



## Remote Measurements

Monitors forest-fire factor; ideal for use with RAWS

### Overview

The CS506 is a fuel moisture sensor that measures the moisture content of the 26601 10-hour fuel moisture stick. The 26601 emulates the moisture content of similarly sized twigs on the forest floor. The CS506/26601 combination is used to assess

forest fire fuel and is often incorporated in our prewired or custom fire-weather stations.

*Note: The image shows a CS506 fuel moisture sensor attached to a 26601 fuel moisture stick. The 26601 is purchased separately.*

### Benefits and Features

- › Compatible with most Campbell Scientific dataloggers
- › Companion product to CS205/107 fuel temperature sensor; can be mounted on the same stake
- › Can automatically monitor changing fuel conditions without having to visit the measurement site
- › Compatible telemetry options include spread spectrum radios, narrow-band radios, cellular phones, and satellite transmitters

### Detailed Description

The CS506 reports the status of small-diameter (10-hour) forest fire fuels as percent moisture by weight (1%=1 g water/100 g dry fuel). It consists of an epoxy-encapsulated electronics package that uses time-domain reflectometry (TDR) technology to measure the moisture content of the 26601 10-

hour Fuel Moisture Stick. The sensor produces a  $\pm 0.7$  Vdc square-wave frequency that is read using an analog or pulse channel on a Campbell Scientific datalogger. The datalogger then converts the frequency measurement to percent fuel moisture via a quadratic calibration.

### Specifications

Operating Range      0 to 70% moisture content

Power Supply      5 to 18 Vdc

Enable Voltage	<ul style="list-style-type: none"> <li>› off at 0 Vdc (&lt; 1 Vdc)</li> <li>› on at 5 Vdc (&gt; 4 Vdc; maximum 18 Vdc)</li> </ul>
Current Consumption	<ul style="list-style-type: none"> <li>› 65 mA (active)</li> <li>› 45 <math>\mu</math>A (quiescent)</li> </ul>
Output Signal	$\pm$ 0.7 Vdc square wave (with an output frequency of approximately 31 to 58 kHz)
Dimensions	10.16 x 6.35 x 1.91 cm (4 x 2.5 x 0.75 in.)

Weight < 0.5 kg (< 1 lb)

### Fuel Moisture Accuracy

0 to 10% Range	<ul style="list-style-type: none"> <li>› <math>\pm</math>1.25% (worst case)</li> <li>› <math>\pm</math>0.74% (RMS error)</li> </ul>
10 to 20% Range	<ul style="list-style-type: none"> <li>› <math>\pm</math>2% (worst case)</li> <li>› <math>\pm</math>0.9% (RMS error)</li> </ul>
20 to 30% Range	<ul style="list-style-type: none"> <li>› <math>\pm</math>3.4% (worst case)</li> <li>› <math>\pm</math>1.94% (RMS error)</li> </ul>
30 to 50% Range	<ul style="list-style-type: none"> <li>› <math>\pm</math>4.11% (worst case)</li> <li>› <math>\pm</math>2.27% (RMS error)</li> </ul>

For comprehensive details, visit: [www.campbellsci.com.au/cs506-l](http://www.campbellsci.com.au/cs506-l)



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