

# Purchase Specification

## Thermal Environment Monitor (WBGT)

*This specification describes the performance requirements of a Thermal Environment Monitor (WBGT), which must be met in their entirety for consideration for purchase. The monitor must be a battery operated, portable device.*

### MEASUREMENTS

The Thermal Environment Monitor must measure or calculate the following items: dry bulb, wet bulb, globe, WBGT indoors, WBGT outdoors, relative humidity, and Heat Index or Humidex.

The meter shall optionally support simultaneous measuring of three sets of WBGT sensors to compute the WBGT weighted average at the head, torso, and legs according to ISO standard 7243.

### SENSORS

The wet bulb, dry bulb, and globe temperature sensors must be of a platinum RTD type to ensure long-term stability, reliability and interchangeability. Temperature accuracy shall be, at a minimum, +/- 0.5 °C covering the range of 0 - 100°C.

The dry bulb must be shielded from radiant heat sources including direct sunlight. The wet bulb reservoir must have a cover to prevent direct evaporation of the water.

Humidity sensor must be able to cover the entire range of 0 - 100% relative humidity. Accuracy shall be, at a minimum, +/-5%.

Sensors must be capable of being remotely placed away from the instrument via optional cable for use in remote locations up to 200 feet (60 meters) away.

### LANGUAGES

A multi-lingual display is necessary. The monitor must operate in English, Spanish, French, Italian, and German.

### POWER REQUIREMENTS

Because operating locations may vary from indoors to remote outdoors and operating time may vary from very short-term to very long-term, the monitor must run off of batteries as well as line power. Minimum battery life for use in remote locations is 100 hours. A rechargeable battery is beneficial provided the battery life exceeds the 100-hour minimum. Battery options must include rechargeable and commercial off-the-shelf disposable alkaline.

### HOUSING

The housing must be portable, durable and, to avoid accidental water damage, it must meet at least an IP-54 rating to ensure protection against light rain. Weight shall not exceed 2.6 lbs (1.2 kg).

### SAFETY APPROVALS

To allow the monitor to be used in potentially hazardous locations, it must have intrinsic safety approvals from an independent laboratory. The minimum intrinsic safety approvals are:

United States: UL std. 2279, Class I, II, III Groups A, B, C, D, E, F, G - T3.

Canada: CSA std. E79-11-95 and E79-0-95

European: EEX ia IIC T3

## **MANUFACTURER REQUIREMENTS**

Manufacturer shall maintain a quality management system that is independently accessed and registered to ISO 9001 standards for both manufacturing and service.

Manufacturer shall maintain a calibration laboratory that is independently accredited to ISO/IEC Guide 25.

These specifications can be achieved with Quest Technologies model QUESTemp<sup>o</sup> 32 or equal.