

## UDT S400 Series Benchtop Optical Meters



The S400 Series Optical Meters are ideal for photometric, radiometric, laser power, and fiber optic measurements. Models incorporating up to 4 individually calibrated sensor heads are available. This system features a microprocessor controlled architecture with USB, RS-232, RS-485 and IEEE-488.2 interfaces.

Our wide range of optical power meters, photometric and radiometric sensors is complemented by ISO/IEC 17025 accreditation by NVLAP (NVLAP lab code 200823-0), resulting in unmatched performance, traceable standards and highly precise custom calibration options.

## Precision Solutions for Photometric, Radiometric & Laser Power Measurement

- Wide dynamic range
- High accuracy measurements
- Pulse integrator for averaged energy measurements
- Precision amplifier with femto-amp level resolution
- Display measurement
- LED measurement
- Laser power
- Strobe & signal measurement
- Lamp testing

Sensor Options <sup>(1)</sup>	
Photometric Sensors <sup>(2)</sup>	Silicon detectors Standard, miniature, low profile, and photomultiplier configurations
Radiometric Sensors	Silicon, Germanium or InGaAs detectors Standard, miniature, low profile, flat response, UV enhanced, blue optimized, bandpass filtered and photomultiplier
LED Measurement	Sensor assemblies designed to meet CIE Publication 127 Conditions A & B
Integrating Spheres	Standard 150mm spheres and 50mm diameter mini-spheres available

<sup>(1)</sup> An extensive range of sensors and sensor configurations is available for measurement of power, lux, luminance as well as transimpedance amplifiers and integrating spheres.

<sup>(2)</sup> The high accuracy of our photometric sensors begins with our world-class Photopic filters, featuring spectral matching to  $f_1' < 1\%$ .

## Meter - General Specifications

Electronic	8 DC Gain Ranges with automatic and manual ranging; 4 integration ranges			
Computer Interfaces	USB, RS-232, RS-485 and IEEE 488.2. Analog output is also available ( $\pm 2.5$ Volts)			
Range-to-Range Non-linearity	< 0.1% typical, < 0.25% for most sensitive range			
Sensitivity	1.0 x 10 <sup>-3</sup> to 1.0 x 10 <sup>-15</sup> amps		1.0 x 10 <sup>-3</sup> to 1.0 x 10 <sup>-14</sup> coulomb	
Resolution	100 x 10 <sup>-15</sup> amps			
Energy Integrator	Four integration ranges w/ range-to-range linearity better than 0.1% (0.25% for most sensitive range) Sensitivity from 1.0 x 10 <sup>-14</sup> to 1.0 x 10 <sup>-3</sup> coulomb Decay error analog; approximately 0.01% / second Digital – holds reading indefinitely			
Dark Current Suppression	50 nA max			
Noise	< 5.0 x 10 <sup>-15</sup> amps			
Frequency Roll-off	< 10 Hz on most sensitive range			
A to D Converter	24 bit for each decade			
Use with Photomultipliers	High voltage circuit (300 to 1500 V)			
Ranging	Automatic or manual			
Dimensions	33 cm (13 in) x 22 cm (8.6 in) x 13.5 cm (5.3 in)			
Radiometric Calibration Options	Radiant flux (W), irradiance (W/cm <sup>2</sup> ), irradiant energy (j/cm <sup>2</sup> )			
Photometric Calibration Options	Illuminance (lux or fc), luminance (cd/m <sup>2</sup> or fL), luminous Intensity (cd), illuminant energy (lux.sec)			
Calibration Traceability	Traceable to NIST with optional ISO/IEC 17025 accreditation			
Relative Humidity	Up to 99% (non-condensing)			
Regulatory Compliance	TUV, UL, CSA, CE			
Model Number Configurations	S470 (single channel)	S480 (dual channel)	S485 (three channel)	S490 (four channel)

## Most Popular Sensor Options (purchased separately)

Model	Material	Default Cal Units	Dynamic Range	$\lambda$ Range (nm)	Sensor Area	Notes <sup>(1)</sup>
221	Si	Watts	2.0 x 10 <sup>-11</sup> to 2.4 x 10 <sup>-3</sup> W	350 to 1,100	1 cm <sup>2</sup>	
247	Si	Watts	5.5 x 10 <sup>-11</sup> to 6.4 x 10 <sup>-3</sup> W	350 to 1,100	1 cm <sup>2</sup>	Flat response
261	Ge	Watts	5.0 x 10 <sup>-10</sup> to 6.0 x 10 <sup>-3</sup> W	800 to 1,750	0.5 cm <sup>2</sup>	
211	Si	Lux and fc	1.0 x 10 <sup>-2</sup> to 1.0 x 10 <sup>5</sup> lux	400 - 700	1 cm <sup>2</sup>	
265	Si	Candela/m <sup>2</sup> and fL	1.0 x 10 <sup>-3</sup> to 1.0 x 10 <sup>5</sup> cd/m <sup>2</sup>	400 to 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 x 10 <sup>-2</sup> to 1.0 x 10 <sup>6</sup> cd/m <sup>2</sup>	400 to 700	1 cm <sup>2</sup>	High accuracy photometric filter (f'1 < 3%); 12.5° fixed field-of-view
268UVA	Si - UV	W/cm <sup>2</sup> @ 365nm	5.0 x 10 <sup>-10</sup> to 9.0 x 10 <sup>-4</sup> W/cm <sup>2</sup>	320 to 400	1 cm <sup>2</sup>	365nm bandpass filter; opal glass diffuser
268UVC	Si - UV	W/cm <sup>2</sup> @ 254nm	1.0 x 10 <sup>-8</sup> to 7.5 x 10 <sup>-1</sup> W/cm <sup>2</sup>	200 to 280	1 cm <sup>2</sup>	254nm bandpass filter w/ PTFE diffuser
S2575	Si	Watts	3.0 x 10 <sup>-8</sup> to 9.5 x 10 <sup>-1</sup> W	400 to 1,100	0.34 cm <sup>2</sup>	260 sensor; 50 mm sphere and 5mm $\emptyset$ entrance aperture
S2575GE	Ge	Watts	3.0 x 10 <sup>-9</sup> to 1.6 W	800 to 1,750	0.5 cm <sup>2</sup>	261 sensor; 50 mm sphere and 5mm $\emptyset$ entrance aperture
S2575R	Si	Watts	6.0 x 10 <sup>-8</sup> to 1.8 W	350 to 1,100	0.34 cm <sup>2</sup>	260 sensor; flat filter, 50 mm sphere and 5mm $\emptyset$ entrance aperture

<sup>(1)</sup> 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.