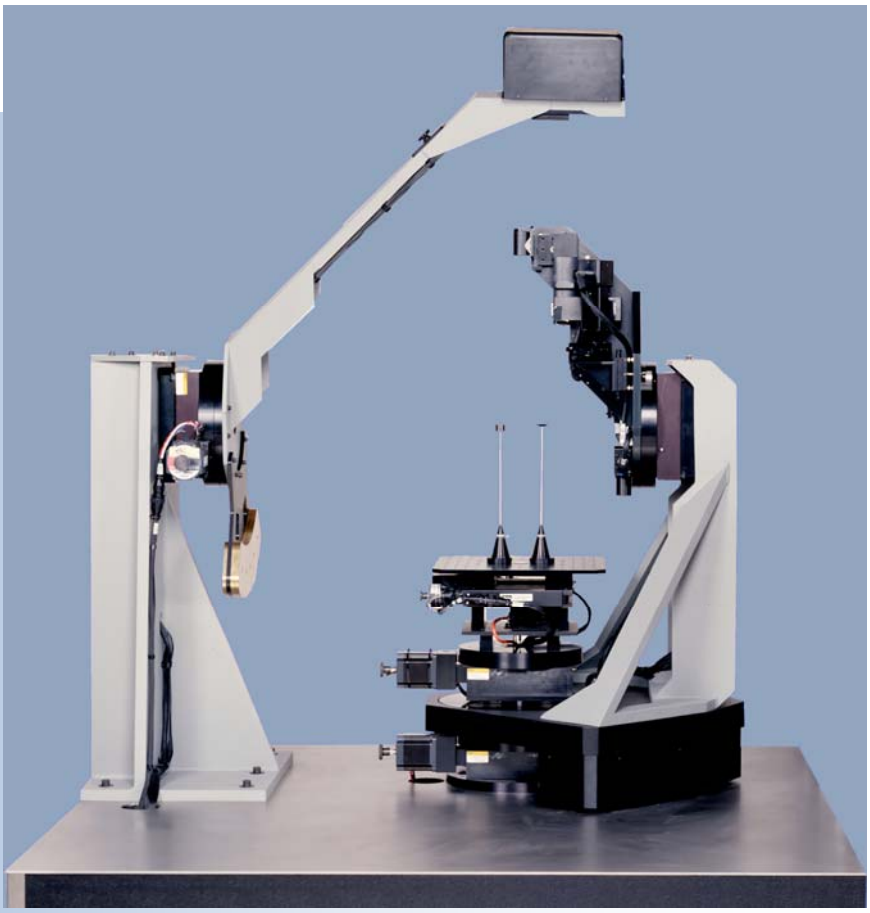
SOC-210 BDRE

Bi-Directional Reflectometer Ellipsometer



Photograph of a SOC-210 BDRE prototype.

The SOC-210 Bidirectional Reflectometer is a precision laboratory instrument designed for mapping the bidirectional reflectance distribution function (BRDF) of surfaces, paints, coatings, liquids, and particles. Surface Optics Corporation has measure BRDF date for industry as a laboratory service for nearly three decades. This wealth of experience providing BRDF data for solving real world engineering problems is incorporated into the design of the SOC-210. These capabilities together with SOC's experience give this instrument a unique advantage as a proven engineering tool.

BRDF data is a fundamental optical property that characterizes the energy scattered into the hemisphere above a surface as a result of incident radiation. It is defined as the ratio of the luminous radiance reflected into a unit solid angle to the total incident radiance. A spherical coordinate system is used to specify both the incident direction of illumination and the reflected direction of the scattered radiation, two directions or bidirectional. It is normally reported as a distribution of bidirectional reflectance values that vary with the reflected angle for a fixed incident angle, hence the term BRDF.

The SOC-210 BDRE can measure the BRDF of samples from the ultra-violet, through the visible, and into infrared spectrum. This is accomplished by using an assortment of interchangeable sources, spectral bandpass filters, and detectors.

SURFACE OPTICS CORPORATION

원우시스템즈 WONWOO SYSTEMS
Tel (02) 3289-1290 Fax (02) 3289-1293
서울시 동작구 신대방1가길 38 (신대방 719 동작상떼빌) 106동 209호
www.wonwoosystem.co.kr

Specifications

Measurements:

- Full hemispherical bi-directional reflectance distribution function (BRDF) measurement with both linearly polarized and unpolarized incident light
- Unpolarized BRDF
- Linear Polarized BRDF (Linear Mueller Matrix components)
- Bidirectional Transmittance Distribution Function (BTDF)

Spectral Range: .35 to 1.6 micrometer wavelength

Angular Coverage - accuracy 0.1º for each:

- Incident polar: Theta i Θ_i = 0º to 85º
- Incident azimuthal: Phi i Φ_i = 0° to 350°
- Reflected polar: Theta r Θ_r = 0º to 85º
- Reflected azimuthal: Phi r Φ_r = 0º to 360º

Spectral Filtering:
Standard commercial off-the-shelf thin film 1 inch diameter bandpass filters.

Automation:
Θ_i, Φ_i, Θ_r, Φ_r, source aperture, neutral density (ND) filter wheel, sample/reference X-stage, and polarization stages are fully automated

Source: Quartz halogen lamp (optional IR and laser sources)

Detectors: Si (.35-1.0 µm) and InGaAs (1.0-1.6 µm).
Other detectors available.

Noise Floor: Less than 10^{-3} $ster^{-1}$ or better (bandpass filter dependent)

Sample Size and Shape:
Normal sample size is one inch diameter circular.
Ability to measure powders and liquids.

Polarization Detection:
Limited Mueller Matrix Ellipsometry (Linear Components)

Operation: PC-based control and data acquisition system.

Dimensions: 40″ W x 40″ D x 80″ H

Polarized bidirectional reflectance distribution function is the most comprehensive description of optical properties of materials

11555 Rancho Bernardo Road • San Diego, CA 92127-1441• TEL: (858) 675-0131 • FAX: (858) 675-2028
www.surfaceoptics.com