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BTMETER BT-881W

BTMETER BT-881W Heat Stress Meter Anemometer

USER MANUAL

1. Introduction

The BTMETER BT-881W is a versatile digital instrument designed for measuring environmental conditions. It functions as both a heat stress meter and an anemometer, providing accurate readings for Wet Bulb Globe Temperature (WBGT), wind speed, ambient temperature, and relative humidity. This device is suitable for a wide range of applications, including HVAC maintenance, drone operation, dust collection systems, and monitoring heat stress in various indoor and outdoor environments such as boiler rooms, mining areas, military training, and outdoor sports activities.

Key features include:

- Multifunctional measurement of wind speed, wind temperature, relative humidity, and WBGT.
- High accuracy for all measurements.
- WBGT alarm function with adjustable thresholds.
- Indoor/Outdoor WBGT measurement modes for precise heat stress index.
- Support for 5 air velocity units (m/s, Ft/min, Knots, Km/h, Mph) and 2 temperature units (Celsius/Fahrenheit).
- Data hold function and backlit LCD display.
- Automatic power-off feature.

2. Product Overview and Components

The BT-881W meter is designed for handheld use and features a clear LCD display. It includes a black ball sensor for WBGT measurement and a wind speed sensor (impeller).



Figure 1: BTMETER BT-881W Heat Stress Meter Anemometer with indicators for WBGT Temp, Wind Speed, Wind Temp, Humidity, WBGT Alarm, and 5 Wind Speed Units.



Figure 2: Detailed view of the BT-881W, showing the ABS Black Ball WBGT sensor, Wind Speed Sensor, and Backlit On/Off feature. Dimensions are approximately 208.3mm (height), 52mm (width), and 40mm (depth).

The package includes:

- 1 x BTMETER BT-881W Heat Stress Meter
- 1 x User Manual
- 1 x Carrying Pouch

3. Setup

3.1 Battery Installation

The BT-881W requires one 9V battery (not included). To install the battery:

1. Locate the battery compartment cover on the back of the device.
2. Open the cover.

3. Insert a 9V battery, ensuring correct polarity.
4. Close the battery compartment cover securely.

3.2 Powering On/Off

Press the power button (usually marked with a power symbol) to turn the device on or off. The device features an auto power-off function to conserve battery life.

3.3 Tripod Mounting

The device includes a 1/4" screw hole at the bottom for mounting on a tripod, allowing for stable and hands-free measurements.



Figure 3: The BT-881W can be mounted on a tripod using the 1/4" screw hole for stable measurements.

4. Operating Instructions

4.1 Switching Measurement Modes (MODE Button)

Press the **MODE** button to switch between the main display for wind speed measurement and WBGT measurement. This allows you to focus on the specific environmental parameter you need to monitor.

4.2 Selecting Indoor/Outdoor WBGT Mode (OUT/IN Button)

In WBGT display mode, press the **OUT/IN** button to switch between indoor and outdoor WBGT measurement modes. This adjustment helps in obtaining more accurate heat stress index readings by accounting for differences in temperature, humidity, and direct or radiant sunlight.

4.3 Changing Wind Speed Units (WIND Button)

Press the **WIND** button to cycle through the available wind speed units: meters per second (m/s), feet per minute (Ft/min), knots (Knots), kilometers per hour (Km/h), and miles per hour (Mph).



Figure 4: The BT-881W supports 5 wind speed units for diverse measurement needs.

4.4 Switching Temperature Units (°C/°F Button)

Press the **°C/°F** button to switch between Celsius and Fahrenheit temperature units.

4.5 Data Hold Function (MAX/MIN Button)

The **MAX/MIN** button can be used to hold the current measurement data on the display, allowing for easy recording or observation.

4.6 Setting WBGT Alarm (SET Button)

The device can alert you with WBGT alarms when the black globe temperature (TG) level reaches a set threshold (20~50°C). To set the alarm temperature:

1. Enter WBGT mode using the **MODE** button.
2. Press the **SET** button to enter alarm setting mode.
3. Use the up/down arrow buttons to adjust the alarm temperature value.
4. When the WBGT alarm is triggered, the backlight color changes to red, indicating a potential heat stress hazard.

Digital Anemometer + Heat Stress Meter



Wind Speed: 0~30 m/s
Wind Temp: 0 ~ 50°C

WBGT Temp: 0 ~ 50°C
Humidity: 0.1% ~ 99.99%

Figure 5: The BT-881W provides visual indications for different WBGT hazard levels: Caution (26.7-29.4°C), Extreme Caution (29.4-31°C), Danger (31-32.2°C), and Extreme Danger (>32.2°C).

4.7 Backlight Display

The LCD display features a backlight for improved visibility in low-light conditions. This feature is automatically

activated or can be controlled as per the device's design.

5. Product Demonstration

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Video 1: A comprehensive demonstration of the BTMETER BT-881W Heat Stress Meter Anemometer, including unboxing, battery installation, wind tunnel testing for accuracy, tripod mounting, and detailed explanations of button functions such as MODE, OUT/IN, WIND, SET, and °C/°F. The video also illustrates the WBGT alarm feature and its visual indicators.

6. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the device. Do not use abrasive cleaners or solvents.
- **Storage:** When not in use for extended periods, remove the battery and store the device in a cool, dry place, preferably in its carrying pouch.
- **Sensor Care:** Keep the wind speed sensor (impeller) and the black ball sensor free from dust and debris to ensure accurate readings. Avoid physical impact to the sensors.

7. Troubleshooting

- **Device does not power on:** Check if the 9V battery is installed correctly and has sufficient charge. Replace the battery if necessary.
- **Inaccurate readings:** Ensure sensors are clean and unobstructed. Verify that the correct measurement mode (Indoor/Outdoor WBGT) and units are selected. Allow the device sufficient time to stabilize in the measurement environment.
- **Display issues:** If the display is dim or flickering, the battery may be low. Replace the battery.

8. Specifications

Feature	Detail
Brand	BTMETER
Model Number	BT-881W
Product Dimensions	2.05 x 1.57 x 8.19 inches
Item Weight	5 ounces (0.31 Pounds)
Power Source	Battery Powered (1 x 9V battery required, not included)
Material	Plastic
Display Type	LCD
Wind Speed Measurement Range	0~30 m/s
Wind Temperature Measurement Range	0~50 °C

Relative Humidity Measurement Range	0.1%~99.9% RH
WBGT Temperature Measurement Range	32~122 °F (0~50 °C)
Temperature Accuracy	±0.6 °C (±2 °C overall)
Humidity Resolution	0.1% RH
Wind Speed Accuracy	±5%
Special Feature	Portable, WBGT Alarm, Backlit LCD

9. Warranty and Support

The BTMETER BT-881W comes with a 365-day quality warranty and lifetime technical support. For any inquiries or assistance, please contact BTMETER customer service.