WBGT Meter with Color-Coded LCD Alerts

801038

Instruction Manual

SPER SCIENTIFIC

Environmental Measurement Instruments

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INTRODUCTION

This Sper Scientific multi-functional WBGT heat stress meter (model 801038) provides a simple, color coded WBGT value on a large LCD display. This meter takes the guesswork out of heat stress calculations by translating the OSHA WBGT guidelines into a simple color-coded system. In addition to providing all the necessary environmental conditions on a single screen, this visual alert system is visible only indoors, allowing management and workers to be instantly aware when the heat index enters potentially dangerous zones. These features, combined with the optional audible alarm help to mitigate the risk of heat-related injuries in the workplace.

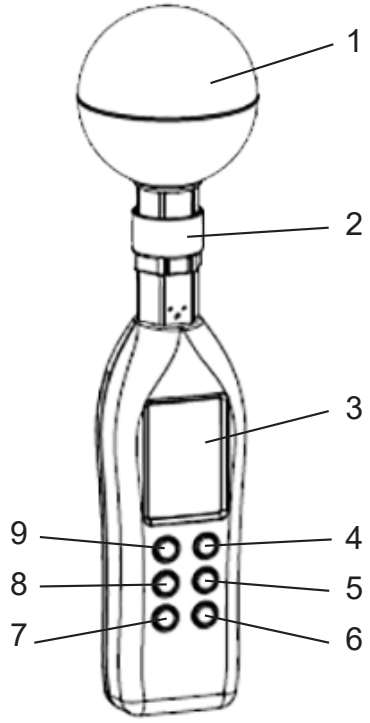
FEATURES

- Calculates Heat Index value for Shaded Conditions
- Calculates Heat Stress value for Direct Sunlight Conditions
- Tripod Mounting for Hands-free operation
- Rugged housing
- Maximum and Minimum values
- Data Hold Function
- Protective sleeve for safe transportation
- Optional Audible alarm

MATERIALS SUPPLIED

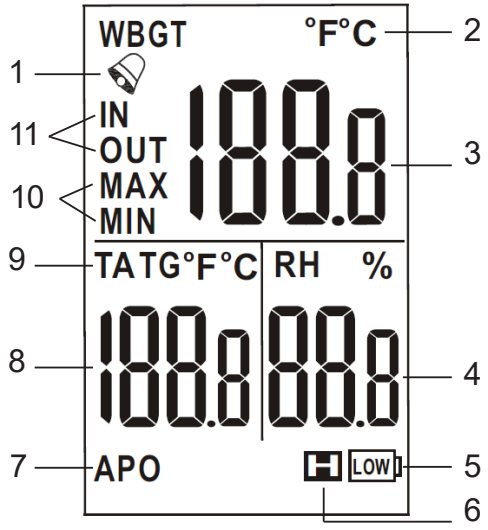
- WGBT meter
- Instruction manual
- 4 AAA batteries

FRONT PANEL DESCRIPTION



1. Black Globe (Brass)
2. Sensor Protective sleeve
3. LCD Display
4. SET Button
5. IN/OUT Button/UP Arrow
6. HOLD Button/DOWN Arrow
7. MIN/MAX/ESC Button
8. TA/TG Button
9. POWER Button

LCD DISPLAY



1. Audible Alarm Indicator
2. Temperature Units
3. WBGT Value
4. Ambient Relative Humidity Value
5. Low Battery Indicator
6. Hold Data Indicator
7. Auto power-off Indicator
8. Air Temperature/Globe Temperature Value
9. Air Temperature/Globe Temperature Selection
10. Minimum/Maximum Selection
11. IN/OUT Selection

SET UP

Battery Installation

This meter uses four AAA batteries. To install the batteries before first use:

1. Locate the battery door on the back of the meter.
2. Push the tab inward to remove the door
3. Insert four new AAA batteries, ensuring correct polarity.
4. Replace the battery cover by first inserting the two plastic tabs into the meter and then pressing the door down until it clicks.

Replace the batteries when the low-battery icon blinks on the LCD.

Note…

Before replacing the batteries, turn the meter off.

Meter On and Off

1. Press **POWER** to turn the meter **on/off**.
2. The meter will automatically turn off after twenty minutes of inactivity.

Disabling the Automatic Power-Off Function

1. Ensure the meter is turned **off**.
2. Simultaneously press **POWER** and **HOLD** for 3 seconds.
3. The meter will beep and the letter n will appear on the screen. This indicates that the function has successfully been disabled.
4. After the meter is turned **off**, it will return to Auto power-off mode. This is indicated by APO in the lower left quadrant of the LCD screen.

Temperature Unit Selection

1. With the meter turned on, press and hold the **SET** button for more than three seconds to enter the SETUP mode.
2. Using the **UP** and **DOWN** arrows, scroll through the settings until UNT appears on the screen.
3. Press **SET** to enter this function.
4. Use the **UP** and **DOWN** arrows to select °C or °F.
5. Press **SET** once to confirm your selection.
6. Press **MIN/MAX/ESC** to exit setup mode

Setting the Audible Alarm

1. With the meter turned on, press and hold **SET** for more than three seconds to enter the SETUP mode.
2. Using the **UP** and **DOWN** arrows, scroll through the settings until ALA appears on the screen.
3. Press **SET** to enter this function.
4. Use the **UP** and **DOWN** arrows to select whether the audible alarm is Off or On.
5. Press **SET** once to confirm your selection.
6. The meter will now display a blinking numerical value.
7. Using the **UP** and **DOWN** arrows, set this value to the minimum heat index/heat stress value you would like to trigger the alarm.
8. Press **SET** once to confirm your selection.
9. Press **MIN/MAX/ESC** to exit setup mode and return to normal operation.

CALIBRATION

This meter comes Factory calibrated and can sustain rigorous use without the need for recalibration. Calibration must be performed in a controlled temperature/humidity chamber in a laboratory environment. Self-calibration is not recommended. Sper Scientific offers calibration service for this meter at **www.sperdirect.com**.

MEASUREMENT PROCEDURES

For Indoor and Outdoor Shade

1. Press **IN/OUT** until the word IN is displayed on the screen.
2. The meter will now provide readings relevant to shaded conditions on the LCD screen.

For Direct Sunlight Conditions

3. Press **IN/OUT** until the word OUT is displayed on the screen.
4. The meter will now provide readings relevant to full sun conditions on the LCD screen.

Data Hold

All real time measurements for the meter, including automatic color changing of the screen, are disabled during data hold. The data hold function does not override the automatic power-off function.

1. Press **HOLD** to freeze the reading on the display. “Hold” appears at the top of the LCD and the reading remains on the display until hold is disabled.
2. Press **HOLD** to return to Normal Mode.

Min/Max Mode

1. In Normal measuring mode, press **MIN/ MAX/ESC** to scroll through the minimum and maximum values for all values from the time the meter was last turned **on**.
2. Press **TA/TG** to toggle between the Minimum and Maximum Air and Globe Temperatures.
3. Press **IN/OUT** to toggle between the Minimum and Maximum calculations for Sun and shaded WBGT values.
4. To clear the Minimum and Maximum values, Press **POWER** to turn the meter **off**.

Using the Color-Code Function

Note…

The meter defaults to a color-changing display based on the surrounding conditions when it is turned on. The meter will change color according to the following table. The screen will show no color if the conditions are below the OSHA guidelines for possible heat injury. However, if you have set an audible alarm as described on page 8, the display will blink if the WBGT value exceeds this value, regardless of whether or not the audible alarm is turned on.

WBGT Value (°C)	WBGT Value (°F)	Backlight Color	Risk of heat injury*
Less than 26.7°C	Less than 80.1°F	Gray (no color)	No Risk
26.7 – 29.3°C	80.1 – 84.7°F	Green	Low Risk
29.4 – 31.0°C	84.9 – 87.8°F	Amber	Light Risk
31.1 – 32.1°C	88.0 – 89.8°F	Red	Moderate Risk
32.2°C and above	90.0°F and above	Flashing Red	High Risk

*** IMPORTANT NOTE:** The table above is based on OSHA guidelines, but is NOT intended to replace any regulation set forth by OSHA or any other Regulatory Authority. It is the responsibility of the user to remain up-to-date on all regulations for employee safety. In addition, the risk levels for the heat index were developed for shaded conditions and light winds. Full sunshine, strenuous work, and the use of heavy or specialized protective clothing require addition precautions. As a result, the risk at a specific heat index could be higher than what is listed in the table above.

CARE AND MAINTENANCE

- Always slide the protective sleeve over the sensor when the meter is not in use.
- Periodically wipe the meter with a dry, lint-free anti-static cloth.
- Do not use abrasives, solvents or cleaning agents containing carbon, alcohol or benzenes on the meter.
- Repairs or services not covered in this manual should be performed by qualified personnel only. Please contact Sper Scientific to speak with a technician.
- The Black Ball of the meter is a painted surface. Take care not to scratch this surface.

SPECIFICATIONS

Ambient Air Temperature

Range	Resolution	Accuracy
0 - 50°C 32 - 122°F	0.1	±0.6°C, 1.5°F

Globe Temperature

Range	Resolution	Accuracy
0 - 80°C 32 - 176°F	0.1	±1°C @15 - 40°C, ±2°C outside this range

Relative Humidity

Range	Resolution	Accuracy
5 - 90%	0.1	± 4%

WBGT

Range	Resolution	Accuracy
0 - 50°C 32 - 122°F	0.1	±1°C @15 - 40°C, ±2°C outside this range

WBGT Formula

In full sun: 0.7WB + 0.2TG + 0.1TA

Indoor or Outdoor Shade: 0.7WB + 0.3TG

Power Supply

AAA, 1.5V battery x 4

Battery Life

110 hours under WBGT of 80.1°F, 45 hours above with backlight engaged

WARRANTY

Sper Scientific warrants this product against defects in materials and workmanship for a period of **one (1) year** from the date of purchase, and agrees to repair or replace any defective unit without charge. If your model has since been discontinued, an equivalent Sper Scientific product will be substituted if available. This warranty does not cover batteries, battery leakage, or damage resulting from accident, tampering, misuse, or abuse of the product. Opening the meter to expose its electronics will void the warranty. To obtain warranty service, ship the unit postage prepaid to:

SPER SCIENTIFIC LTD.

8281 E. Evans Rd., Suite #103

Scottsdale, AZ 85260

(480) 948-4448

The defective unit must be accompanied by a description of the problem and your return address. Register your product online at www.sperwarranty.com within 10 days of purchase.