



Sensor: Surface Air Temperature

Manufacturer/Model: Thermometrics Corporation PT1000 Platinum Resistance Thermometer

Description: The platinum resistance thermometer (PRT) is a precision temperature sensor with the following specifications:

Type: Platinum 1000 ohm $\pm 0.04\%$ at 0°C (per IEC-751, Class A accuracy)

Temperature Coefficient: 0.00385 (per IEC-751 and ASTM E-1137)

Range: -60°C to $+300^{\circ}\text{C}$

Sheath: Type 316 stainless steel, 0.125 inches diameter ± 0.010 inches (per ASTM A632) by 4 inches long, filled with MgO powder and vibro-compacted; sealed with epoxy at the leads.

Repeatability and Stability: Better than $\pm 0.01^{\circ}\text{C}$ per year

Accuracy: $\pm 0.04\%$ over full range

Time Constant: 63% of thermal response in 13 sec when immersed from 20°C air into 50°C water flowing at 0.2 m/s

How is it installed?

Three completely independent PRTs are used. Each PRT probe is installed in a pair of clips inside its own mechanically (fan) aspirated radiation shield (Met One model 076B/7308). Each shield is mounted vertically downward from its own 3 m long cross-member arm, about 1.5 m above the surface of the ground. Each shield is leveled and held in position by set screws.

Why measure this parameter?

Surface Air Temperature is one of the primary measurements for USCRN.