

Smart-SE

Spectroscopic Ellipsometer for Thin Film Analysis

The **Smart SE** is an innovative spectroscopic ellipsometer for easy, fast and accurate characterization of thin films, from single to multi-layers.

⇒ Fast and Accurate

The CCD detector of the **Smart SE** acquires accurate ellipsometric data from 450 -nm to 1000 nm measurement duration ≥ 1 second

⇒ Flexible

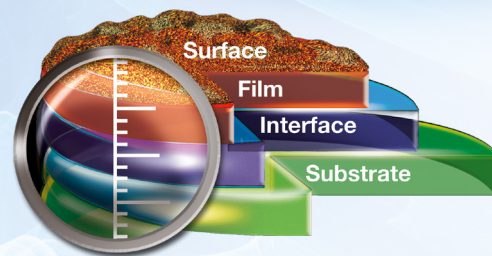
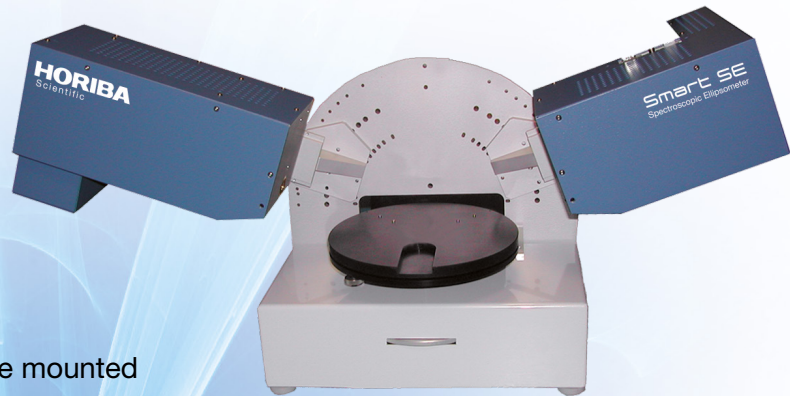
The optical heads of the **Smart SE** are mounted on a compact manual goniometer that allows data acquisition from 45° to 90° by steps of 5°

⇒ Unique Capabilities

- MyAutoView vision system for accurate positioning of the spot on any opaque or transparent substrates
- Seven automated micro spot sizes for measurements of patterned samples
- Full Mueller matrix measurement capability to study anisotropic and depolarizing samples

⇒ Thin Film Applications

- Film thickness from a few \AA to $15 \mu\text{m}$
- Optical constants (n, k)
- Optical band gap
- Gradient, anisotropy and depolarization



User Oriented Software Platform

The **Smart SE** integrates two level of software to fulfill both routine analysis with predefined recipes and advanced analysis with state-of-the-art ellipsometric algorithm:

⇒ Auto Soft Routine Mode

- Auto Soft is an intuitive software that allows inexperienced users to acquire and analyze data in one push of a button
- Four interfaces to control the system, run an experiment, manage the data and perform maintenance test
- Predefined recipes are listed by applications and materials
- Fitting and tabulated data are presented on the same screen for fast reading (goodness of fit, thickness, optical constants, band gap, composition)

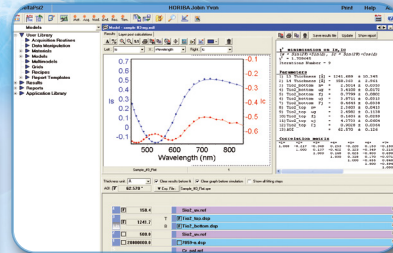
⇒ DeltaPsi2 Advanced Mode

- Over the last two decades, HORIBA Jobin Yvon DeltaPsi2 Ellipsometric software has acquired a brand equity and is recognized as one of the most advanced and powerful commercial ellipsometric software
- Build your model to characterize anisotropic, depolarizing and graded samples
- Customize existing dispersion functions with our unique User Defined Formula and fit new material properties
- Export Recipes from DeltaPsi2 to AutoSoft for push button analysis

Specifications

Standard configuration

- Spectral range: 450 nm to 1000 nm
- Spectral resolution: Better than 3 nm at 546 nm
- Light source: Combined Halogen and Blue LED
- Measurement time: From 1 sec to 60 sec.
- Beam size: 75 μm x 150 μm , 100 μm x 250 μm , 100 μm x 500 μm , 150 μm x 150 μm , 250 μm x 250 μm , 250 μm x 500 μm , 500 μm x 500 μm
- Angle of incidence: 45° to 90° by step of 5°
- Sample size: Up to 200 mm
- Sample alignment: Manual 17 mm height adjustment and tilt
- Dimensions: 100 cm x 46 cm x 23 cm (W x H x D)



Performance

- Straight-through air accuracy from 450 to 800 nm: $\Psi = 45^\circ \pm 0.2^\circ$ $\Delta = 0^\circ \pm 0.5^\circ$
- Thickness accuracy on 1000 Å oxide: 0.4 %
- Thickness repeatability on 1000 Å oxide: $\pm 0.02\%$

Options

- Liquid and electrochemical cells
- Cross hair auto-collimation system

info.sci@horiba.com

USA: +1 732 494 8660
UK: +44 (0)1604 542 500
China: +86 (0)21 6289 6060
Taiwan: +886 3 5600606

France: +33 (0)1 69 74 72 00
Italy: +39 06 51 59 22 1
India: +91 (80) 4127 3637
Brazil: +55 (0)11 2923 5400

www.horiba.com/scientific

Germany: +49 (0) 6251 8475 0
Japan: +81 (75)313-8121
Singapore: +65 (6) 745-8300
Other: +33 (0)1 69 74 72 00

HORIBA
Scientific