Overview
The 109SS is a rugged, accurate probe that measures soil or water temperature from -40° to +70°C. The 109SS consists of a thermistor encased in a sheath made from grade 316L stainless steel. The rugged stainless-steel sheath protects the thermistor, allowing you to bury or submerge the 109SS in harsh, corrosive environments. This probe also has a fast time response, and it can be easily interfaced with our data loggers.

Benefits and Features
- Designed for harsh, corrosive environments
- Fast response time
- Wide temperature measurement range
- Easy to install or remove
- Compatible with most of our current and retired data loggers

Detailed Description
The 109SS thermistor can survive temperatures up to 100°C, but the overmolded joint and cable should not be exposed to temperatures hotter than +70°C.

Water Temperature
The sensor can be submerged to 46 m (150 ft) or 63 psi. Please note that the 109SS is not weighted. Therefore, the installer should either add a weighting system or secure the sensor to a fixed, submerged object, such as a piling.

Soil Temperature
The 109SS is suitable for shallow burial only. Placement of the sensor’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.

Specifications
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<th>Output</th>
<th>Analog</th>
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<tr>
<td>Operating Temperature Range</td>
<td>-40° to +70°C</td>
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For comprehensive details, visit: www.campbellsci.com/109ss
Accuracy

Note: Overall probe accuracy is a combination of thermistor interchangeability, bridge-resistor accuracy, and error of the Steinhart-Hart equation. Interchangeability is the principle component error. If needed, an estimate of the interchangeability error for 0 to 50°C, that can be used as the Offset parameter of the Therm109() instruction, can be determined with a 1-point or 2-point calibration.

- ±0.60°C (-40 to +70°C)
- ±0.49°C (-20 to +70°C)

Maximum Submergence 45.7 m (150 ft) or 434 kPa (63 psi)

Temperature Measurement Range -40° to +70°C

Thermistor Temperature Survival Range -50° to +100°C

Overmolded Joint and Cable Temperature Survival Range -50° to +70°C

Interchangeability Error
- ±0.1°C tolerance (25°C)
- ±0.38°C tolerance (0°C)

Steinhart-Hart Equation Error ≤ 0.02°C (-40°)

Time Constant in Air
- 0.5 s (antifreeze/water rolling)
- 7.5 s (air @ 3 m/s)
- 31 s (still air)

Sensor Description Micro-BetaCHIP Probe 10K3MCD1, 0.5 mm (0.018 in.) diameter, 10 kohm at 25°C

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

Cable/Probe Connection “ATUM” heat shrink, “Macromelt” overmolded joint

Stainless-Steel Sheath Diameter 0.16 cm (0.063 in.)

Stainless-Steel Sheath Length 5.84 cm (2.3 in.)

Overmolded Joint Diameter 1.02 cm (0.40 in.)

Overmolded Joint Length 4.24 cm (1.67 in.)

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