

Casella Microtherm Heat Stress Monitor

Introduction

Workers exposed to hot working environments can be susceptible to heat stress, when the core body temperature rises to dangerous or hazardous levels. This can result in physiological symptoms like heat cramps, nausea, palpitations, stroke and possibly death. An overall estimation of the heat stress levels on a body can be measured using the Wet Bulb Globe Temperature (WBGT) Index. This combines the results from three temperature sensors into a single calculated value that may be compared with reference values depending upon the specific work regime.

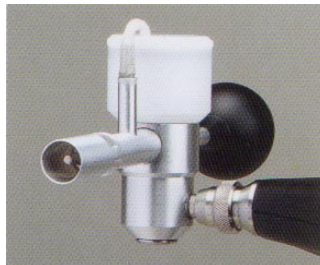


Key benefits

- ❑ Large LCD screen
- ❑ Real time display of changing levels
- ❑ Data-logging as standard
- ❑ Low water level alarm
- ❑ Audible & visual warning of level exceedances
- ❑ RH% and dewpoint calculation
- ❑ Windows PC software for setup and download of results from memory
- ❑ Automatic calculation of work/rest regimes with included PC software
- ❑ Tripod mounting for extended surveys
- ❑ Meets the requirements of ISO 7243

Applications

- ❑ Power stations
- ❑ Foundries
- ❑ Steel works
- ❑ Bakeries
- ❑ Glass manufacturing
- ❑ Routine monitoring
- ❑ Medical surveillance testing



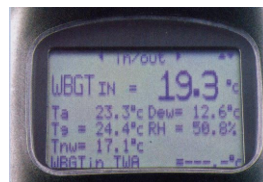
WBGT values are calculated simultaneously according to the following formulae for indoors and outdoors.

$$WBGT_{(in)} = 0.7tnw + 0.3tg$$

$$WBGT_{(out)} = 0.7tnw + 0.2tg + 0.1ta$$

Operation and use

The WBGT meter measures simultaneously from three PRTD sensors for wet bulb (tnw), dry bulb (ta) and globe (tg) temperatures. Sensors are manufactured to high accuracy standards: BS 1904 and DIN 43760. The sensors can be mounted directly onto the body of the instrument or they can be remotely positioned via a 30 ft cable. Both meter and sensor unit have a tripod socket for ease of use.



digital display of values



scrolling real time display

Processed data values include:

- WBGT(indoors)
- WBGT(outdoors)
- 1 hour (TWA) WBGT values
- Relative humidity (%)
- Dew point temperature

Logged values include date and time plus all measured and computed values. Logging intervals from 30 seconds to 1 hour. Results stored in either °F or °C.

Technical Information	
Measurement	
Sensing technique:	Platinum resistance temperature detectors (PRTD) 100 elements 0.1% using 4 wire cable up to 30 ft (10m)
Ta, Dry bulb, air:	Measuring range: 50 – 140 °F (10 – 60 °C), accuracy ± 2.0 °F (1.0 °C)
Tg, Globe:	Measuring range: 68 – 248 °F (20 – 120 °C), accuracy ± 2.0 °F (1.0 °C)
Tnw, Natural wet:	Measuring range: 41 – 104 °F (5 – 40 °C), accuracy ± 1.0 °F (0.5 °C)
Resolution:	0.1% for temperature and relative humidity
Power supply	
Battery pack:	4 x AA MN1500 cells, Alkaline or rechargeable NiCad
Battery life:	20 hours NiCad cells, 85 hours Alkaline cells
External supply:	100 – 240 VAC Universal transformer with intelligent internal NiCad fast charger circuitry
Physical	
Display:	128 x 64 pixel LCD graphics screen with backlight
Keypad:	7 key tactile membrane
Weight:	26.5 oz (750 gm) instrument only
Dimensions:	10.0 x 3.7 x 2.0 in (245 x 95 50 mm)
Displayed and stored values	
	Wet Bulb Globe Temperature Indoors & Outdoors Wet Bulb Globe Temperature Indoors & Outdoors TWA Ta, dry bulb, air Tg, globe Tnw, natural wet Dew point Relative humidity %
Additional stored values	
	WBGT Indoor & Outdoor maximum, minimum and average values WBGT Indoor & Outdoor TWA maximum, minimum values Ta, dry bulb, air maximum, minimum and average values Tg, globe maximum, minimum values Tnw, natural wet maximum, minimum and average values
Data logger	
Internal memory:	512kb memory providing up to 49,100 data records
Logging interval:	30, 60 sec, 1, 2, 3, 4, 5, 6, 10, 15, 20, 30, 60 minutes
Recording method:	Record and stop when memory full or overwrite oldest results
Analog output:	0 – 2.5 V DC FSD, 500Ω output impedance
PC Software	
Operating system:	MS Windows 95/98, NT, 2000 compatible 32 bit package RS232 serial port, 8 Mb RAM, FDD & HDD, VGA graphics card
Ordering information	
180000A	Microtherm Heat Stress monitor with standard accessories in customized attaché case
180042A	Microtherm Heat Stress monitor with standard accessories in customized attaché case plus individual calibration certificate
180043B	30 ft (10m) extension cable for sensor array