

Meters • Microtops II® Sunphotometer

Model 540

Hand-Held Sunphotometer for Measuring
Aerosol Optical Thickness Easily
and Accurately



Applications

- Weather Stations
- Scientific and Educational Studies
- Pollution Monitoring
- Photobiology
- Environmental Monitoring
- Vicarious Calibration
- Irradiance Based Calibration of Imaging Sensors

Features and Benefits

- High Accuracy
- Easy To Use
- Fully Portable
- Instantaneous Results
- Non-Volatile Memory
- Low Cost
- USB Interface

MICROTOPS II® is a 5 channel hand-held Sunphotometer for measuring Aerosol Optical Thickness easily, accurately and dependably. Using Model 520, direct solar radiation at 5 discrete wavelengths is measured and stored. MICROTOPS II® features an accuracy comparable to much larger and more expensive instruments. Optional GPS receiver facilitates field operation. Choose five of eight available WMO wavelength filters or specify up to five custom wavelengths. The Microtops II® Sunphotometer provides the aerosol optical thickness at each of the 8 possible standard wavelengths 340, 380, 440, 500, 675, 870, 936, and 1020nm. It also measures direct solar irradiance at all chosen wavelengths and water vapor column with 936 and either one or both 870 and 1020nm.

A new carrying case for the MICROTOPS II® has just arrived. It provides excellent protection and toting convenience, perfect if you're traveling by car, ship, plane, or you're in the field.

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Carry case features below:

- Well padded, durable construction
- Adjustable shoulder strap
- Pouch for notepad, pencils, etc.
- Velcro strap to attach fellow GPS carrying case
- MICROTOPS II® is fully operable while inside case



S/N	DATE	TIME	LAT.	LONG.	ALT.	PRES.	SZA	S305	S312	S320	SIG940	SIG1020	OZ305_312	OZ312_320	OZONE	WATER	AOT 1020
3103	x/xx/xx	15:06:00	40.01	-75.13	20	1018	65.4	1.82	27.9	55.01	58.95	132.36	216.5	241.8	243	1.04	0.086
3103	x/xx/xx	15:06:11	40.01	-75.13	20	1018	65.4	1.81	27.8	54.71	58.8	132.2	216.7	241.7	242.8	1.04	0.087
3103	x/xx/xx	15:06:23	40.01	-75.13	20	1018	65.4	1.8	27.91	54.77	58.82	131.32	217.7	241.4	242.5	1.03	0.089
3103	x/xx/xx	17:48:32	40.01	-75.13	20	1014	62.6	1.56	20.9	35.55	20.85	48.42	228.4	245.1	245.8	0.96	0.56
3103	x/xx/xx	17:48:43	40.01	-75.13	20	1014	62.6	1.39	19.13	34.96	18.49	43.01	230.5	244.9	245.5	0.94	0.614

Optical Channels	Stray Light
340 ± 0.3nm, 2nm FWHM	340nm: 1E-6 <650nm; 1E-5 <1.0µm
380 ± 0.4nm, 4nm FWHM	380nm: 1E-6 <650nm; 1E-5 <1.0µm
440 ± 1.5nm, 10nm FWHM	440nm: 1E-5 <1.0µm
500 ± 1.5nm, 10nm FWHM	500nm: 1E-6 <1.1µm; 1E-5 <1.2µm
675 ± 1.5nm, 10nm FWHM	675nm: 1E-6 <1.1µm; 1E-5 <1.2µm
870 ± 1.5nm, 10nm FWHM	870nm: 1E-6 <1.1µm; 1E-5 <1.2µm
936 ± 1.5nm, 10nm FWHM	936nm: 1E-6 <1.1µm; 1E-5 <1.2µm
1020 ± 1.5nm, 10nm FWHM	1020nm: 1E-6 <1.1µm; 1E-5 <1.2µm

Specifications

Resolution	0.01W/cm ² on 305nm Channel
Dynamic Range	>300,000
Viewing Angle	2.5°
Precision	1-2%
Non Linearity	max 0.002% FS
Operating Environment	0 to 50°C, No Precipitation
Computer Interface	USB
Power Source	4xAA Alkaline Batteries
Weight	21 oz (600 grams)
Size	4"W x 8"H x 1.7"D (10x20x4.3 cm)

Ordering Information

Solar Light provides free telephone technical support for the life of our products. We also provide a 1 year Standard Warranty on all of our products covering parts and labor. Extended Warranty Plans are also available.

References

- 1 Atmosphere Poster (363K) Presented at Quadrennial Ozone Symposium Charlottesville, Virginia, USA June 4-13 1992 Daniel Berger, Marian Morys
- 2 Ultraviolet radiation as applied to photoclimate therapy at the Dead Sea (114K) A.I. Kudish, PhD, D. Abels, MD, and M. Harari, MD - International Journal of Dermatology 2003, 42, 359-365
- 3 A Comparison of the New Filter Ozoneometer MICROTOS II® with Dobson and Brewer Spectrometers at Hohenpeissenberg (108K) U. Kohler - Reprint from Geophysical Research Letters
- 4 Absolute Measurement and Modelization of 305.5 nm Direct Spectral Solar Radiation in Rosario, Argentina(43K) Work published in Spanish in "Avances en Energias Renovables y Medio Ambiente", Vol. 2, 11.53-11.56 (1998).
- 5 A Comparison of Spectroradiometers to Radiometers for UV Radiation Measurements (43K) Daniel Berger
- 6 Ship-Based Sun Photometer Measurements Using Microtops Sun Photometers Porter et al, Journal of Atmospheric and Oceanographic Technology, Vol. 18, 765-774, 2001.

High Lights

- **High Accuracy** - Highest grade filters are embedded in solid cast aluminum housing to ensure accurate, stable optical alignment. Low noise electronics allow high linearity, resolution and dynamic range.
- **Ease of Use** - No computer knowledge is necessary to make measurements. Just aim the meter at the sun, align the image of the sun with the cross-hairs and push the button. In few seconds the measurement will be completed and the result stored in memory.
- **Portability** - A small hand-held device is all you need to perform measurements. No additional computer is necessary.
- **Instantaneous Results** - The Aerosol optical thickness calculation algorithms are programmed in the MICROTOS II and the final results of all stored scans can be conveniently viewed on the LCD. The raw data is also stored to allow retrospective adjustments of algorithms.
- **Non-Volatile Memory** - The raw data collected by the MICROTOS II, as well as calculated results are stored in non-volatile memory. Each data point is annotated with date, time, site coordinates, solar angle, altitude, pressure and temperature.
- **Low Cost** - By implementing the latest technology, instrument cost has been brought well below that of comparable sunphotometers, without sacrificing accuracy or features.
- **Computer Interface** - Connection to a PC through a USB interface enables transfer of collected data. MICROTOS Organizer, a Windows-based software automates data retrieval and archiving.

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