

MP100-S Thin Film Thickness Measurement System SOP Manual

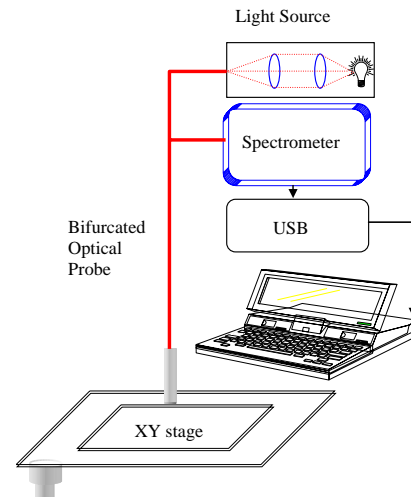
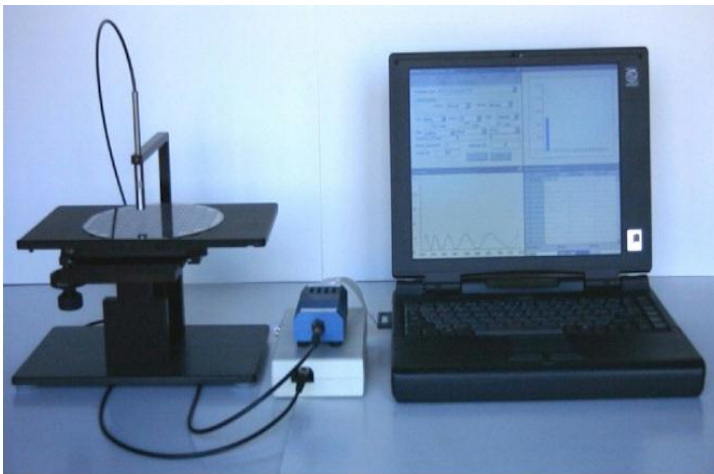
Overview

The **MP100-S** system comes standard with a portable spectrometer, an optical probe mounted on a manual X-Y stage, and a notebook computer installed with MPO Measurement software. The program contains hundreds of pre-loaded film recipes with the ability to create and edit new ones. The MP100-S measures Oxide, Nitride, Photoresist, Polysilicon, CIE chromaticity, cell gap, color filter, and polyimide/ITO Thickness. The portability of this compact system allows you to place the probe directly into the Measurement site.

The **MP100-S** probe can be detached from the stage and hand held to access hard to reach areas. Applications include the reflectivity of a surface, textile color of a material, liquid concentration and material inspection all with real-time spectral analysis. The probe can be configured for a working distance up to 6 inches with a varying measurement spot size.

The **MP100-S** positioning mechanism is set by a frictional X-Y stage. With it, a sample position can be located quickly. And once the selected sampling position has been reached, measurements can then be taken precisely and accurately without the X-Y stage drifting.

There is an add-on option for a programmable X, Y stage from 4 to 12 inches of travel.



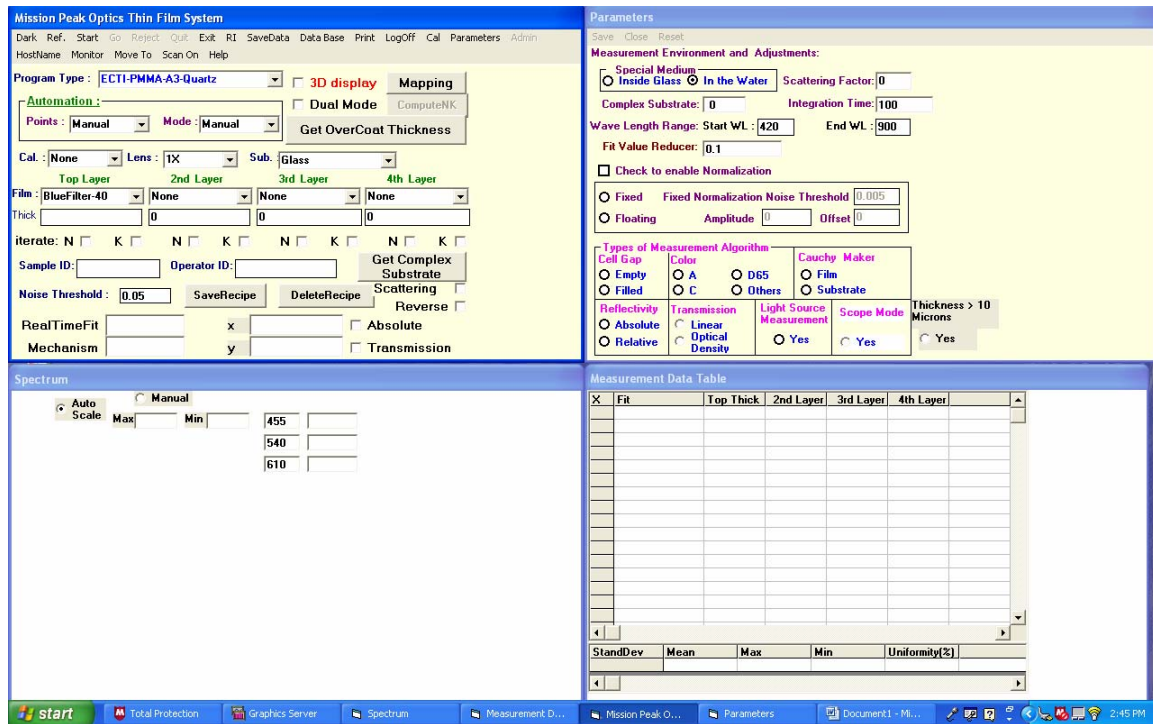
Specifications for MP100-S

Scanning Range:	365nm to 850nm, standard
Optional Range:	It is optional to choose different gratings for different ranges of scanning, such as: 200-575, 250-800, 530-1000, 200-450, the combination of the range can add up the range from 200 nm to 1000 nm
Spectrum Resolution:	2 nm
Precision:	0.1 nm
Measurement Speed:	2 sec.
Measurement Spot:	3 to 5 mm diameter
Sample View:	3" to 4" LCD video display

Measurement procedures (Refer to the following program's Main Window Graphic):

- 1) Switch power ON for the LED light source and let it stabilize for at least 1 minute
- 2) Launch the Mission Peak Optics measurement program
- 3) Select proper program from the "Program Type" window and fill out the corresponding layer info: e.g., "Sub.", "Top layer film", etc.
- 4) Locate the fiberoptic point to the middle hollow part of the stage by moving the sample stage, click menu "Dark"
- 5) Put a reference sample without any coating (e.g., bare silicon) and move the stage to locate the reference sample underneath the fiberoptic end, click menu "Ref."
- 6) Load sample on the stage and scan for measuring thickness across area of interest. First measurement is done by clicking menu "Start", the rest is done by clicking menu "Go"
- 7) If a spreadsheet data is desired, a file name given by filling the "SampleID" window before the 1st measurement. A statistical data list as well as the bar graph will be shown in Measurement Data Table. When the measurement is done, click menu "Quit", then "SaveData".
- 8) To check out the data file you saved, you can click menu "DataBase" + OK on alert message. Then a list of data history is given. Double click the XLS file name, the data you want to save is there.

Note: If you could not retrieve the data, please ask Aju for the password.



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Measurement Specifications

		<u>TOP LAYER</u>		<u>SECOND LAYER</u>		<u>THIRD LAYER</u>		<u>FOURTH LAYER</u>	
<u>FILM TYPE</u>	<u>Magnification Not Available</u>	<u>RANGE</u>	<u>std dev</u>	<u>RANGE</u>	<u>std dev</u>	<u>RANGE</u>	<u>std dev</u>	<u>Range</u>	<u>std dev</u>
P1/P2/ITO/Oxide/Glass	1x Probe	100-3,000Å	3Å	100-3,000Å	3Å	100-1,500Å	3Å	100-1,500Å	3Å
Oxide/Si	1x Probe	200-30,000Å	2Å						
		30,000 - 50,000Å	5Å						
		50,000 - 100,000Å	20Å						
Nitride/Si	1x Probe	150-20,000Å	2Å						
Photoresist/Si	1x Probe	500-20,000Å	5Å						
Nitride/Oxide/Si	1x Probe	150-20,000Å	5Å	1500-20,000Å	5Å				
Poly/Oxide/Si	1x Probe	100-5,000Å	5Å	0-10,000Å	5Å				
Oxide/Poly/Oxide/Si	1x Probe	100-10,000Å	5Å	0-10,000Å	5Å	100-10,000Å	5Å		
Oxide/Al	1x Probe	2,000-20,000Å	5Å						
Photoresist/Cr	1x Probe	500-20,000Å	5Å						
Oxide/NiFe	1x Probe	2,000-20,000Å	5Å						
Photoresist/Glass	1x Probe	500-20,000Å	5Å						
ITO/Oxide/Glass	1x Probe	100-3000Å	2Å	100 - 2000Å	2Å				
Very Thick Film	1x Probe	100,000-500,000Å	100Å						
Customized film types can also be created for your applications.	1x Probe								

Measuring spot size: 1 to 3 mm diameter