BLACK GLOBE TEMPERATURE SENSOR

(BG70 Series)

Features

- Microprocessor accuracy
- Frequency output
- Strong signal (up to 250m cable - no loss)
- Sensors fully interchangeable with no software adjustment
- Semi-conductor sensing element
- Fully welded stainless steel sensing tip
- Robust housing
- Standard 6” Copper globe
- Integral mounting bracket
- Fully weatherproof
- Australian Made
- Suitable for ISO 7243:2017 heat stress screening applications

Applications

- Livestock Heat Stress Monitoring - HLI, AHLU
- Human Heat Stress Monitoring - WBGT, TWL
- Scientific research

The BG70 Series Black Globe Temperature sensor is a high quality electronic sensor designed to measure radiant heat temperature.

The matt black copper globe responds to the heating effects of solar radiation, and radiant heat sources, as well as the cooling effects of precipitation and wind.

The effect of the copper globe is to measure temperature as felt by a body, as opposed to the temperature measured as the ambient air temperature.

This measurement is essential for calculating heat stress in many different industries.

Utilising a 6” diameter copper globe provides a large enough surface area to provide meaningful data. The 6” globe is the standard used by researchers to develop the calculations. It remains far more accurate than smaller globes.

Improved design for the temperature sensor using high stability components provides faster and more accurate temperature sensing.

The temperature stability of the BG70 electronics allows temperature measurement accuracies of

better than ±0.1°C over the measurement range.

The sensing element consists of a semi-conductor integrated circuit that provides a digital output indicating the measured temperature.

The microprocessor reads the value and provides a very stable square-wave frequency proportional to the measured temperature.

The BG70 includes a sensor bracket to allow easy, robust fitment of the sensor tip into the globe, and the whole assembly to your chosen post. We recommend the sensor is installed at 2 metres above ground level with no shading or reflection.

If supplied as part of an Environdata weather station, the mounting bracket fits to the end of the XA50 cross arm on top of the IS31 mounting mast.

BLACK GLOBE TEMPERATURE SENSOR
SPECIFICATIONS

Sensing Element
- Semiconductor Integrated Circuit

Resolution
- 0.025°C

Accuracy
- ±0.1°C from 0°C to 60°C
- ±0.2°C from -40°C to 80°C

Drift
- <0.05°C per year

Calibration Accuracy
- <±0.05°C at approx. 25°C

Response Time
- <2 minutes in air; 30 seconds in liquid

Calibration Method
- Single point calibration in a warm water bath using certified standard

Reliability
- Typically ten years operation before factory recalibration recommended

Housing
- Fully sealed grey ABS IP67 Potted

Operating Conditions
- Temperature: -40°C to +80°C
- Humidity: 0% to 100%

Weather Exposure
- The sensing tip is sealed to IP67

Supply Voltage
- 5.5 to 15 Volts DC

Current Drain
- < 2.5mA at 12V DC

Output
- -20°C = 0 Hz

- +5 Volt square wave frequency (pulse) proportional to the temperature
- +80°C = 50 Hz
- 100% linear progression
- 3 pin male Conxall socket

Options
- FX1M5 - 1.5m cable
- FX16 - 16m cable
- Custom cable length

Environdata
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