

# ENGLISH

## User's manual



**Table of contents:**

1. SAFETY PRECAUTIONS AND PROCEDURES .....	2
1.1. Preliminary .....	2
1.2. During use .....	2
1.3. After use .....	2
2. GENERAL DESCRIPTION .....	3
2.1. Features .....	3
2.2. Instrument description .....	3
2.3. Description of function keys.....	3
2.3.1. ON/OFF key .....	3
2.3.2. M-H key .....	3
2.3.3. W/B key .....	4
2.3.4. D-H key .....	4
2.3.5. R key .....	4
3. PREPARATION FOR USE .....	4
3.1. Initial .....	4
3.2. Power supply .....	4
3.3. Calibration .....	4
3.4. Storage .....	4
4. OPERATING INSTRUCTIONS.....	5
4.1. Measurement description .....	5
5. PREVENTIVE MAINTENANCE .....	5
5.1. General information .....	5
5.2. Battery replacement .....	5
5.3. Cleaning .....	5
5.4. End of life .....	5
6. TECHNICAL SPECIFICATIONS .....	6
6.1. Characteristics.....	6
6.1.1. General data.....	6
6.2. Environment .....	6
6.2.1. Environmental conditions .....	6
6.3. Accessories .....	6
6.3.1. Standard accessories.....	6
7. SERVICE .....	7
7.1. Warranty conditions.....	7
7.2. Service .....	7

## 1. SAFETY PRECAUTIONS AND PROCEDURES

This meter is in compliance with safety standard EN 61010-1 related to electronic measuring instruments. For your own safety and to avoid damaging the instrument follow the procedures described in this instruction manual and read carefully all notes preceded by this symbol . When taking measurements:

- Avoid doing that in humid or wet places
- Avoid doing that in rooms where explosive gas, combustible gas, steam or excessive dust is present
- Avoid doing that if you notice anomalous conditions such as breakages, deformations, fractures, leakages of battery liquid, blind display etc

The following symbol is used:



Caution: refer to the instruction manual. An incorrect use may damage the luxmeter or its components.

### 1.1. PRELIMINARY

- Before turning on the instrument make sure that the battery is correctly installed. Replace the battery as soon as the low battery indication (“”) is displayed
- Don't touch the sensor during measurements to prevent any damage due to contamination or static electricity

### 1.2. DURING USE

Always keep to the instructions contained in this manual.



#### CAUTION

An improper use may damage the instrument and/or its components or injure the operator.

- If the reading value or the sign indication remains unchanged during the measurement, check if the DATA HOLD function is active

### 1.3. AFTER USE

- After using the instrument turn it off
- If you expect not to use the instrument for a long period remove the battery to avoid leakages of battery liquids which may damage its inner components

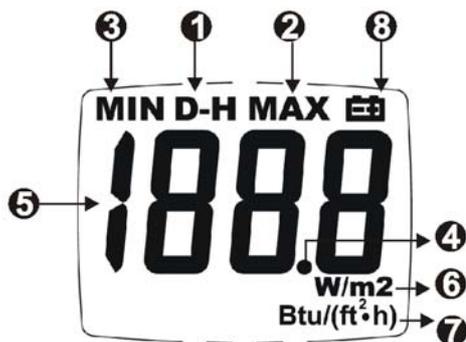
## 2. GENERAL DESCRIPTION

The digital solar power meter HT204 is used to measure the sunlight. Possible applications are the evaluation of the solar power in industrial installations (photovoltaic plants) or its danger level for people's skin. The sunlight is usually expressed in  $W/m^2$  or  $BTU/(ft^2 \cdot h)$ .

### 2.1. FEATURES

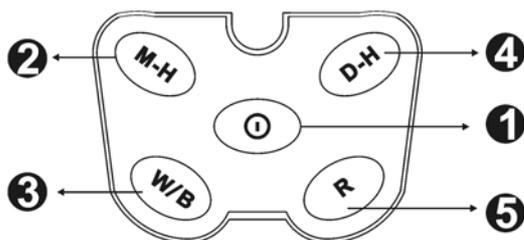
- Sunlight measurement up to  $1999W/m^2$  /  $634BTU/(ft^2 \cdot h)$
- High accuracy and rapid response
- DATA HOLD function to hold measuring values
- Unit and sign display for easy reading
- Measuring unit selection among  $W/m^2$  and  $BTU/(ft^2 \cdot h)$
- Manual scale selection
- Direct reading with no adjustments needed
- Maximum and minimum values
- Low battery indication

### 2.2. INSTRUMENT DESCRIPTION



#### LEGEND:

1. DATA HOLD active
2. MAX active
3. MIN active
4. Decimal point
5. Measured value
6. Measuring unit  $W/m^2$
7. Measuring unit  $BTU/(ft^2 \cdot h)$
8. Low battery



#### LEGEND:

1. ON/OFF key
2. M-H key to select the maximum, minimum or current reading
3. W/B key to select the measuring unit  $W/m^2$  or  $BTU/(ft^2 \cdot h)$
4. D-H key to hold displayed data
5. R key to select the full scale manually

Fig. 1: Instrument description

### 2.3. DESCRIPTION OF FUNCTION KEYS

#### 2.3.1. ON/OFF key

Press the key to switch on and off the instrument.

#### 2.3.2. M-H key

By pressing key, maximum and minimum values are measured. The symbol corresponding to the desired function is displayed: "MAX" for maximum value, "MIN" for minimum value. To exit this function keep M-H key pressed for at least 1 second.

### 2.3.3. W/B key

By pressing  key the manual selection of measuring unit is possible. The cyclically pressure of the key changes the measuring unit among  $W/m^2$  and  $BTU/(ft^2 \cdot h)$ .

### 2.3.4. D-H key

By pressing  key the measured value is frozen on the display where the symbol "HOLD" appears. Press again D-H to disable this function and resume normal operation.

### 2.3.5. R key

By pressing  key the manual selection of measured range cyclically pressure of the key changes the measuring range and fix the decimal point on the display.

## 3. PREPARATION FOR USE

### 3.1. INITIAL

This instrument was checked both mechanically and electrically prior to shipment. All possible cares and precautions were taken to let you receive the instrument in perfect conditions. Notwithstanding we suggest you to check it rapidly (eventual damages may have occurred during transport – if so please contact the local distributor from whom you bought the item).

Make sure that all standard accessories mentioned in paragraph 6.3.1 are included. Should you have to return back the instrument for any reason please follow the instructions mentioned in paragraph 7.

### 3.2. POWER SUPPLY

The instrument is powered by batteries (refer to paragraph 6.1.1 for further details on model, number and battery life). The battery charge is displayed on the right top side. Replace it immediately, following the instructions given in paragraph 5.2.

### 3.3. CALIBRATION

The instrument complies with the technical specifications contained in this manual and such compliance is guaranteed for 1 year.

The calibration interval for the photo detector varies according to the operating conditions, but generally the sensitivity decreases in direct proportion to the product of luminous intensity and operating time. In order to maintain the basic accuracy of the instrument, a periodic recalibration is recommended.

### 3.4. STORAGE

After a period of storage in extreme environmental conditions exceeding the limits mentioned in paragraph 6.2.1 let the instrument resume normal measuring conditions before using it.

## 4. OPERATING INSTRUCTIONS

### 4.1. MEASUREMENT DESCRIPTION

1. Press the power key  to turn on the meter
2. Press the  key to select W/m<sup>2</sup> or BTU/(ft<sup>2</sup>\*h) measurement
3. Remove the protection cap of the photo detector and expose it to the light source in horizontal position. Read the sunlight value on the LCD display
4. Wait for values to be stable on the display. Press "D-H" key to activate the DATA HOLD function blocking the result on the display



### CAUTION

If the instrument displays "OL", the input signal is too strong. A higher range must be selected.

5. When the measurement is completed, fit the photo detector cap and check that the indication value should be "000" regardless of the range. If no, adjust the "ADJ" trimmer on "000" before pressing the power key to turn off the meter

## 5. PREVENTIVE MAINTENANCE

### 5.1. GENERAL INFORMATION

This is a precision instrument. To guarantee its performances be sure to use it according to these instructions and keep it stored on suitable environmental conditions Do not expose it to high temperatures or humidity. Be sure to turn it off after use. If you expect not to use the instrument for a long period remove batteries to avoid leakages of battery liquid which could damage the its inner components.

### 5.2. BATTERY REPLACEMENT

When the low battery indication  is displayed, replace the battery.

1. Switch off the instrument
2. Press the battery cover and push in the direction of the arrow to open
3. Replace the battery with a new one of the same type (9V 6LR61)
4. Replace the battery cover

### 5.3. CLEANING

To clean the instrument use a soft dry cloth. Never use a wet cloth, solvents or water, etc. The white plastic lens of the detector should be cleaned with a damp cloth when necessary.

### 5.4. END OF LIFE



CAUTION: this symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal.

## 6. TECHNICAL SPECIFICATIONS

### 6.1. CHARACTERISTICS

Accuracy is referred to the following reference conditions:  $23 \pm 5^{\circ}\text{C}$  with  $\text{RH} < 70\%$ .

Uncertainty:	$\pm 10 \text{ W/m}^2$ [ $\pm 3 \text{ BTU}/(\text{ft}^2\cdot\text{h})$ ] or $\pm 5\%$ , whichever is greater
Temperature added uncertainty:	$\pm 0.38 \text{ W/m}^2/^{\circ}\text{C}$ [ $\pm 0.12 \text{ BTU}/(\text{ft}^2\cdot\text{h})/^{\circ}\text{C}$ ] from $25^{\circ}\text{C}$
Resolution:	$1 \text{ W/m}^2$ [ $1 \text{ BTU}/(\text{ft}^2\cdot\text{h})$ ]
Range:	$1 \div 1999 \text{ W/m}^2$ [ $1 \div 634 \text{ BTU}/(\text{ft}^2\cdot\text{h})$ ]

#### 6.1.1. General data

##### Mechanical characteristics

Size:	172(L) x 60(W) x 38(H)mm; 6,8 x 2,4 x 1,5in
Weight (including battery):	About 150g; 5,3ounces

##### Supply

Battery type:	1 battery 9V type 6LR61
Low battery indication:	"  "
Battery life:	About 100 hours (carbon zinc.)

##### Display

Characteristics:	3-1/2 digit LCD, 2000 counts with "OL" indication
Sample rate:	4 times/sec

### 6.2. ENVIRONMENT

#### 6.2.1. Environmental conditions

Reference temperature:	$23^{\circ} \pm 5^{\circ}\text{C}$ ; $73^{\circ} \pm 41^{\circ}\text{F}$
Operating temperature:	$5^{\circ} \div 40^{\circ}\text{C}$ ; $41^{\circ} \div 104^{\circ}\text{F}$
Operating humidity:	$<80\%\text{RH}$
Storage temperature:	$-10^{\circ} \div 60^{\circ}\text{C}$ ; $14^{\circ} \div 140^{\circ}\text{F}$
Storage humidity:	$<70\%\text{RH}$
Internal use:	Max. 2000m (6561ft), pollution degree 2

<p><b>This instrument complies with the requirements of the European Directive: EN61326 (1997) + A1 (1998) + A2 (2001)</b></p>
--

### 6.3. ACCESSORIES

#### 6.3.1. Standard accessories

The packaging contains:

- Instrument HT204
- Carrying case
- Instruction manual

## 7. SERVICE

### 7.1. WARRANTY CONDITIONS

This instrument is guaranteed against material or production defects, in accordance with our general sales conditions. During the warranty period the manufacturer reserves the right to decide either to repair or replace the product.

Should you need for any reason to return back the instrument for repair or replacement take prior agreements with the local distributor from whom you bought it. Do not forget to enclose a report describing the reasons for returning (detected fault). Use only original packaging. Any damage occurred in transit due to non original packaging will be charged anyhow to the customer.

The manufacturer will not be responsible for any damage to persons or things.

The warranty doesn't apply to:

- Accessories and batteries (not covered by warranty)
- Repairs made necessary by improper use (including adaptation to particular applications not foreseen in the instructions manual) or improper combination with incompatible accessories or equipment
- Repairs made necessary by improper shipping material causing damages in transit
- Repairs made necessary by previous attempts for repair carried out by non skilled or unauthorized personnel
- Instruments for whatever reason modified by the customer himself without explicit authorization of our Technical Dept

The contents of this manual may not be reproduced in any form whatsoever without the manufacturer's authorization.

**Our products are patented and our logotypes registered. We reserve the right to modify specifications and prices in view of technological improvements or developments which might be necessary.**

### 7.2. SERVICE

Shouldn't the instrument work properly, before contacting your distributor make sure that the battery is correctly installed and working, check the test leads and replace them if necessary. Make sure that your operating procedure corresponds to the one described in this manual.

Should you need for any reason to return back the instrument for repair or replacement take prior agreements with the local distributor from whom you bought it. Do not forget to enclose a report describing the reasons for returning (detected fault). Use only original packaging. Any damage occurred in transit due to non original packaging will be charged anyhow to the customer.

The manufacturer will not be responsible for any damage to persons or things.