

*WBGT (in/out door), TG Temp., Humidity/ Air Temp.
Dew point Temp. Wet bulb Temp.*

HEAT INDEX WBGT METER

Model : WBGT-2009

ISO-9001, CE, IEC1010



Soft carrying case
CA-20. included



LUTRON ELECTRONIC

The Art of Measurement

HEAT INDEX WBGT METER

Model : WBGT-2009

FEATURES

<p>* Introduction : WBGT (wet-bulb globe temperature) was developed as a monitoring basis at US military training camps and became widespread for the use in workplaces and sports situation . It is suggested in the international standard ISO 7243, OSHA (US Occupation Safety), Japan Society for Occupational Health and the SMA (Sports Medicine Australia) in establishing the permissible heat exposure limits in health , sports or other physical activities.</p>
<p>* Measurement : WBGT value (Indoor/Outdoor Wet bulb globe temperature), Black globe temperature, Humidity, Air temperature, Wet bulb temperature, Dew point Temp..</p>
<p>* Adjustable WBGT alarm setting, if the WBGT value over the alarm threshold, the buzzer will sound along with the flashing Display.</p>
<p>* Using to control and monitor of physical activity in hot environment to limit the danger of heat related injuries.</p>
<p>* Globe temperature measurement use the Pt sensor, high accuracy.</p>
<p>* Fast humidity measuring response time.</p>
<p>* Direct measurement of the radiation effect with a brass black ball in 75 mm dia.</p>
<p>* Sensor protecting mechanism.</p>

Advanced setting	<ul style="list-style-type: none"> * Set WBGT alarm value * Auto power OFF management * Set beep Sound ON/OFF * Select the temperature unit to °C or °F.
Data Hold	Freeze the display reading.
Memory Recall	Maximum & Minimum value.
Sampling Time of Display	Approx. 1 second.
Data Output	RS 232/USB PC computer interface. * Connect the optional RS232 cable UPCB-02 will get the RS232 plug. * Connect the optional USB cable USB-01 will get the USB plug.
Operating Temperature	0 to 50 °C.
Operating Humidity	Less than 85% R.H.
Power Supply	* Alkaline or heavy duty DC 1.5 V battery (UM3, AA) x 6 PCs, or equivalent. * DC 9V adapter input. (AC/DC power adapter is optional).
Power Current	* If LCD Backlight is off, the power consumption will be approx. 5 mA. * If LCD backlight on, the power consumption will be approx. 11 mA.
Weight	489 g/1.08 LB.
Dimension	Meter 177 x 68 x 45 mm Black brass (7.0 x 2.7x 1.9 inch) ball Round, 75 mm dia
Standard Accessories Included	* Instruction manual.....1 PC * Black brass ball (with sensor)..... 1 PC * Soft carrying case, CA-20.....1 PC

Optional Accessories	<ul style="list-style-type: none"> * AC to DC 9V adapter. * USB cable, USB-01. * Data acquisition software, SW-U801-WIN. * Excel data acquisition software, SW-E802. * Hard carrying case, CA-08, Size : 370 x 310 x 115 mm.
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ELECTRICAL SPECIFICATIONS (23±5 °C)

Wet bulb globe temperature (WBGT)			
Range	°C	Indoor	0 °C to 59 °C
		Outdoor	0 °C to 56 °C
	°F	Indoor	32 to 138 °F
		Outdoor	32 to 132 °F
Accuracy * Indoor	°C	± 1 °C (15 to 59 °C)	
	°F	± 1.8 °F (59 to 138 °F)	
Accuracy * Outdoor	°C	± 1.5 °C (15 to 56 °C)	
	°F	± 2.7 °F (59 to 132 °F)	

WBGT Formula :

Indoor (Outdoor and no sun)	WBGT= 0.7WB + 0.3TG
Outdoor (Outdoor and full sun)	WBGT= 0.7WB + 0.2TG + 0.1TA

Air temperature (TA)

Range	°C	0 to 50 °C
	°F	32 to 122 °F.
Resolution	°C	0.1 °C
	°F	0.1 °F
Accuracy @ 15 to 40 °C	°C	± 0.8 °C
	°F	± 1.5 °F

Black globe temperature (TG)

Range	°C	0 to 80 °C
	°F	32 to 176 °F.
Resolution	°C	0.1 °C
	°F	0.1 °F
Accuracy @ 15 to 40 °C	°C	± 0.6 °C
	°F	± 1.1 °F

Humidity

Range	5 % to 95 % R.H.
Resolution	0.1 % R.H.
Accuracy	≥ 70% RH : ± (3% reading + 1% RH). < 70% RH : ± 3% RH.

Dew Point Temp.

°C	Range	-25.3 °C to 48.9 °C
	Resolution	0.1 °C
°F	Range	-13.5 °F to 120.1 °F.
	Resolution	0.1 °F.
Remark : * Dew Point Temp. value is calculated from the Humidity/Air Temp. measurement automatically. * The Dew Point Temp. accuracy is sum accuracy value of Humidity & Air Temperature measurement..		

Wet bulb Temp.		
°C	Range	-21.6 °C to 50.0 °C
	Resolution	0.1 °C
°F	Range	-6.9 °F to 122.0 °F.
	Resolution	0.1 °F.
Remark : * Wet bulb display value is calculated from the Humidity/Air Temp. measurement automatically. * The Dew Point accuracy is sum accuracy value of Humidity & Air temperature measurement..		

Recommendations to heat exposure level for working and physical activity. (Permissible heat exposure threshold limit)

Work/rest regimen (Each hour)	Light	Moderate	Heavy
Continuous work	30 °C (86 °F)	26.7 °C (80 °F)	25 °C (77 °F)
75% work, 25% rest	30.6 °C (87 °F)	28 °C (82 °F)	25.9 °C (78 °F)
50% work, 50% rest	31.4 °C (89 °F)	29.4 °C (85 °F)	27.9 °C (82 °F)
25% work, 75% rest	32.2 °C (90 °F)	31.1 °C (88 °F)	30 °C (86 °F)

Source : AGGIH 1992 (The American Conference of Governmental Industrial Hygienists)

WBGT INDEX and PHYSICAL EXERCISE

WBGT	Flag	Activity Intensity
< 26.7 °C (< 80 °F)	White	Normal activity. Caution should be taken.
26.7 to 29.4 °C (80 to 84.9 °F)	Green	Discretion is required in planning intense physical activity.
29.5 to 31 °C (85 to 87.9 °F)	Yellow	Intense activity for new and unacclimatized persons should be curtailed.
31.1 to 32.2 °C (88 to 89.9 °F)	Red	Intense exercise must be curtailed for those with less than 12 weeks training in hot weather. Be on high alert
≥ 32.2 °C (≥ 90 °F)	Black	Cancel all outdoor exercise.

* Appearance and specifications listed in this brochure are subject to change without notice.