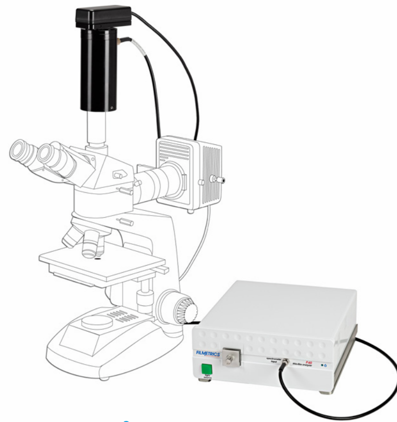
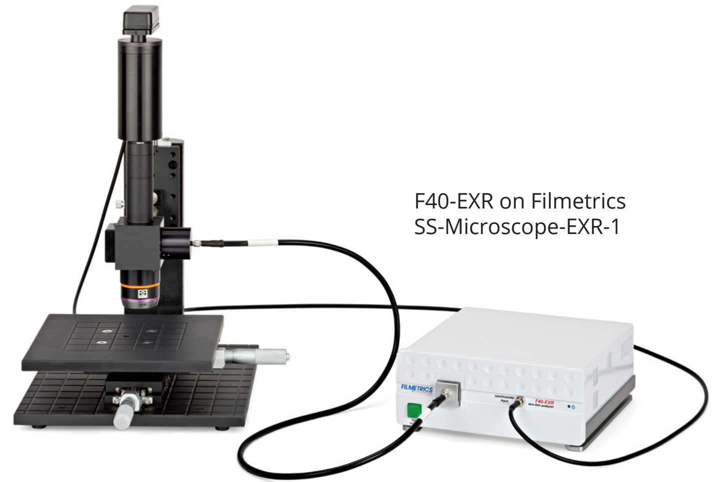
Filmetrics® F40

Thin-Film Analyzer





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

Turn 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 1µm, 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 camera. Integrated video provides 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 analysis software included
- Sophisticated history function for saving, reproducing, and plotting results

Applications

Semiconductor Fabrication

- Photoresist
- Oxides/Nitrides
- Si and other Semiconductor Films

Biomedical Devices

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

MEMS

- Photoresist
- Silicon Membranes
- AIN/ZnO Thin Film Filters

Liquid Crystal Displays

- Cell Gaps
- Polyimide
- ITO

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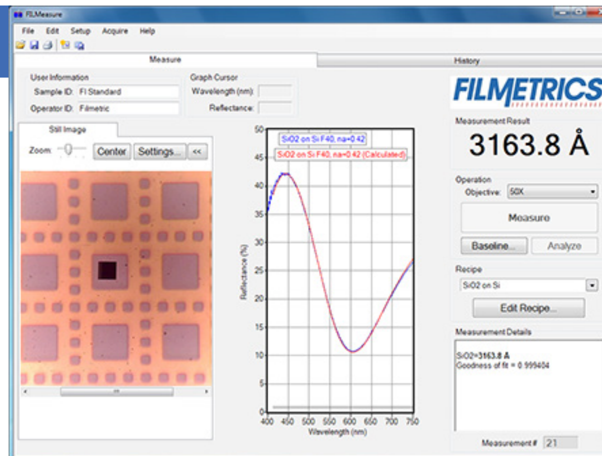
F40 Thin-Film Analyzer



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 to Measure n & k[2]	50nm	50nm	100nm	100nm	500nm	2µm
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]	0.02nm	0.02nm	0.02nm	0.02nm	0.1nm	1nm
Stability[4]	0.05nm	0.05nm	0.05nm	0.05nm	0.12nm	1nm

General Specifications	F40-UV	F40-UVX	F40	F40-EXR	F40-NIR	F40-XT
Spectrometer Wavelength Range	190-1100nm	190-1700nm	400-850nm	400-1700nm	950-1700nm	1440-1690nm
Light Source	Supplied by Microscope					
Power	100-240VAC, 50-60Hz, 20W					

Computer Requirements	
Processor Clock Speed	1.4GHz, minimum
Interface	USB 2.0

Operating System	
PC	Windows 10 - Latest Windows (64-bit)
MAC	OS X Catalina - Latest MAC OS Running Parallels

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

* 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

Specifications subject to change without notice. 2022 KLA Corporation Rev. 05.22 Printed in the USA.