

109SS

Temperature Probe for Harsh Environments



The 109SS consists of a thermistor encased in a 316L stainless-steel sheath. The rugged stainless-steel sheath protects the thermistor allowing the 109SS to be buried or submerged in harsh, corrosive environments. This probe also has a fast time response. Compatible dataloggers include our CR200(X)-series, CR800, CR850, CR1000, and CR3000.

The 109SS measures temperature from -40° to $+70^{\circ}\text{C}$. The thermistor can survive temperatures up to 100°C , but the overmolded joint and cable should not be exposed to temperatures hotter than $+70^{\circ}\text{C}$.

Submersion

The 109SS can be submerged to 150 feet (63 psi). Please note that the probe is not weighted. Therefore, the installer should either add a weighting system or secure the probe to a fixed, submerged object, such as a piling.

Burial

The 109SS is suitable for shallow burial only. Placement of the probe's cable inside a rugged conduit may be advisable for long cable runs—especially in locations subject to digging, mowing, traffic, use of power tools, or lightning strikes.

Ordering Information

Temperature Probe for Harsh Environments

109SS-L Stainless Steel Temperature Probe with user-specified cable length. Enter cable length (in feet) after the -L. Must choose a cable termination option (see below).

Cable Termination Options (choose one)

- PT** Cable terminates in stripped and tinned leads for direct connection to a datalogger's terminals.
- PW** Cable terminates in connector for attachment to a prewired enclosure.
- CWS** Cable terminates in a connector for attachment to a CWS900-series interface. Connection to a CWS900-series interface allows this sensor to be used in a wireless sensor network.



Specifications

Thermistor Description: Micro-BetaCHIP Probe
10K3MCD1,
0.018" diameter,
10 kohms at 25°C

Measurement Range: -40° to +70°C

Temperature Survival Range

Thermistor: -50° to +100°C
Overmolded Joint & Cable: -50° to +70°C

Maximum Water

Submersion Depth: 150 ft (63 psi)

Maximum Lead Length: 1000 ft (304.8 m)

Interchangeability Error:

Temperature	Tolerance
-40°C	±0.6°C
0°C	±0.38°C
25°C	±0.1°C
50°C	±0.3°C
70°C	±0.4°C

Steinhart-Hart Linearization

Equation Error (maximum): 0.02°C at -40°C

Time Constant In Air:

Fluid	τ
Still Air	31 seconds
Air @ 3 meter/second	7.5 seconds
Antifreeze/Water Rolling	0.5 seconds

Stainless-Steel Sheath Dimensions

Diameter: 0.063 inches (0.16 cm)
Length: 2.3 inches (5.84 cm)

Overmolded Joint Dimensions

Diameter: 0.40 in. (1.02 cm)
Length: 1.67 in. (4.24 cm)

Cable Description: 0.22 in. (0.56 cm) diameter
with Santoprene jacket

Cable/Probe Connection: "ATUM" heat shrink,
"Macromelt" overmolded joint

Weight: 0.2 lbs with 10.5 ft cable
(0.1 kg with 3.2 m cable)

