

ET¹⁰⁰

Thermal Emittance

A High Accuracy Hand-Held Emissivity Measurement Device

Modern replacement for the classic DB100 reflectometer.



FEATURES

- Measures reflectance between 1.0 and 21 microns in 6 discrete bands and at two incidence angles
- NIST traceable
- Fast and portable
- Battery operated
- Tool-like feel and operation

BENEFITS

- Measures directional thermal emittance at near normal and near grazing incidence angles
- Predicts Hemispherical Thermal Emittance

The **ET¹⁰⁰** measures total reflectance at six bands



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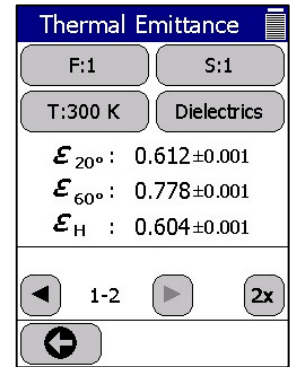
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Performance

The **ET¹⁰⁰** measures total reflectance over six bands. The reflectances in the bands are converted to spectral information. The blackbody function is applied and Directional Thermal Emittance is calculated for two angles 20 and 60 degrees. Hemispherical Total Reflectance is predicted based on calculated directional reflectance.

To perform measurements the unit is placed against the surface to be tested and the trigger is pressed to record the data. It takes about seven seconds to take a measurement. In the Calibration screen the **ET¹⁰⁰** is calibrated with a specular gold coupon measured in reference to a coupon measured by NIST.



ET¹⁰⁰ Thermal Emittance Measurement

ET¹⁰⁰:

- Software operates like a smart calculator
- Powerful control, measurement or data processing functions are exercised by pressing soft buttons on PDA screen
- Device status provides information about 10 electrical signals related to performance of the ET¹⁰⁰

Specifications

MEASURED PARAMETER

Directional Hemispherical Reflectance (DHR)

METHOD

Integrated Total Reflectance in a band

MEASURED VALUE

Directional Thermal Emittance

WAVELENGTH BANDS

1.5-2.0, 2-3, 3-4, 4-5, 5-10, 10-21

ANGLE OF INCIDENCE

20° & 60° from normal incidence

SURFACE CURVATURE

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

MEASUREMENT TIME

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

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.

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.

ENVIRONMENTAL

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

U.S. Patent 7,236,243