

SOC 410

Hand-Held DHR Reflectometer

A High Accuracy Hand-Held DHR Reflectometer for Field Measurements

The **SOC 410** evolved from the patented SOC 400 Hand-Held FTIR Reflectometer.

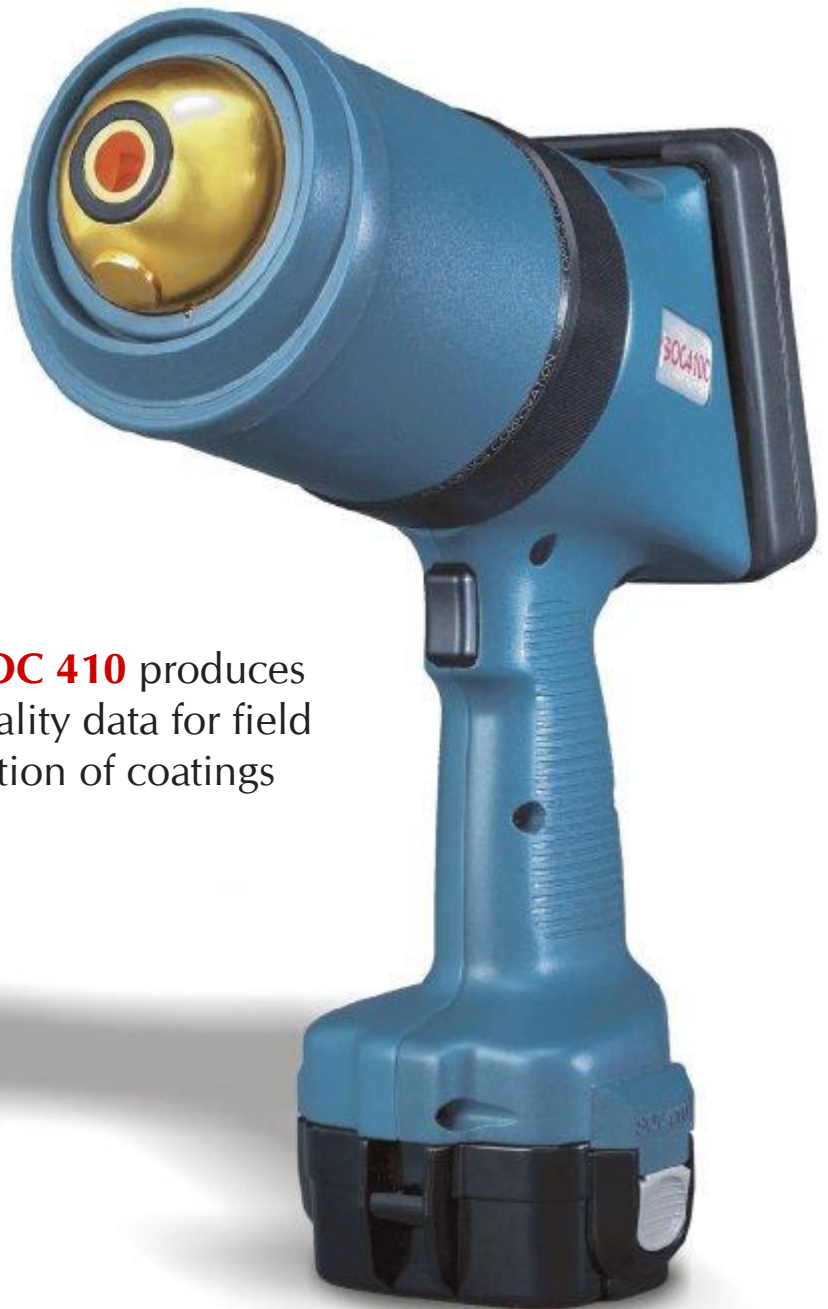
It is designed to work with multiple measurement heads.

FEATURES

- Wide spectral coverage: NIR, SWIR, MWIR, LWIR
- High performance optics
- Multiple bands and incidence angles
- Fast and portable
- Battery operated
- Interchangeable heads

BENEFITS

- Lab quality data
- Ability to perform measurements in the field
- Measures emissivity at selected bands and angles
- No sample size restrictions
- Simple to operate



The **SOC 410** produces lab-quality data for field inspection of coatings

DHR HEAD:

- Based on a modified integrating sphere designed in collaboration with NRL and NIST.
- Measures total reflectance at six sub-bands (.9 to 12 nm spectral range) using six detectors
- Multiple illumination at 20 and 60 degrees
- Signal intensity normalized against an internal standard
- Directional Reflectance reported at the incident angles & spectral bands measured
- 12 data points produced during each short acquisition cycle
- Data reduction algorithm developed in collaboration with NIST

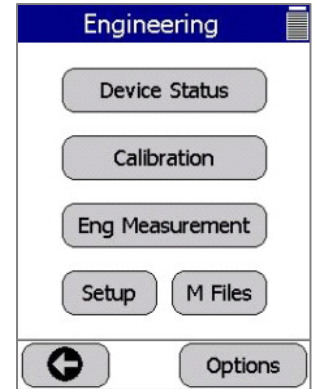


Operation

The SOC 410 is the only fully portable hand-held device for quick inspection of coatings and materials in the field. The DHR head measures the optical constants of materials for six spectral regions. (The full infrared DHR values can be measured with the SOC 100 laboratory HDR reflectometer.)

The SOC 410 is controlled by soft keys on the PDA computer screen. To perform measurements, the unit is calibrated with a specular gold coupon. Just press the SOC 410 against the surface to be tested and pull the trigger to record data.

No extensive training is necessary!



SOC410 Main Menu Screen

Specifications

MEASURED PARAMETER

Directional Hemispherical Reflectance

METHOD

Integrated Total Reflectance in a band for a given angle of incidence

MEASURED VALUE

Absolute reflectance (0-1)

WAVELENGTH BANDS

.9-1.1, 1.9-2.4, 3.0-4.0, 3.0-5.0, 4.0-5.0, 8.0-12.0

ANGLE OF INCIDENCE

20° & 60° from normal incidence
(twelve measurements simultaneously)

SURFACE CURVATURE

Any surface: convex 6" radius; concave 12" radius

ACCURACY

For high reflective samples at 20 degrees:
+/- .03 reflectance units

MEASUREMENT TIME

10 sec./measurement, user controlled
(6 bands, 2 angles)

WARM UP TIME

90 seconds

RUN TIME

Two hours on one battery. Battery easily replaced, with continuous operation after battery replacement

POWER SOURCE

Rechargeable batter (standard environmentally friendly NiMH)

RECHARGE TIME

1 hour

WEIGHT

4.7 lbs. with battery

IR SOURCE

Kanthal filament operated at about 1,000°C

FORM FACTOR/SIZE

Hand held, balanced at the trigger, approx. the size of a power drill (H 11.54", L 9.04", W 3.72")

MODULARITY

Modular construction, interchangeable measurement heads

OPERATOR INTERFACE

LCD graphics screen, ¼ VGA, touch screen, software buttons; trigger switch in the handle.

INSPECTION

Pass/fail can be incorporated, user set values

DIAGNOSTICS

On screen status and signals monitor. Signal values stored with data. Raw data collection and display.

INTERNAL DATA STORAGE & TRANSFER

265MB removable CompactFlash™ card.
No data on PDA after power down.

DATA FORMAT

Data files can be opened and post processed with Excel or a text processor.

ENVIORNMENTAL

Storage: -25 to 70°C;
Operating 0 to 40°C, non-condensing

