EXTECH®

Heat Stress WBGT Meter

Model HT30

CE

Introduction

Congratulations on your purchase of Heat Stress WBGT (Wet Bulb Globe Temperature) Meter. This meter measures and displays Heat Stress Index (WBGT), which is how hot it feels when humidity is combined with temperature, air movement, and direct or radiant sunlight. Black Globe Temperature (TG) monitors the effects of direct solar radiation on an exposed surface. It also measures air temperature (TA) and Relative Humidity (RH). Additional features include: selectable units of °F/°C, Auto power off with override, and a built-in RS-232 interface with optional 407752 Windows® software. This meter is shipped fully tested and calibrated and, with proper use, will provide years of reliable service.

Meter Description

1. Black Globe temperature sensor
2. RH and Temperature sensors with protective cover
3. LCD display
4. Φ/SET
5. NEXT
6. MODE/▲
7. RS-232 interface
8. Battery compartment (on rear)
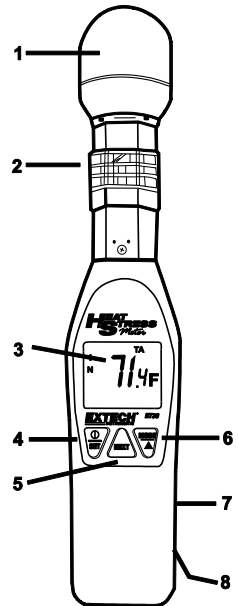
DISPLAY

Symbol	Function
WBGT	Wet Bulb Globe Temperature
TG	Black Globe Temperature
TA	Air Temperature
RH%	Relative Humidity
OUT	Indoor (no sun)
IN	Outdoor (in full sun)
C/F	Celsius/Fahrenheit
▯	Low Battery indicator

Meter Operation

1. Press the ⏻/SET button to power the instrument on/off.
2. Slide down the protective sensor cover before taking measurements.
3. Press the MODE/▲ button to select the desired display mode: Wet Bulb Globe Temperature Index (WBGT), Air Temperature (TA), Black Globe Temperature (TG), or Relative Humidity (RH). An icon will appear in the display indicating the current selection.
4. To select the preferred temperature unit (°F or °C), simultaneously press and release the MODE/▲ and NEXT buttons. The F or C icon will appear in the display.
5. The meter measures WBGT index with (IN) or without (OUT) direct sun exposure. Hold down the MODE/▲ for more than 1 second to alternate between settings. The IN or OUT icon will appear in the display.

Alarm Setting

The HT30 has a user settable heat stress alarm. The HT30 will emit an audible beep when the heat stress WBGT reaches the level previously set by the user. The alarm will continue beep until the measured WBGT temperature falls below the alarm level set by the user, or the meter is turned off. The setting range is from 68.0 to 99.0°F (20.0 to 37.2°C).

1. To enter the alarm setup mode, hold down the ⏻/SET button for more than 2 seconds when turning the meter on.
2. The current alarm setting will be displayed with the most significant digit blinking.
3. Use the MODE/▲ button to increment the digit.
4. To set the next digit, momentarily press the NEXT button.
5. After all of the digits are set, press and hold the NEXT button for 2 seconds to return to the measuring mode.

NOTE: The OUT icon will appear in the display If the new setting is out of the setting range of the alarm.

Auto Power Off

The Auto Power Off feature automatically turns the meter off after approximately 20 minutes. To disable this feature, hold down the ⏻/SET and MODE/▲ for 2 seconds when powering on the meter. The meter will momentarily display an "n" and enter measuring mode. The meter will reset to auto power off mode when it is powered off.

Battery Replacement

When it is time to replace the batteries, the low battery indicator ▯ appears in the bottom left-hand corner of the LCD display. To replace the battery:

1. Open the battery compartment on the back of the meter.
2. Replace the two AAA batteries and close the compartment.

You, as the end user, are legally bound (**Battery ordinance**) to return all used batteries and accumulators; **disposal in the household garbage is prohibited!**

You can hand over your used batteries / accumulators at collection points in your community or wherever batteries / accumulators are sold!

Disposal: Follow the valid legal stipulations in respect of the disposal of the device at the end of its lifecycle

RS-232 PC Interface

The RS-232 serial data port (3.5mm phono jack) is located on the right side of the meter. The PC interface hardware is intended for use with the Extech software package, Part Number 407752 which includes Windows® compatible software and PC interface cable. This software will allow you to Stream data from the meter to the PC software (Data Acquisition).

For more information, contact Extech or refer to the 407752 User's Manual.
The latest version of the 407752 software is available on the Extech.com/software/downloads web page.

Error Messages

An error message will appear on the display if the meter fails an internal diagnostic test.

1. **E2**: The value is under range.
2. **E3**: The value is over range.
3. **E4**: The value is in error.
4. **E11**: RH Calibration error.
5. **E33**: Circuit error. Repair/replacement necessary.

Specifications

Wet Bulb Globe Temperature (WBGT)	0°C to 50°C (32°F to 122°F)
WBGT Accuracy	Calculated from measured parameters
TG Black Globe Temperature range	0 to 80°C (32°F to 176°F)
TG Accuracy Indoor	±2°C (4°F)
Outdoor	±3°C (5.5°F)
TA Air Temperature range	0°C to 50°C (32°F to 122°F)
TA Accuracy	±1°C (1.8°F)
Relative Humidity (RH)	0 to 100%RH
RH Accuracy	±3% (at 25°C, 10 to 95%RH)
Resolution	0.1°F/°C; 0.1%RH
Operating Temperature	0°C to 50°C (32°F to 122°F)
Operating Humidity	Max. 80% RH
Operating Altitude	Max. 2000m (7000ft)
Power Supply	Two AAA batteries
Battery Life	Approx 1000 hours
Dimensions	Meter: 254 x 48.7 x 29.4mm (10x1.9x1.1")
	Black Ball: 40mm, 35mm (1.57 Dia., 1.37H)
Weight	136g (4.8oz)
Optional Accessories	PC software and cable (407752)

HT30 WBGT calculations:

WBGT   = Wet bulb Globe temperature
WB   = Wet bulb temperature   (Calculated from temperature and Humidity)
TG   = Globe temperature
TA   = Air temperature

OUT of the Sun (Indoors)   **WBGT = 0.7xWB + 0.3xTG**

IN full Sun (Outdoors)   **WBGT = 0.7xWB + 0.2xTG + 0.1xTA**

Sensor - Wet bulb calculator (sea level pressure)
http://www.rotronic.com/en/humidity_measurement-feuchtemessung-
mesure_de_l_humidite/humidity-calculator-feuchterechner-mr

GUIDANCE FOR ATHLETIC TRAINERS

WBGT	FLAG COLOR	LEVEL OF RISK	COMMENTS
<18°C (<65°F)	Green	Low	Risk low but still exists on the basis of risk factors.
18-23°C (65-73°F)	Yellow	Moderate	Risk level increases as event progresses through the day.
23-28°C (73-82°F)	Red	High	Everyone should be aware of injury potential; individuals at risk should not compete.
>28°C (82°F)	Black	Extreme or Hazardous	Consider rescheduling or delaying the event until safer conditions prevail; if the event must take place, be on high alert.

Know These Heat Disorder Symptoms

Heat Disorder	Symptoms	First Aid
Sunburn	Redness and pain. In severe cases, swelling of skin, blisters, fever, headaches.	Ointment for mild cases if blisters appear. If breaking occurs, apply dry sterile dressing. Serious, extensive cases should be seen by a physician.
Heat Cramps	Painful spasms usually in muscles of legs and abdomen possible. Heavy sweating.	Firm pressure on cramping muscles, or gentle massage to relieve spasm. Give sips of water. If nausea occurs, discontinue use.
Heat Exhaustion	Heavy sweating, weakness, skin cold, pale and clammy. Pulse thready. Normal temperature possible. Fainting and vomiting.	Get victim out of sun. Lay down and loosen clothing. Apply cool wet cloths. Fan or move victim to air conditioned room. Sips of water. If nausea occurs, discontinue use. If vomiting continues, seek immediate medical attention.
Heat Stroke (or sunstroke)	High body temperature (106°F, or higher). Hot dry skin. Rapid and strong pulse. Possible unconsciousness.	**Heat stroke is a severe medical emergency. Summon medical assistance or get the victim to a hospital immediately. Delay can be fatal.** Move the victim to a cooler environment. Reduce body temperature with cold bath or sponging. Use extreme caution. Remove clothing, use fans and air conditioners. If temperature rises again, repeat process. Do not give fluids.

Two-year Warranty

Teledyne FLIR warrants this Extech brand instrument *to be free of defects in parts and workmanship for* **two years** *from date of shipment (a six-month limited warranty applies to sensors and cables). To view the full warranty text please visit:*
 https://www.flir.com/support-center/warranty/instruments/extech-product-warranty/.

Calibration and Repair Services

Teledyne FLIR offers calibration and repair services for the Extech brand products we sell. We offer NIST traceable calibration for most of our products. Contact us for information on calibration and repair availability, refer to the contact information below. Annual calibrations should be performed to verify meter performance and accuracy. Product specifications are subject to change without notice. Please visit our website for the most up-to-date product information: *www.flir.com/landing/extech/.*

Contact Customer Support

Customer Support - Local Telephone List: *https://support.flir.com/contact*

Obtain a Return Material Authorization (RMA): *https://customer.flir.com/Home*

Contact Customer Service: *https://support.flir.com/ContactService*

Technical Support Center: *https://support.flir.com*