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Delta-T Devices

Leaders in Soil Moisture
Data Logging and
Plant Science

Product Summary

NEW PR2 Profile Probe



The new PR2 Profile Probe is a uniquely versatile and cost effective solution for measuring soil moisture. No other profiling device can be left installed for continuous data logging and still be used as a portable unit for taking spot readings at multiple locations.



- soil and crop science
- agro-meteorology
- amenity management
- environmental research
- irrigation monitoring
- global climate change

Whatever your specialisation, Delta-T can help with your measurement and monitoring challenges. We offer an impressive range of environmental sensors, data loggers and plant science equipment.

Our goal is to provide innovative, cost-effective solutions, tailored to our customers needs. Delta-T combines this with superior build quality and a renowned level of service and support.

Delta-T Devices products are used successfully all over the world, often under extreme conditions, and have proved to be robust, effective and reliable.

We have over thirty years experience in the design and manufacture of research equipment for laboratory and field use. This, together with our extensive network of representatives, means customers can depend on Delta-T for a long term working partnership.

Soil Moisture Measurement

Moisture Meter - HH2

- Readout and data storage for Delta-T soil moisture sensors

The HH2 is a versatile readout unit for use with Profile Probes, ThetaProbes, Equitensiometers, and WET soil moisture sensors. The HH2 can be operated with one hand for convenience in the field. Readings are displayed on the LCD and can be stored for later download to a PC.



Profile Probe - PR2

- Monitor soil moisture profiles
- Portable, simple and accurate



No other system enables you to monitor your soil water status with such ease and flexibility. Install an access tube into the soil, insert the PR2 and press the button to display an instantaneous reading, or connect the PR2 to a data logger (DL6 or DL2e) and leave the system to record moisture changes over time.

The PR2 is built round newly patented sensing technology which provides unprecedented performance in all soil types, with minimal influence from either salinity or temperature. The PR2/4 model measures at 4 depths down to 40 cm or the PR2/6 model measures at 6 depths down to 100 cm.

Equitensiometer - EQ2

- Maintenance-free, wide range tensiometer



The EQ2 uses ThetaProbe technology to avoid the many problems of water-filled tensiometers. It measures water potential in the range -100 to -1000 kPa and gives a loggable output, making it suitable for environmental monitoring, particularly in dry soils.

Delta-T also offers a range of water-filled tensiometers, which achieve good accuracy in wetter soils.



ThetaProbe - ML2x

- Measure soil moisture content
- Outstanding $\pm 1\%$ accuracy

The ThetaProbe is respected worldwide for its accuracy, reliability and ease of use. It is used in all soil types and substrates, including sand, clay, peat and saline soils.

The Probe is tough enough to be buried in the ground for long periods and left connected to a data logger for continuous monitoring.

The DL2e, DL6 or GP1 loggers from Delta-T are ideal, but the easy "DC in DC out" connections suit most data loggers. Alternatively, the ThetaProbe can be used with the HH2 Moisture Meter to make spot readings quickly and easily (available together as the ThetaKit, with a carry case for convenience).

WET Sensor - WET-2

- Measure pore water conductivity, in situ
- Precision horticulture and soil science

The WET Sensor measures three vital properties of substrates: water content, EC and temperature. Readout and data storage are handled by the HH2 Moisture Meter, which also holds the selected generic soil or specialist media calibrations. The WET Sensor provides essential data for fertigation control, the management of container-grown shrubs, or soil salinity studies.



Data Logging and Environmental Sensors



Weather Stations

- Outstanding performance & durability under extreme conditions
- Tailored systems – wide choice of sensor and recording options

When meteorological data has to be collected automatically, a Delta-T Weather Station is the reliable, versatile and practical solution.

Our systems are installed in harsh environments all over the world; they are ideal for academic research, industrial monitoring, sports amenity management and agricultural applications.

Data Logger & Irrigation Monitor - GP1

- Low cost logger with monitoring and control ability
- 2 analog channels, plus temperature and counter inputs

Data Logging: The GP1 is ideal for logging 1 or 2 ThetaProbe soil moisture sensors, using the high resolution differential analog channels. It accepts inputs from most other types of analog environmental sensor. Can be used with Pocket DeltaLINK software.

Irrigation Monitoring: The GP1 has comprehensive control relay options that allow it to control irrigation. It can be used as an interface between programmable timers and in-field sensors reading soil moisture, rainfall and temperature.



Data Logger - DL2e

- Weatherproof, rugged and portable
- 15 input channels, expandable to 62

The DL2 is a highly versatile logging system, suitable for most types of sensor. It can log DC and AC voltage, current, resistance, contact closure, logic state and frequency. Connection to a GSM modem is easy, for automatic data collection from remote sites. Powerful Windows software makes it simple to set up logging intervals, select measurement units and perform data collection.



DL2e

Soil Moisture Logger - DL6

- Ideal for Profile Probes & ThetaProbes
- 6 analog channels, plus temperature and counter inputs

The DL6 is optimised for use with Delta-T soil moisture sensors. The 6 differential analog inputs can handle ThetaProbe and Profile Probe outputs; in addition the DL6 can accept a rain gauge and a soil temperature probe input. An alarm output is available for on-site control applications. Data can be conveniently collected and viewed in the field using a Pocket PC and Pocket DeltaLINK software.



DL6



GP1

Environmental and Solar Radiation Sensors

A comprehensive range of loggable sensors for weather stations and environmental monitoring.

- agronomy
- meteorology
- hydrology
- irrigation
- horticulture
- global climate change
- plant water relations
- evapotranspiration
- phyto-remediation
- water use efficiency

Sensors for Environmental Variables:

Solar Radiation

- global and diffuse
- sunshine duration
- UVA & B
- net radiation
- albedo
- crop radiation interception

Atmosphere

- temperature
- relative humidity
- barometric pressure
- wind strength, direction
- precipitation & rainfall
- surface wetness
- evaporation

Soil

- temperature
- soil moisture
- soil water profile
- water depth

Temperature - specialist

- leaf
- salt water
- precision & fast response

Systems for:

- sap flow in stems
- sap velocity in trees
- evapotranspiration
- crop DSS Decision Support Systems

Plant Science and Image Analysis

Porometer - AP4

- Direct readout of conductance or resistance
- Simple and rapid calibration in the field

The AP4 measures the stomatal conductance of plant leaves quickly and easily. It is a highly practical instrument for field work, being based on the cycling diffusion principle, which makes it possible to have a lightweight sensor head (130g) and to run quick calibration checks in the field. The sensor head design minimises leaf stress during measurements. The award-winning user interface makes the operation of the AP4 logical, easy to learn and convenient.



Image Analysis System - WinDIAS

- Leaf area measurement – colour analysis
- Conveyor unit option



WinDIAS accurately measures total leaf area and percentage diseased/healthy leaf area. With the conveyor belt option large numbers of leaves can be rapidly measured.

Delta-T Scan - DTS

- Fast, accurate root measurement



Delta-T Scan measures root length, root surface area and counts root tips. The system uses a flat-bed scanner to measure a large sample at high resolution.

Canopy Analysis

Non-destructive estimates of Leaf Area Index (LAI) in crop and forest canopies.

- Crop management
- Ground truthing of satellite LAI data
- Climate change and carbon balance

Sunshine Sensor – BF3

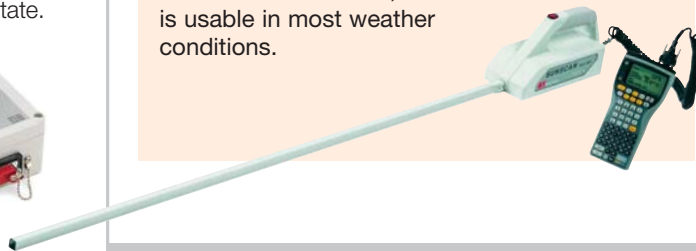
The world's first sensor (patented) with three simultaneous electronic outputs, giving Total and Diffuse radiation, and sun duration. No routine daily adjustments are needed. Outputs can be logged as energy ($W.m^{-2}$), P.A.R. ($\mu mol.m^{-2}.s^{-1}$) or illuminance (klux), and sunshine state.



SunScan System - SS1

- Field instrument for PAR light measurement in canopies
- Computes instant LAI readout

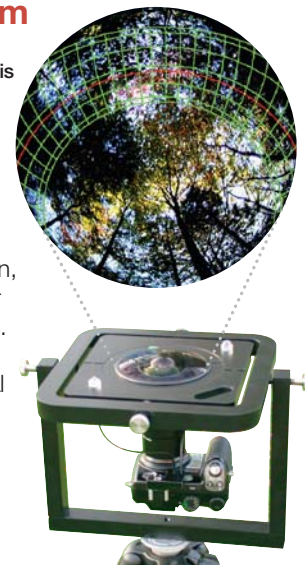
SunScan is optimised for low regular canopies such as most agricultural crops. The 1 metre probe permits rapid spatial averaging of large areas, and PAR mapping for non-uniform crops such as vineyards and orchards, where LAI theory doesn't apply. With the unique BF3 reference PAR sensor, SunScan is usable in most weather conditions.



HemiView System

- Hemispherical image analysis system with digital camera and fisheye lens
- Ideal for tall canopies e.g. trees and forest

The powerful HemiView image analysis software estimates LAI, gap fraction, solar tracks, and 30 other site factors and parameters. A Self Levelling Mount assists with exact horizontal camera orientation.



Representative:

