R8180

REED INSTRUMENTS

Solar Power Meter

Instruction Manual

WARRANTY 1 YEAR WARRANTY

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Introduction

Thank you for purchasing your REED R8180 Solar Power Meter. Please read the following instructions carefully before using your instrument. By following the steps outlined in this manual your meter will provide years of reliable service.

Product Quality

This product has been manufactured in an ISO9001 facility and has been calibrated during the manufacturing process to meet stated product specifications. If a certificate of calibration is required, please contact the nearest authorized REED distributor or authorized Service Center. Please note an additional fee for this service will apply.

Safety

Never attempt to repair or modify your instrument. Dismantling your product, other than for the purpose of replacing batteries, may cause damage that will not be covered under the manufacturer's warranty. Servicing should only be provided by an authorized service center.

Features

- Measures the solar power and transmission up to 2000W/m², 634BTU/(ft²xh)
- Easy-to-read display with remote sensor technology
- User Selectable W/m² or BTU/(ft²xh)
- Max/Min and Data Hold functions
- Overrange indicator
- Low battery indicator and auto shut-off

Included

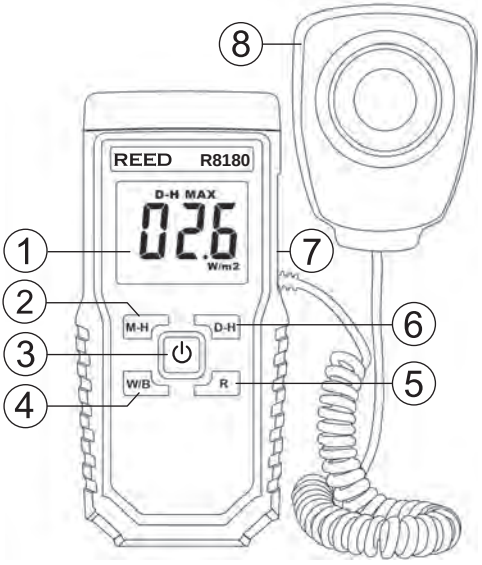
- Solar Power Meter
- Sensor Cap
- Carrying Case
- Battery

Specifications

Solar Power Meter

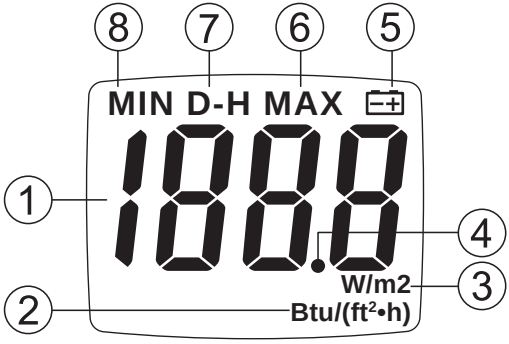
Measuring Range:	0 to 1999W/m²
	0 to 634BTU/(ft²xh)
Accuracy:	±10W/m² ±3BTU/(ft²xh) or ±5% whichever is greater in sunlight
	Additional temperature included error ± 0.38W/m²/°C ±0.12BTU/(ft²xh)/°F (°C) from 77°F (25°C)
Angular Accuracy:	Cosine corrected <5% for angles <60°
Resolution:	0.1, 1
Response Time:	250mS
Display:	3½-Digit, LCD
Data Hold:	Yes
Min:	Yes
Max:	Yes
Auto Zero:	Yes (Adjustment Screw)
Overrange Indicator:	Yes ("OL")
Tripod Mountable:	Yes
Power Supply:	9V Battery
Product Certifications:	CE, EMC Compliant, Conforms to EN61326-1
Operating Temperature:	41 to 104°F (5 to 40°C)
Storage Temperature:	14 to 140°F (-10 to 60°C)
Operating Humidity Range:	10 to 80%
Dimensions:	5.2 x 2.4 x 1.5" (132 x 60 x 38mm)
Weight:	5.3oz (150g)

Instrument Description



1. LCD Display
2. Max/Min Button
3. POWER Button
4. BTU/W/m^2 Unit of Measure Button
5. Range Button
6. Data Hold Button
7. Zero Adjustment Potentiometer
8. Solar Sensor

Display Description



1. Measurement Value
2. BTU (ft^2xh) Unit of Measure
3. W/m^2 Unit of Measure
4. Decimal Point
5. Low Battery Indicator
6. Maximum Value Indicator
7. Data Hold Indicator
8. Minimum Value Indicator

Operating Instructions

Power ON/OFF

Press the ⏻ button to turn the meter ON or OFF.

Solar Sensor

1. The solar sensor is permanently attached to the meter.
2. Remove the protective cap to expose the solar sensor. When the sensor's protective cap is removed, the solar sensor will begin to capture light. For maximum accuracy, allow the light under test to fall directly on the sensor as perpendicular as possible to avoid any false readings.

Unit of Measure Selection

Press the W/B button to toggle between BTU (ft^2xh) and W/m^2 units of measurement.

Measurement Range Selection

Press the R button to select the preferred measuring range. The available ranges are: 199.9 or 1999.

MIN/MAX

1. Press the M-H button to enter the MIN/MAX function.
2. The "MAX" indicator will appear on the display.
3. Under this function the maximum solar value is displayed and updated when a new maximum data value has been taken.
4. Press the M-H button again and the "MIN" indicator will appear on the display.
5. Under this function the minimum light value is displayed and updated when a new minimum data value has been taken.
6. To exit the MIN/MAX function and resume normal operation, press and hold the MIN/MAX button for approx. 2 seconds.

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Data Hold

1. While taking a measurement, press the D-H button to freeze the current readings on the display.
2. While in this mode a "D-H" symbol will appear.
3. Press the D-H button again to resume normal operation.

Zero Adjustment

1. Before taking a light measurement, cover the solar sensor with the provided protective cap.
2. If the LCD display does not show a value of zero, locate the zero adjustment potentiometer screw on the side of the meter as indicated by "0' ADJ".
3. With a mini flathead screwdriver, fine-tune the zero adjustment potentiometer screw until the LCD displays "00.0".
4. Remove the protective cap and begin measuring.

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Typical Applications

Measuring Car Headlights or Car Window Solar Insulation (Fig. 1)

1. Turn ON car headlights.
2. Power the meter ON.
3. Place the sensor up close to the headlight and allow the headlight under test to fall directly on the sensor as perpendicular and as close as possible to avoid any false readings.
4. Switch between high and low beams.
5. Note the results.

Note: Both the right and left headlights must be tested.

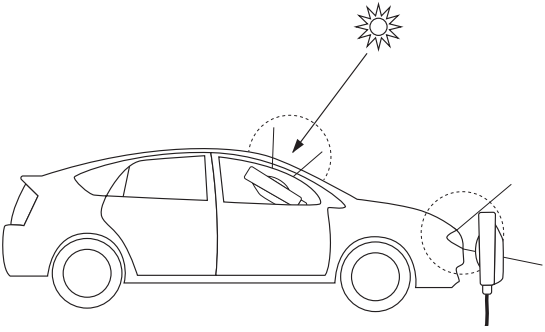

Figure 1

6. For car window solar insulation, place the sensor up close to the window and allow the sun rays to fall directly on the sensor while the windows are closed and as perpendicular as possible to avoid any false readings.
7. Open the window and aim the solar sensor at the sun.
8. Compare both values to verify the efficiency of the window's solar film.

Measuring Residential/Commercial Window Solar Insulation (Fig. 2)

1. Make sure the window being tested is closed.
2. Place the sensor up close to the window and allow the sun rays to fall directly on the sensor while the windows are closed and as perpendicular as possible to avoid any false readings.
3. Open the window and aim the solar sensor at the sun.
4. Compare both values to verify the windows heat efficiency.

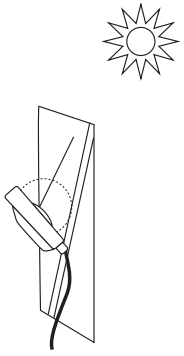

Figure 2

Battery Replacement

When the low battery indicator appears on the display, the battery should be replaced. Remove the battery cover on the back and insert a new 9V battery.

Applications

- Calculation and verification of the heating or heat reduction in windows caused by direct sunlight
- Solar radiation measurements
- Solar power research for location of the solar panels or solar water heater
- Physics and optical laboratories
- Meteorology
- Agriculture

Accessories and Replacement Parts

CA-05A Medium Soft Carrying Case

Don't see your part listed here? For a complete list of all accessories and replacement parts visit your product page on www.REEDInstruments.com.

Product Care

To keep your instrument in good working order we recommend the following:

- Store your product in a clean, dry place.
- Change the battery as needed.
- If your instrument isn't being used for a period of one month or longer please remove the battery.
- Clean your product and accessories with biodegradable cleaner. Do not spray the cleaner directly on the instrument. Use on external parts only.

Product Warranty

REED Instruments guarantees this instrument to be free of defects in material or workmanship for a period of one (1) year from date of shipment. During the warranty period, REED Instruments will repair or replace, at no charge, products or parts of a product that proves to be defective because of improper material or workmanship, under normal use and maintenance. REED Instruments total liability is limited to repair or replacement of the product. REED Instruments shall not be liable for damages to goods, property, or persons due to improper use or through attempts to utilize the instrument under conditions which exceed the designed capabilities. In order to begin the warranty service process, please contact us by phone at 1-877-849-2127 or by email at info@reedinstruments.com to discuss the claim and determine the appropriate steps to process the warranty.

Product Disposal and Recycling

Please follow local laws and regulations when disposing or recycling your instrument. Your product contains electronic components and must be disposed of separately from standard waste products.

Product Support

If you have any questions on your product, please contact your authorized REED distributor or REED Instruments Customer Service by phone at 1-877-849-2127 or by email at info@reedinstruments.com.

Please visit **www.REEDInstruments.com** for the most up-to-date manuals, datasheets, product guides and software.

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