

# Solar Power Light Meter

## Model SP505



## Introduction

Thank you for selecting the Extech Model SP505 Solar Power Light Meter. This device measures the power of solar radiation. Use the SP505 to measure the effectiveness of solar film, measure solar radiation, check solar insulated windows, check headlight intensity, and find the optimal incidence angle for solar panels and solar water heaters. This device is shipped fully tested and calibrated and, with proper use, will provide years of reliable service. Please visit our website ([www.extech.com](http://www.extech.com)) to check for the latest version and translations of this User Manual, and for Customer Support.

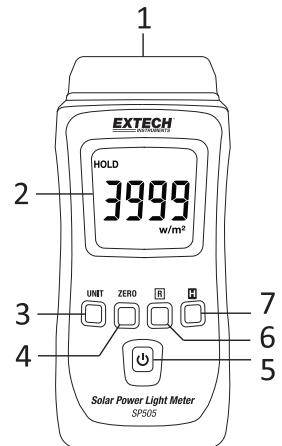
## Safety

Please read the entire User Manual before operating this device. Use the meter only as specified and do not attempt to service or open the meter housing. Do not allow children to handle the meter. Please dispose of batteries and meter responsibly and in accordance with all applicable laws and regulations. Do not look directly into the sun, damage to your eyes can result.

## Meter Description

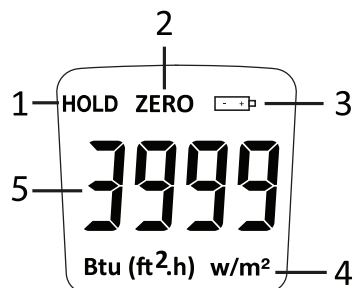
1. Solar Light Sensor
2. LCD
3. Unit button
4. Zero button
5. Power ON-OFF button
6. Range button
7. Hold button

Note: Battery compartment and tripod mount are located on the back of the meter



## LCD Description


1. Data Hold icon
2. Zero calibration mode
3. Battery status
4. Unit of measure (W/m<sup>2</sup> or BTU (ft<sup>2</sup>\*h))
5. Measurement display



# Operation

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## Power the Meter

Press the  button to turn the meter ON/OFF. If the meter display does not switch ON, please check the batteries (2 x 1.5V 'AAA') in the rear compartment. The meter has an APO feature where the meter automatically switches off after 10 minutes of inactivity.

## Zero the Sensor

Cover the sensor, and press the **ZERO** button to zero the display before use.


## Range Selection

Short press the  button to toggle the range of the meter. The meter display range toggles between 0.1 and 1 unit resolution.

## Unit Selection

Short press the **UNIT** button to toggle the units between W/cm<sup>2</sup> and BTU (ft<sup>2</sup>\*h); the lower display area will show the selected units.

## Data Hold


Short press the  button to freeze or unfreeze a reading on the display.

## Testing Solar Power

With the meter ON, zero the display and then point the sensor (top of meter) toward the sun and read the displayed power measurement. A display of 'OL' indicates that the measured power is beyond the range of the meter.

## Other Application Examples

### Automobile Headlight Measurements

1. Turn on the headlights and short press the  power button to power the meter.
2. Face the sensor (top of meter) toward one headlight and then the other, recording each reading.
3. Turn the high beams on and measure both headlights again, recording the readings.
4. Retain the recorded readings with the vehicle for reference.
5. Short press the power button to power OFF the meter.

### Measuring the Solar Insulation of Windows

Use the meter to test the solar film of car windows or the heat efficiency of windows in residential or commercial properties.

1. Turn on the meter and zero the display before taking a measurement.
2. With the window closed, aim the sensor toward the sun and record the reading.
3. Open the window and aim the device toward the sun, recording the reading.
4. Compare the two values to determine the heat efficiency of the window. Test the windows at least once a year to monitor efficiency.

# Maintenance

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## Battery Replacement

1. Power OFF the meter.
2. Slide the battery compartment cover off in a downward motion.
3. Replace the two (2) 'AAA' 1.5V batteries observing correct polarity. Secure the compartment cover before using the meter.

Safety: Please dispose of batteries responsibly, never dispose of batteries in a fire, batteries may explode or leak. If the meter is to be stored for 60 days or more, remove the batteries and store them separately.



Never dispose of used batteries or rechargeable batteries in household waste. As consumers, users are legally required to take used batteries to appropriate collection sites, the retail store where the batteries were purchased, or wherever batteries are sold.

**Disposal:** Do not dispose of this instrument in household waste. The user is obligated to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment.

## Cleaning and Storage

- Clean the sensor (top of meter) occasionally with a soft, dry cloth.
- Periodically wipe the case with a damp cloth and mild detergent; do not use abrasives or solvents.
- Store the meter in the supplied pouch.
- Remove the batteries if the meter is to be stored for more than 60 days.

## Specifications

Display	3 $\frac{3}{4}$ digit LCD display (3999 counts)		
Measurements	Solar Radiation Power		
Sampling Rate	Approximately 0.25 seconds		
Over-range Display	“OL”		
Tripod mount	On rear panel		
Power	2 x 1.5V 'AAA' batteries		
Battery life	Approx. 50 hours		
Automatic power off (APO)	After approx. 10 minutes of inactivity		
Operating Temperature/Humidity	5 to 40°C (41 to 104°F) / 80% RH max		
Operating Altitude	2000 meters (7000 ft.) maximum		
Storage Temperature/Humidity	-10 to 60°C (14 to 140°F) / 70% RH max		
Dimensions/Weight	108 x 48 x 23mm (4.3 x 1.9 x 0.9") / 80g (2.8oz)		
Safety	For indoor use only. EMC: EN61326 (1997), A1 (1998), A2 (2001); Pollution degree 2		
<b>Electrical Specifications (25±5°C)</b>			
<b>Solar Power</b>			
Unit	Range	Resolution	Accuracy*
W/m <sup>2</sup>	0 to 3999	0.1	±10 W/m <sup>2</sup>
BTU (ft <sup>2</sup> *h)	0 to 634	0.1	±3 BTU (ft <sup>2</sup> *h) or ±5%rdg; whichever is greater
*Additional temperature error: ±0.38 W/m <sup>2</sup> or ±0.12 BTU ft <sup>2</sup> *h per °C from 25°C			

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