



WP4C: SOIL WATER POTENTIAL LAB INSTRUMENTATION

DESCRIPTION

WP4C measures two key components of water potential (matric and osmotic) using fundamental thermodynamics and a finely-tuned calibration. Not only is this a first principles method that every other method gets calibrated from, but it's also been published extensively.

The WP4C measures water potential by determining the relative humidity of the air above a sample in a sealed chamber (conforms to ASTM D6836). Once the sample comes into equilibrium with the vapor, relative humidity is determined using the chilled mirror method. This involves chilling a tiny mirror until dew starts to form. At the dew point, the WP4C measures both mirror and sample temperature within 0.001 °C. This allows for unparalleled accuracy in the -0.1 MPa to -300 MPa range so you can have full confidence in sample readings.



WP4C

FEATURES

- Precise mode
- Chilled mirror dew point technique
- Fast equilibration
- Unparalleled accuracy in the -0.1 MPa to -300 MPa range
- Durable and easy to clean
- Easy to calibrate with saturated salt solutions
- Conforms to ASTM D6836
- Use with HYPROP to create a full soil moisture release curve.

The WP4C is a complex instrument due to its versatility, but extremely easy to use with sample sizes up to 7 ml. Simply fill half of the cup with soil, leaves or seeds, and then equilibrate the sample. Combine the WP4C with other LABROS instruments for a complete soil analysis. Add the PARIO for soil particle size analysis, and use data from the HYPROP and the KSAT to generate a hydraulic

WP4C: SOIL WATER POTENTIAL

The WP4C generates full, high-resolution moisture release curves across the entire moisture range by combining WP4C data with HYPROP data. No other method generates a curve with this much detail.

If you only need the dry end of the curve, the HYPROP FIT Software can be used to plug in water potential data collected by the WP4C for fitting different water retention models (i.e., van Genuchten, van Genuchten Bimodal, Fredlund & Xing, Brooks & Corey).

Contact info



Monitoring MENA

Insight into instrumentations

(962) 5353-2091

PO Box 1100 Salt

Post Code 19110 JORDAN

sales@monitoring-mena.com

www.monitoring-mena.com

SPECIFICATIONS	
Water potential	Range: 0 to -300 MPa Resolution: NA Accuracy: ± 0.05 MPa from 0 to -5 MPa 1% from -5 to -300 MPa NOTE: All vapor pressure instruments (including the WP4C) are limited by accuracy in the wet end of the water potential range. The range of 0 to -5 MPa has an accuracy of ± 0.05 MPa. For example, a measurement of -0.1 MPa has an accuracy of $\pm 50\%$ of the measurement and a measurement of -1 MPa has an accuracy of $\pm 5\%$. The WP4C will not measure water potential accurately near field capacity (-0.033 MPa).
Temperature	Range 15-40 °C Resolution 0.1 °C Accuracy ± 0.2 °C
Read time	Soil sample: ~10-15 min (precise mode) <5 min (fast mode) NOTE: WP4C will display updated measurements approximately every 5 min until stopped Plant sample: ~20 min
PHYSICAL SPECIFICATIONS	
Case dimensions	Length 24.1 cm (9.5 in) Width 22.9 cm (9.0 in) Height 8.9 cm (3.5 in)
Case material	Powder painted aluminum
Sample cup capacity	15 mL (0.5 oz) full 7 mL (0.25 oz) recommended
Weight	3.2 kg (7.1 lb)
Display	20 x 2 alphanumeric LCD with backlighting
Sensor types	Chilled-mirror dew point sensor Infrared temperature sensor
Operating temperature	Minimum 5 °C Typical NA Maximum 40 °C
Data communications	RS-232A serial 8-data bit ASCII code 9,600 baud, no parity 1 stop bit
Interface cable	Standard RS-232 to USB cable (included)
Power	110-220 VAC 50/60 Hz
COMPLIANCE	Manufactured under ISO 9001:2015 EM ISO/IEC 17050:2010 (CE Mark) Compatible standard: ASTM D6836-07

This Instrument is manufactured by our principle company

METER Environment - USA