



METER

WP4C
WATER POTENTIAL METER
Soil * Leaf * Seed



The potential for error when measuring water potential

Measuring soil water potential is never easy. Traditional methods such as pressure plates or filter paper have always been problematic. Not only are they extremely time consuming, but both methods have issues with accuracy. That's why we developed the WP4C.

Simply accurate. Simply fast. Simple to use.

As world experts in water potential and soil suction, it wasn't enough to engineer an instrument that delivered consistent accuracy. We also designed it to be easy to use and take only minutes to register measurements, even in dry soils. 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.

Proven first-principles method based on fundamental physics

The WP4C is so accurate, it's used to calibrate other measurement methods and has been published extensively. Why? The dew point sensor inside the WP4C is a primary measure of water potential, not some secondary parameter merely correlated with water potential. It measures the combined matric and osmotic potential using fundamental thermodynamics and a finely-tuned calibration. Here's how it works: The WP4C determines 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.

Unparalleled accuracy. Simplicity of use. Fast speeds.

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 conductivity curve.



BİLMAR BİLİMSEL ARAŞTIRMA VE MÜHENDİSLİK ANONİM ŞİRKETİ

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Only using partial curves? Get what you've been missing.

Now, generate 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, or with this little effort. If you only need the dry end of the curve, the **LABROS Soilview-Analysis 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).

Save time and effort

The design of the WP4C is incredibly efficient in a number of ways. To start, you don't have to spend a ton of time teaching your technicians. Plus, it allows for fast equilibration because of sophisticated temperature control. And a final feature that makes for a total time saver: it makes measurements on its own, so you're free to attend to other things.

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

Specifications

MEASUREMENT 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
TEMPERATURE	Range: 15.00-40.00 °C Resolution: 0.10 °C Accuracy: ± 0.20 °C
READ TIME	Soil sample: approx 10-15 min (precise mode) * <5 min (fast mode) Plant sample: approx. 20 min

PHYSICAL SPECIFICATIONS

CASE MATERIAL	Powder painted aluminum
WEIGHT	3.2 kg
DISPLAY	20 x 2 alphanumeric LCD with backlighting
POWER	110-220 VAC 50/60 Hz
OPERATING TEMPERATURE	5-40 °C
INTERFACE CABLE	Standard RS-232 to USB cable (included)
SAMPLE DISH CAPACITY	7 mL recommended (15 mL full)
SENSOR TYPE	Chilled-mirror dew point sensor Infrared temperature sensor

For more information about SOIL WATER POTENTIAL, please look at the below link:

<https://metergroup.com/products/wp4c/> (SUPPORT & RESOURCES).



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