CAMPBELL® SCIENTIFIC
WHEN MEASUREMENTS MATTER

CS225-L
SDI-12 Temperature Sensor String

Rugged Construction

Digital temperature measurements

Overview

The CS225 is a prime example of our commitment to provide the highest-quality monitoring products in the world. Our revamped design, rigorous validation process, and stringent quality standards are all focused on providing the fantastic quality you require to reliably generate data you can trust, even in the harshest of environments. Learn more about the CS225's quality testing and validation process.

The CS225 temperature string uses multi-point temperature profiles and SDI-12 digital technology for simple integration and reliability. The CS225 consists of an arrangement of temperature sensors mounted in rugged steel-reinforced cable, permitting it to be buried, submerged, or integrated directly into structures. Temperature points are over-molded to provide long-term protection in all mediums. Each CS225 is custom manufactured.

Temperature profiling with the CS225 is suited for a wide variety of applications and environments, including the following:

❯ Borehole temperature profiling and borehole ground measurement

❯ Measuring geothermal heat gradient

❯ Lake stratification and thermal stratification measurement

❯ Soil temperature profiles

❯ Water temperature profiling

❯ Frost heave monitoring

❯ Active layer thickness permafrost monitoring and permafrost depth measurement

❯ Talik ground temperature

❯ Heat flow measurement

Benefits and Features

❯ One SDI-12 channel is used to connect all temperature sensors

❯ Low power—suitable for remote applications

❯ No calibration required

❯ Comprehensive measurement range

❯ Makes use of the included SGB3 to protect against electrical surges

❯ Extremely rugged and thoroughly tested

For comprehensive details, visit: www.campbellsci.com/cs225-l

Detailed Description

Rigorous Quality Testing of the CS225 Temperature String

We know clients need a really tough temperature string. These strings will be pulled through conduit, buried under concrete, frozen underground, and submersed in water, so quality is of the utmost importance. We put the CS225 through various tests to ensure it can withstand bending, pulling, pressure, freeze/thaw cycles, and temperature cycles. This series of tests confirmed the physical and electrical integrity of the CS225.

When power is supplied to the CS225 probe, the internal electronics will continuously measure the temperature at an approximate rate of 1 measurement per second. Every output measurement obtained from the sensor is a running average of 10 consecutive 1-second readings. The accuracy specification is based on an average of 10 consecutive readings. For this purpose, after initial power-up, it is recommended to delay 10 seconds to obtain the best accuracy.

Because the sensor is obtaining a measurement every 1 second, it is recommended to use the Continuous measurement command to obtain the temperature readings. Using the "R" commands will reduce the time taken to obtain a reading with the SDI-12 protocol.

Specifications

Operating Temperature Range	-55° to +85°C	Current Consumption	❯ 1.0 mA (max) quiescent current draw per sensor ❯ 20 mA + (# sensors * 1.0 mA) active current draw
Typical Accuracy	±0.2°C (-40° to +85°C) includes lifetime drift	Warm-up Time on Power up	10 s
Worst Case Accuracy	❯ ±0.5°C (-55° to -40°C) includes lifetime drift ❯ ±0.4°C (-40° to +85°C) includes lifetime drift	Temperature Point Diameter	2.22 cm (0.875 in.)
Resolution	0.0078°C	Maximum Cable Length	152 m (500 ft)
Maximum Pressure	150 psi	User-resettable min/max temperature recording	Yes
Communications	SDI-12	Min/max temperature recording duration	Lifetime
Maximum Sensors per Probe	36	Automatic temperature update interval	1 s
Minimum Spacing	15 cm (5.91 in.)		
Supply Voltage	9 to 28 Vdc		

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