

ET¹⁰

Emissivity for Thermography

A High Accuracy Hand-Held Emissivity Measurement Device

The ET¹⁰ answers the long standing need for the measurement of emissivity as an entry parameter for infrared cameras involved in measurements of temperature.

FEATURES

- Measures emissivity for both 3-5, and 8-12 bands in one measurement cycle
- NIST traceable
- Fast and portable
- Battery operated
- Tool-like feel and operation

BENEFITS

- Provides emissivity values for IR cameras
- Increases accuracy of measured temperatures

The ET¹⁰ produces lab quality data for any non-transparent material.



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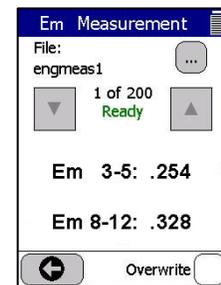
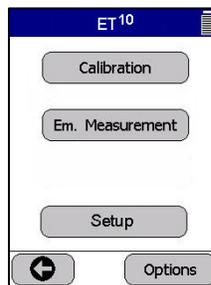
ET¹⁰

- Measures total reflectance at 3-5 & 8-12 microns using two detectors
- Calculates Emissivity. For non-transparent samples emissivity = 1- reflectance
- 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 ET¹⁰

Performance

Emittance data up to 500°K is ordinarily derived from reflectance data measured at room temperature, since reflectance vs. wavelength is invariant with temperature in the absence of chemical or physical changes in the sample. The ET¹⁰ should not be used on transparent samples. For those samples in addition to reflectance, transmittance of the material is required to predict emissivity.

Measurements are performed by pressing the ET¹⁰ against the surface to be tested. The trigger is then pressed to record the data. It takes about seven seconds to take a measurement. In the Calibration screen the ET¹⁰ is calibrated with a specular gold coupon measured in reference to a coupon measured by NIST.



ET10 Main Menu Screen (left)
 Measurement Screen (right)

Specifications

MEASURED PARAMETER

Directional Hemispherical Reflectance (DHR)

METHOD

Integrated Total Reflectance in a band

MEASURED VALUE

Emissivity

WAVELENGTH BANDS

3.0-5.0 & 8.0-12.0 microns in one measurement cycle

ANGLE OF INCIDENCE

20° from normal incidence

SURFACE CURVATURE

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

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.

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



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