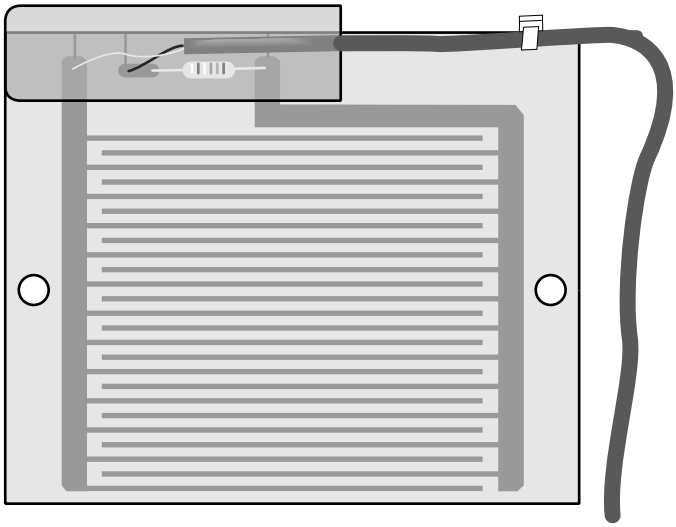
Leaf Wetness Sensor

Model 237

Leaf wetness sensors are classified as:

- Surface contact types that measure the electrical resistance of a water film on the leaf surface
- Mechanical types that detect a change in sensor length or weight
- Electrical resistance types that are applied to mock leaves and are designed to emulate periods of leaf wetness after rainfall, dew, or spray

The 237 Leaf Wetness Sensor is designed to emulate the surface area of a leaf. It is compatible with Campbell Scientific's CR510, CR10(X), 21X, CR23X, CR7, and CR5000 dataloggers.



Construction

The sensor is 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, this type of sensor is often coated with flat latex paint to spread the 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 below details the effects of paint color and sensor angle on sensors of this type.[1]

The sensor's cable is composed of Santoprene rubber which is resistant to temperature extremes, moisture, and UV degradation.

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 kOhms. Coated sensors have a poorly defined transition which normally occurs from 20 kOhms to above 1,000 kOhms. For best results, the leaf wetness sensor should be field calibrated since the transition point will vary for different areas and vegetation.

Ordering Information

237-L Leaf wetness sensor including a user-specified lead length (enter length in feet after the L).

Specifications

Size:	2.75" W X 3.0" L X 0.25" D
Weight:	0.5 lbs

[1]*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.*

Distributor in South Africa
Inteltronics Instrumentation

Uitsig, De Kroon, Brits
P.O. Box 181, Brits, 0250, S.A
TEL: +27 (0)12 250 2403
FAX: +27 (0)12 250 2809
E-mail: itronics@icon.co.za
Web Site: www.inteltronics.co.za

CAMPBELL SCIENTIFIC, INC.
815 W. 1800 N. • Logan, Utah 84321-1784 • (435) 753-2342 • FAX (435) 750-9540
Offices also located in: Australia • Brazil • Canada • England • France • South Africa • Spain

Printed February 2002