

Ellipsometer EC-400

Powering On:

1. Turn on the Lamp Power.
2. Turn on the Lamp Ignition (record the lamp hours that you started with in the log book).
3. It will take a minute or two for the Lamp to power up

Loading a Sample:

1. Turn on the Vacuum located to the left of the Ellipsometer
2. Place your sample in the middle of the stage until the vacuum is contacting it

Scanning the Sample:

1. Open the CompleteEASE software.
2. Click the Hardware tab, then System tab in the control box
3. Click on Position Controls, then click Translator
 - a. Find a clean spot with on your sample to measure with the controls, and exit out of the position box
4. Click the Measurement Tab.
 - a. In the recipe drop down menu click Prompt Recipe Components
 - i. Choose a scan pattern, model, etc.
 - b. If you have no model in mind, click Prompt for Acquisition Parameters in the drop down menu
 - i. Click Measure, and save the data in the appropriate file folder. The program will take you to the acquisition parameters setup.
5. Click OK once the parameters are set up. The program will take you to the alignment screen.
6. Align the red crosshair to the center, black crosshair using the knobs on the stage that is holding the sample. Align the sample as close as possible.
7. Next, adjust the height of the sample with the z-stage.
 - a. Move the z-stage by pressing the “page up or down” key on the keyboard. Try to maximize the intensity by using SMALL INCREMENTS of z-stage displacement.
 - b. Once the maximum intensity is found and the crosshairs are almost aligned, click “ENTER” to take a measurement.

Analyzing the Sample:

1. Click the Analysis Tab

2. Open the correct model according to your sample.
 - a. Ie: Resist on silicon may require a model that is “Silicon with Transparent Film”
3. Using the MODEL and FIT options, correct for mistakes in the program.
 - a. Ie: Backside reflection, Surface roughness, Fitting wavelength
 - b. The goal is to minimize the Mean Standard Error (MSE)
 - i. Below 100 MSE, and a model that fits the data are signs of a good measurement.

Shutting Down:

1. Turn off the Lamp by pressing Lamp Power. The system will shut down, and the green, Lamp Power button will dim.
2. Exit out of the CompleteEASE Program.
3. Enter the amount of Lamp Hours at the end of your procedure in the logbook.
4. Turn off the vacuum, and take your sample.