Model S450 Power / Energy Optometer

PRODUCT SUMMARY

The UDT Instruments Model S450 is a high-performance handheld Power / Energy Optometer designed for both laboratory and field environments. The Model S450 features ultra-high sensitivity, sophisticated microprocessor control and three data-presentation options: Direct display with analog bar, RS-232 computer interface, and programmable analog voltage output. Compatible with the full range of UDT Instruments sensor heads, the Model S450 is easily configured as a high-performance radiometer, photometer or energy meter with a dynamic range of over nine decades.

The Model S450's sensitivity enables electrical measurements in the 10-pA range with less than 5% uncertainty. This makes the instrument ideally suited for challenging low-light measurement applications. The Model S450 also provides wide dynamic range, high sampling rates, and programmable averaging in low-pass or boxcar modes. The S450 can store nine spectral calibrations or fifty single-point calibrations. All calibrations are traceable to the National Institute of Standards and Technology (NIST).

Operating conveniences include a large, backlit LCD for easy readout; intuitive operation via a simple touch keypad; a "calibration information center" that stores a wealth of calibration information for instant recall; long battery life (or direct external power); and an optional USB-to-serial bridge converter. The unit is enclosed in a ruggedized housing built to withstand the rigors of day-to-day field use.

CONFIGURATION OPTIONS

The S450 can be configured with a wide range of different sensors and calibrations in order to perform measurements of quantities including:

- *Luminous Flux (lumen) or Radiant Flux (Watt)*
- *Illuminance (lux, foot-candle) or Irradiance (W/m^2)*
- *Luminous Intensity (candela) or Radiant Intensity (W/sr)*
- *Luminance (cd/m^2, footLambert) or Radiance (W/m^{2}sr)*
- *Pulse Energy (Joule)*

The UDT Model S450 is compatible with the full range of UDT Instruments sensor heads. The unit is shown here configured as a spot luminance meter, equipped with an optional variable field-of-view luminance optic (1120V).

FEATURES

- *Measures in Power or Energy mode*
- *High-accuracy*
- *Wide dynamic range*
- *Electronic Temperature-drift compensation*
- *High sampling rates*
- *Programmable low pass or boxcar averaging*
- *Large calibration capacity*
- *Calibration data/accessories information center*
- *RS-232 or optional USB computer interface*
- *Simple touch keypad controls*
- *Icon driven menus*
- *Large backlit LCD graphical display*
- *Rechargeable NiMH battery or AC powered*
- *Portable and durable*
- *Compact and Light-weight*

UDT INSTRUMENTS
8581 Aero Drive, San Diego, CA 92123
Phone (858) 279-8034 Fax (858) 576-9286
Website: www.udtinstruments.com

Model S450 Power / Energy Optometer

SPECIFICATIONS

Analog to Digital Accuracy

	Full Scale	A to D Converter Resolution	% of Full Scale
A	4.12 mA	8 nA	±.02%
B	412 µA	800 pA	±.02%
C	41.2 µA	80 pA	±.02%
D	4.13 µA	8 pA	±.02%
E	416 nA	800 fA	±.04%
F	45.4 nA	87 fA	±.04%
G	4.12 nA	8 fA	±.04%

Electrical Accuracy
± 1.2 % ± 2 counts

Dynamic Range
$9^{1/2}$ Decades Linear (Power)
$9^{1/2}$ Decades (Log)
$9^{1/2}$ Decades (Energy)

Data Presentation
Handheld Display
RS-232 Computer Interface
Analog Output

Analog Output
± 4.0 Volts, selectable slope

Computer Interface
RS-232 or USB via optional serial to USB converter

Bandwidth
7.5 Hz

Sampling Rate
18.9 msec

Averaging Modes
Low pass or Boxcar average, programmable

Update Rates
RS-232 (Display enabled): 2 times / second
RS-232 (Display disabled): Up to 53 times per second

Communication Rate
9600 Baud

Calibration Capacity
9 spectral calibrations or 50 single point calibrations

Calibration Traceability
All calibrations traceable to the National Institute of Standards and Technology (NIST)

Sensor Configuration
Compatible with all UDT Instruments Sensors

Display
Monochrome Graphic 128x64 dot chip-on-glass LCD

Display Modes
Linear
Log
Energy
Analog (Bar graph)

Displayed Precision
Up to 4.5 Digits

Display Update Rate
2 Times / sec

Power Source (DC)
Rechargeable Integral Battery Pack
Five NiMH AA, 1800 mA hr batteries

Recharge Time
< 4 Hours

Operational Battery Life
Backlight Off: 32 Hours
Backlight On: 24 Hours

Power Source (AC)
100-240V 0.7A 50-60 Hz
Output: 12V DC, 2.5 A (Center Conductor Positive)
TUV, CSA, UL, CE Approved

Operating Temperature Range
10 deg C to 60 deg C

Storage Temperature Range
-20 deg C to 35 deg C for <1 year

Display Unit Dimensions
Height 36 mm (1.4")
Width 114 mm (4.5")
Length 234 mm (9.25")
Weight 590 g (1.3 lb)

Power Supply Dimensions
Height 41 mm (1.63")
Width 59 mm (2.3")
Length 112 mm (4.4")
Weight 267 g (0.59 lb)
Cable length 1.04 m (41.0")

UDT INSTRUMENTS
8581 Aero Drive, San Diego, CA 92123
Phone (858) 279-8034 Fax (858) 576-9286
Website: www.udtinstruments.com