



237

Leaf Wetness Sensor



Sensitive yet durable

Compatible with all
Campbell Scientific dataloggers

Overview

The 237 measures leaf wetness by determining the electrical resistance on the surface of the sensor (a wet surface is less resistant).

It is primarily used to determine the percentage of time that a leaf surface is wet, versus the time it is dry.

Technical Description

The 237 consists of a circuit board with interlacing gold-plated fingers. Condensation on the sensor lowers the resistance between the fingers, which is measured by the datalogger. Droplets must touch two fingers simultaneously to change the sensor resistance. For this reason, the 237 is typically coated with flat latex paint, which spreads water droplets.

The color and type of paint affect sensor performance. Campbell Scientific supplies the sensor unpainted because individual modifications will vary with the application. The paper referenced at the bottom of the page describes the effects of paint color and sensor angle on sensors of this type.*

Calibration

The resistance of the sensor at the wet/dry transition point should be determined. A sharp change in resistance occurs in the wet-dry transition on the uncoated sensor; normally the transition is between 50 and 200 k Ω . Coated sensors have a poorly defined transition which normally occurs from 20 k Ω to above 1,000 k Ω . For best results, the leaf wetness sensor should be field calibrated since the transition point will vary for different areas and vegetation.

Ordering Information

Leaf Wetness Sensor

237-L Wetness Sensing Grid with user-specified cable length. Enter cable length, in feet, after -L. Recommended cable length is 25 ft (237-L25). 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.

Specifications

- › Resistance at Wet/Dry Transition: normally 50 and 200 k Ω (uncoated sensor); normally 20 to 1000 k Ω (coated sensor)
- › Temperature Range
 - Operational: 0° to 100°C
 - Short-Term Survivability: -40° to 150°C; sensor may crack when temperature drops below -40°C
- › Width: 7.1 cm (2.75 in)
- › Length: 7.6 cm (3.0 in)
- › Depth: 0.64 cm (0.25 in)
- › Weight: 91 g (3 oz) with 10 ft cable

*Gillespie, T.J., & Kidd, G.E., 1978. Sensing duration of leaf moisture resistance using electrical impedance grids. *Canadian Journal of Plant Science* 58: 179-187.



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