



FW05

Type E Fine-Wire Thermocouple with 0.0005 in. Diameter



Research Grade

High accuracy for eddy-covariance applications

Overview

The FW05 is a Type E thermocouple with a 0.0005 in. diameter. It measures atmospheric temperature gradients or fluctuations with research-grade accuracy. The FW05 is compatible with

most Campbell Scientific data loggers, and it is often used in eddy-covariance systems.

Benefits and Features

- ▶ High frequency response suitable for eddy-covariance applications
- ▶ Extremely small diameter virtually eliminates solar loading
- ▶ Well-suited for measuring atmospheric temperature flux

Detailed Description

The FW05 has the smallest diameter of our fine wire thermocouples. Because of this, it experiences the least amount of solar loading, but is also the most fragile. The thermocouple's small mass eliminates the need for a solar radiation shield.

The FW05 consists of a type E thermocouple with a connector. The connector attaches the thermocouple to a data logger via the FWC-L cable.

Type E thermocouples are comprised of a chromel wire and a constantan wire joined at a measurement junction. A voltage potential is generated when the measurement end of the thermocouple is at a different temperature than the reference end of the thermocouple. The magnitude of the voltage potential is related to the temperature difference. Therefore, temperature can be determined by measuring the differences in potential created at the junction of the two wires.

A reference temperature measurement is required for thermocouple measurements. The temperature sensor built into many of our data loggers' wiring panel typically provides this measurement.



Specifications

Type	Chromel-Constantan
Typical Output	60 $\mu\text{V}/^\circ\text{C}$
Accuracy	Refer to the <i>Thermocouple Measurement</i> section in the data logger manual.

Diameter	0.0127 mm (0.0005 in.)
Length	36.8 cm (14.5 in.)
Plug Dimensions	1.8 x 3.3 x 1.0 cm (0.7 x 1.3 x 0.4 in.)
Weight	45 g (2 oz)

For comprehensive details, visit: www.campbellsci.com/fw05 



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