µm	0.2µm-250µm
Thickness Range w/ 10X Obj.*[1]:	4nm-35µm	4nm-115µm	20nm-45µm	20nm-115µm	100nm-115µm	0.2µm-140µm
Thickness Range w/ 15X Obj.*[1]:	4nm-30µm	4nm-100µm	20nm-40µm	20nm-100µm	100nm-100µm	0.2µm-120µm
Thickness Range w/ 50X Obj.*:	-	-	20nm-2µm	20nm-4µm	100nm-4µm	0.2µm-4µm
Thickness Range w/ 100X Obj.*:	-	-	20nm-1.5µm	20nm-3µm	100nm-3µm	0.2µm-3µm
Min. Thickness for n and k *[2]:	50 nm	50 nm	100 nm	100 nm	500 nm	2 µm
Accuracy*: The greater of	1nm or 0.2%	1nm or 0.2%	2nm or 0.2%	2nm or 0.2%	3nm or 0.4%	5nm or 0.4%
Precision[3]:	0.02 nm	0.02 nm	0.02 nm	0.02 nm	0.1 nm	1 nm
Stability[4]:	0.05 nm	0.05 nm	0.05 nm	0.05 nm	0.12 nm	1 nm
General Specifications						
Spectrometer Wavelength Range:	190-1100nm	190-1700nm	400-850nm	400-1700nm	950-1700nm	1440-1690nm
Light Source:	Supplied by Microscope					
Power Requirements:	100 - 240 VAC, 50 - 60 Hz, 20 W					

Spot Size	500 µm Aperture	250 µm Aperture	100 µm Aperture	50 µm Aperture
5X Objective:	100 µm	50 µm	20 µm	10 µm
10X Objective:	50 µm	25 µm	10 µm	5 µm
15X Objective:	33 µm	17 µm	7 µm	3.5 µm
50X Objective:	10 µm	5 µm	2 µm	1 µm
100X Objective:	5 µm	2.5 µm	1 µm	0.5 µm

Computer Requirements	
Processor Clock Speed:	1.4 GHz min
Interface:	USB 2.0
Operating System	
PC:	Windows XP (SP2) - Latest Windows (64-bit)
Mac:	OS X Lion - Latest Mac OS running Parallels

* Material and microscope dependent
[1] Reflective objective
[2] Using 5X objective
[3] 1σ of 100 measurements of 1µm SiO_2-on-Si. Value is average of 1σ over 20 days.
[4] 2σ of daily average of 100 measurements of 1µm SiO_2-on-Si, measured over 20 days.

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