

## UDT Model S450 High Performance Optical Power / Energy Meter



The model S450 High Performance Handheld energy / power Optical Meter is ideal for photometric, radiometric, laser power, and fiber optic measurements. Designed to be used in a laboratory setting or field environment, the microprocessor controlled architecture features direct analog display, serial RS-232 output and analog voltage output.

Our wide range of optical meters, photometric and radiometric sensors is complemented by ISO/IEC 17025 accreditation by NVLAP (NVLAP lab code 200823-0), resulting in unmatched performance and custom configuration as required.

### Precision Solutions for Photometric, Radiometric & Power / Energy Measurement

- Wide dynamic range
- High accuracy measurements
- Programmable average readings in low-pass or boxcar average
- Measures in power or energy mode
- Sample speeds up to 53 Hz<sup>(1)</sup>
- Optional USB to serial bridge converter
- Long battery lifetime or use external power

#### Sensor Options <sup>(2)</sup>

Photometric Sensors <sup>(3)</sup>	Silicon Detectors Options include: Standard Miniature, Low Profile, LED measurement sockets
Radiometric Sensors	Silicon, Germanium or InGaAs Detectors Options include: UV Enhanced, Miniature, Low Profile, Flat Response, Blue Optimized
LED Measurement Head	Meets CIE Publication 127 Conditions A & B High Precision and Quick-change mounts
Integrating Spheres	50 mm diameter mini-spheres with 5 mm entrance port

(1) Maximum update speed achieved with display disabled and computer interface in use.

(2) An extensive range of sensors and sensor configurations is available for measurement of power, lux, luminance as well as transimpedance amplifiers and integrating spheres.

(3) The high accuracy of our photometric sensors begins with our world-class Photopic filters, featuring spectral matching to  $f_1' < 1\%$ .

## General Specifications

Parameter	Values
Electronic	7 Gains, auto/manual selection
Electrical Accuracy	$\pm 1.2\%$ $\pm 2$ counts
Dynamic Range	$9^{1/2}$ decades
Bandwidth	7.5 Hz
Measurement Modes (sensor dependent)	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 ( $cd/m^2$ , foot-Lambert) or Radiance ( $W/m^2 \cdot sr$ ) Pulse Energy (Joule)
Display Information	4.5 digits      2Hz update rate      Modes include Linear, Log, Energy and Analog (bar graph)
Computer Interfaces	RS-232 or USB with use of serial bridge adaptor (not included)
Sample Rates	18.9 msec      Update rate via RS-232      2 Hz with display enabled, 53 Hz with display disabled
Averaging Modes	Low-pass or Boxcar, programmable
Analog Output Scale	$\pm 4$ VDC
Communication Rate	9600 Baud
Operational Battery Life	16 Hours with backlight off, 12 Hours with backlight on
Operating Temperature	10 to 60° C
Storage Temperature	-20 to 35° C for up to 1 year
External Power Source	12 VDC at 3.3 A or 100-240 VAC 50/60 Hz with supplied power adaptor, 40 W max with 1 meter cable
Internal Power Source	Rechargeable integral batteries -- 5 NiMH AA, 1800 mAh batteries
Calibration Capacity	9 Continuous or 50 single-point
Calibration Traceability	Traceable to NIST with optional ISO/IEC 17025 accredited
Relative Humidity	Up to 99% (non-condensing)
Dimensions	234 mm (9.25 in) L x 114 mm (4.5 in) W x 36 mm (1.4 in) H      590g (1.3 lb)
Regulatory Compliance	TUV, UL, CSA, CE

## Most Popular Sensor Options (purchased separately)

Sensor	Material	Default Cal Units	Dynamic Range	$\lambda$ Range (nm)	Sensor Area	Notes
221	Si	Watts	$5.0 \times 10^{-11}$ to $2.4 \times 10^{-3}$ W	350 – 1100	1 cm <sup>2</sup>	
247	Si	Watts	$1.3 \times 10^{-10}$ to $6.4 \times 10^{-3}$ W	350 – 1100	1 cm <sup>2</sup>	Flat Response
261	Ge	Watts	$5.0 \times 10^{-10}$ to $6.0 \times 10^{-3}$ W	800 - 1750	0.5 cm <sup>2</sup>	
211	Si	Lux and fc	$1 \times 10^{-2}$ to $5 \times 10^5$ lux	400 – 700	1 cm <sup>2</sup>	Photometric Response
265	Si	Candela/m <sup>2</sup> and fL	$1.0 \times 10^{-3}$ to $1.0 \times 10^5$ cd/m <sup>2</sup>	400 – 700	0.34 cm <sup>2</sup>	High accuracy Photometric filter ( $F^*1 < 3\%$ ); 13° fixed field-of-view; standard light shield
2153V-12.5	Si	Candela/m <sup>2</sup> and fL	$1.2 \times 10^{-2}$ to $1.0 \times 10^6$ cd/m <sup>2</sup>	400 - 700	1 cm <sup>2</sup>	High accuracy Photometric filter ( $F^*1 < 3\%$ ); 12.5° fixed field-of-view
268UVA	Si - UV	Watts/cm <sup>2</sup> @ 365nm	$5.0 \times 10^{-10}$ to $1.0 \times 10^{-1}$ W	320 - 400	1 cm <sup>2</sup>	365nm Bandpass Filter; opal glass diffuser
268UVC	Si - UV	Watts/cm <sup>2</sup> @ 254nm	$5.0 \times 10^{-8}$ to $5.0 \times 10^{-1}$ W	200 - 280	1 cm <sup>2</sup>	254nm Bandpass Filter w/ PTFE diffuser
S2575	Si	Watts	$3.0 \times 10^{-8}$ to $9.5 \times 10^{-1}$ W	400 – 1100	0.34 cm <sup>2</sup>	260 sensor; 50 mm sphere and 5mm $\emptyset$ entrance aperture
S2575GE	Ge	Watts	$3.0 \times 10^{-9}$ to 1.6 W	800 - 1750	0.5 cm <sup>2</sup>	261 sensor; 50 mm sphere and 5mm $\emptyset$ entrance aperture
S2575R	Si	Watts	$6.0 \times 10^{-8}$ to 1.8 W	350 - 1100	0.34 cm <sup>2</sup>	260 sensor; 50 mm sphere and 5mm $\emptyset$ entrance aperture

(1) Typical rise time is 1 $\mu$  sec for 0.34cm<sup>2</sup> sensors, 3 $\mu$  sec for 1 cm<sup>2</sup> sensors, and 4 $\mu$  sec for GE sensors.

Please consult our website for numerous other sensor options and the Configuration Guide.

Specifications are subject to change without notice.