Innovative Handheld Heat Stress Monitor

TWL-1S

SCARLET | TECH

DESIGNED FOR EASY HEAT RISK ASSESMENT

- 4 essential sensors for thermal comfort measurement
- Built-in WBGT and TWL algorithm
- Intuitive user interface wireless remote notification
- Shipped with tool box and tripod for easy carriage and use
- Scarlet software TWLIT for quick setup and data download

Features

Sensor Protection

- Humidity sensor is well protected by a replace able polypropylene filter in a solid shield
- A silicone pad keeps the anemometer from ddust

Wind Cup

- Cup anemometer captures wind from any direction. You do not have manually decide the wind direction vefore measuring wind speed
- Compared to impeller, wind cup is not restricted to wind direction

Risk Indication

- Backlights color indicates the risk level based on TWL
- Recommended schedule for work, rest and rehydra tion is intergrated
- Configurable timers to schedule the work time

Remote Warning

When work timer expires or thermal risk is high, pager carriers will be notified with wireless technology. The coverage is 200 meters in an open space

TWL-1S Monitor

Low risk

Unrestricted zone

TWL : >140

Medium risk

Cautionary zone

TWL : 115 - 140

High risk

TWL : < 115

Applications

It is essential to assess thermal risk and manage thermal hazards associated with the work environment and protect the health of the workforce in order to reduce time lost due to thermal illnesses and increase the efficiency of working in the heat. TWL-1S can be applied to outdoor and indoor work sites for assessing the thermal risk level. Once the TWL has been identified, there is a recommended schedule for enables the site managers to stay alert with alert with high thermal risk within 200 meters.

Open-cut mining

Aluminun,metal cable

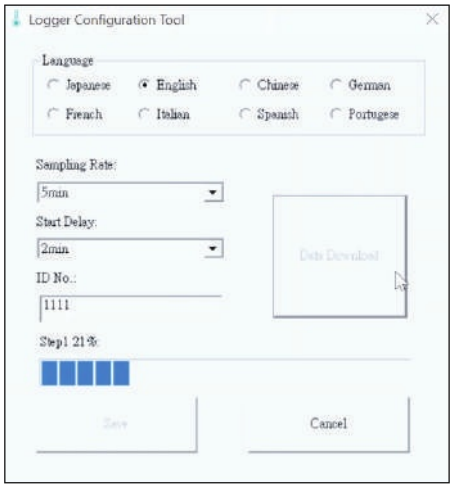
Glass

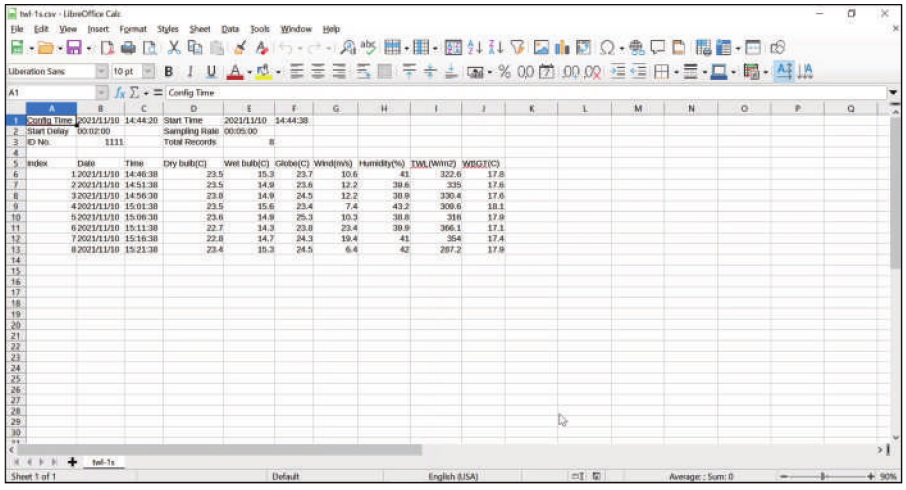
Construction, cement

Data Logging

The advanced built-in data logger in TWL-1S allows you to do data logging while still keeping your screen active for other measuring activity. Keep your data logging active and monitor other measurement at the front screen. Getting two things done at the same time.

Data Logging icon





Technical Specification

Sensor

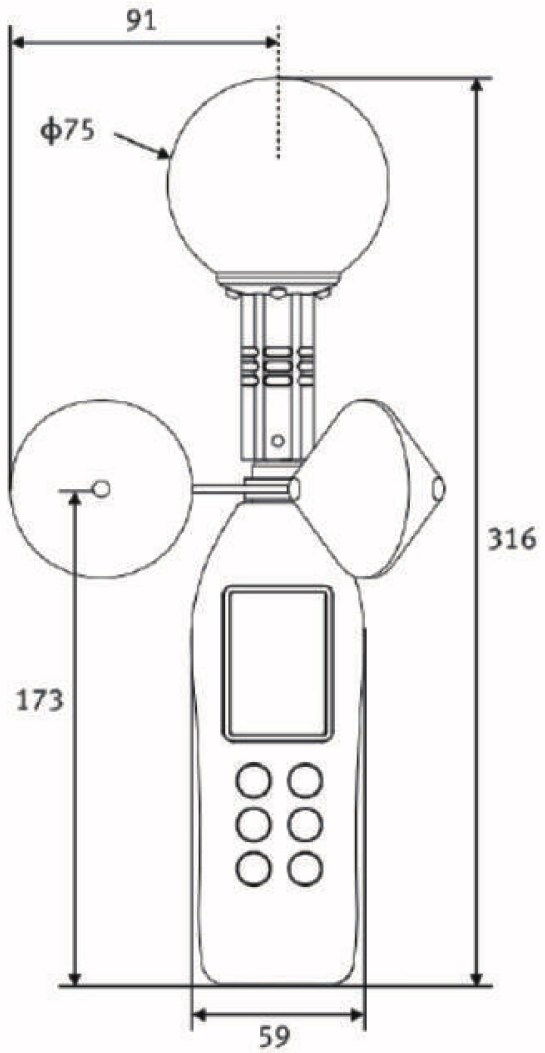
TWL-1S Heat Stress Monitor measures air temperature (T_a), relative humidity (%RH), globe bulb temperature (T_g) and wind speed (WS), whereas wet bulb temperature (T_w) is derived from T_a, %RH at sea level atmosphere pressure.

Heat Indecies

WBGT (Wet Bulb Globe Temperature) and TWL (Thermal Work Limit) can be calculated on the device. WBGT is derived fromT_w, T_g or/and T_a wheather indoor or outdoor. TWL is derived from T_w, T_g, T_a WS with the assumption of safe maximum core temperature for human < 38.2°C

Calibration

Annual recalibration is recommended for the hummidity sensor with built-in calibration program and optional calibration kit.



Temperature sensor	Range 0...60 °C Accuracy ±0.6 °C
Humidity sensor	Range 5...95 %RH Accuracy ±3% (at 25 °C;10...90 %RH); ±5% (others)
Globe bulb indoor	Range 0...80 °C Accuracy ±1.0 °C (15...40 °C); ±1.5 °C (others)
Globe bulb outdoor	Range 0...80 °C Accuracy ±1.5 °C (15...40 °C); ±2.0 °C (others)
Wind speed	Range 0.5...10 m/s Accuracy ±(2% of reading + 0.2) m/s
WBGT formula	Indoor WBGT = 0.7 x T_w + 0.3 x T_g Outdoor WBGT = 0.7 x T_w + 0.2 x T_g + 0.1 x T_a
WBGT indoor	Range 0..66 °C
WBGT outdoor	Range 0..64 °C
TWL calculation	Dynamic calculation based on T_w, T_g, T_a and WS. Safe max. T_{core} < 38.2 °C
Display	32(W) x 50(H) mm LCD screen
Backlight	Yes. Color depends on TWL measurement
Power supply	4x AAA batteries supply 6V
Power consumption	6 mA with backlight off
Battery indicator	Yes
Battery life	120 hr with alkaline batteries
Dimension	59(W) x 37(D) x 316(H) mm Globe bulb 75 mm diameter Wind cup 91 mm rotation radius
Weight	330g
Enslosure	ABS
Standard	CE-compliant
Sensor protection	Polypropylene filter
Operating range	-10...60 °C
Pager frequency	433 MHz
Pager dimension	51(L) x 74(W) x 28(H) mm
Pager weight	76g
Alarm loudness	85db @ 10 cm
Logger memory	2,000 readings
Standard accessory	Tripod x 1, pager x 1, AA battery x 1, AAA battery x 4 USB cable x 1, toolbox x 1, comformity certificate, user manual **(Noted: Pager only in TWL-1SR version)**
Calibration kit	Optional. $MgCl_2$ and NaCl O-ring sealed bolttles
Storage condition	25 °C indoor

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