The alpha 2.0 is the ideal spectroscopic ellipsometer for fast, routine thin film measurements. It was designed to provide a perfect balance of accuracy, speed, and price.





Quantum Design

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### Features

## Dual-Rotation<sup>TM</sup> Technology

The alpha 2.0 is equipped with Dual-Rotation ellipsometry technology, featuring a rotating compensator on the source unit and rotating analyzer on the detector unit. This technology provides access to high accuracy and Mueller matrix measurements in a single optical cycle.

## CCD Detection System

The alpha 2.0 uses a CCD detector for simultaneous measurement of 190 wavelengths. This allows measurement from 400 nm to 1000 nm in less than a second.

## Compact

Everything contained in one small package to fit easily on your benchtop. Easy connection to your computer via USB.

## Auto Alignment

Alignment is integrated into the data acquisition routine. Automated Z-translation alignment for easy data acquisition. Simply place your sample on the stage and the alpha 2.0 does the rest.

# CompleteEASE® Software

CompleteEASE is the world's leading ellipsometry software. Includes prebuilt models for beginners, comprehensive measurement capabilities, and advanced data analysis features.





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## System specifications

## System Configuration (in order)

Light source Fixed polarizer Sample Step scan rotating compensator Fixed analyzer Spectrometer and detector

## Angles of Incidence

Manual adjustment 65°, 70°, 75° (off sample) 90° (straight through)

### Spectral Range

400nm to 1000nm (190 wavelengths)

#### Light Source Quartz Tungsten Halogen (QTH)

Data Acquisition Rate 5-10 seconds for full spectrum (typical)

Beam Diameter Focused, <1 mm

## Sample Size

The alpha 2.0 accommodates samples up to 200mm diameter and 16mm thick.

## Measurable Quantities

Ellipsometry:  $\Psi$  (0°-90°) and  $\Delta$  (0°-360°) Intensity: % Transmission and % Reflection Depolarization: % Depolarization Mueller Matrix: 11 normalized elements of the Mueller Matrix (normalized to m<sub>11</sub>). Useful for samples that are both anisotropic and depolarizing.

## Typical Repeatability

Thirty consecutive measurements of native oxide (nominally 2nm) or thermal oxide (nominally 25nm) on silicon with a warm system at 70° angle and ten second averaging with fixed sample:

> δthickness < 0.01nm \*1-standard deviation





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## Facility requirements

### Environmental Operating Range

Temperature: 10°C to 35°C Humidity: 20% to 80% (non-condensing)

#### Power

100/240 VAC, 47-63Hz, <1 Amp

### **Ambient Lighting**

RCE technology allows accurate measurements under normal room light conditions.

## Weight

39 lbs. (excluding computer)

### Dimensions

Width 18.8" Depth 12.8" Height 12.3"







FRONT VIEW



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