MP306 Moisture Sensor

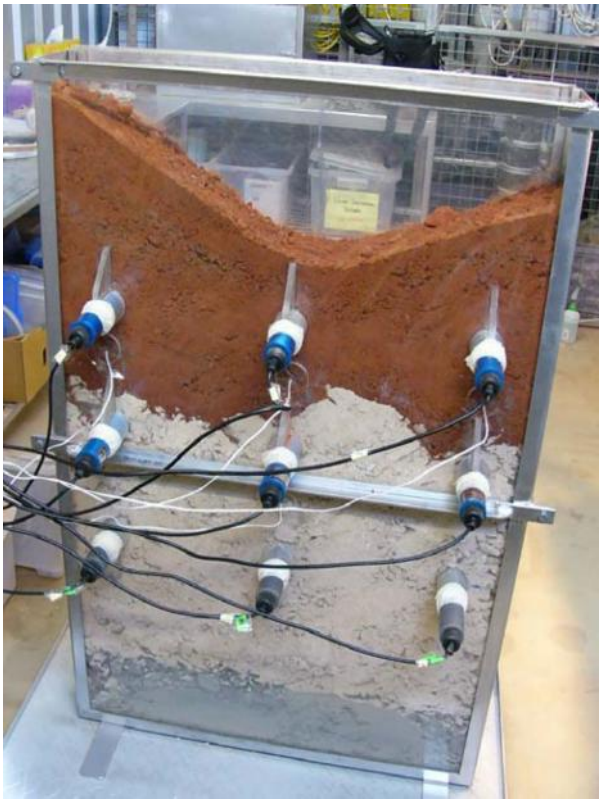
Product Overview

The MP306 is used to measure volumetric moisture content of soils and other material for scientific research, agriculture and civil engineering.

The MP306 has a compact body and the needles are arranged in a single plane making it ideal for use in soil columns.

The MP306 can be used to take continuous measurements over time through permanent or temporary burial and connection to a soil moisture meter (SMM).

MP306 uses the standing wave principle of measurement. It is equivalent to a TDR sensor without the need for a complex and expensive pulse generator. MP306 is a high accuracy, precision sensor with 1%VWC accuracy following soil-specific calibration and 0.01%VWC resolution.



Modeling Water Movement

MP306

- The MP306 is ideally supported by the Soil Moisture Meter (SMM), a wireless, stand-alone logging instrument available from ICT International. With the SMM, MP306 sensors can be individually calibrated for maximum accuracy.
- The SMM can support up to 10 x MP306 sensors.
- For complete monitoring solutions, the MP306 is used in combination with the MP406 soil volumetric moisture content sensor, tensiometers for soil water potential, ICTO2 soil oxygen sensor, or the ICT International automatic weather station.

MP306 Specifications

Measurement	
Measurement Range	0-100 VSW%
Accuracy	1% VSW% after calibration to a specific soil type ± 5 VSW% using the supplied soil calibration
Resolution	0.01% VSW%
Response Time	Less than 0.5 seconds
Stabilisation Time	3 seconds approximately from power-up
Interface	
Input Requirements	9-18 V DC unregulated
Power Consumption	14 mA typical, 16mA max
Output signal	0-1160mV for 0-100 VSW%
Mechanical	
Total Length	199 mm
Needle Length	60 mm
Needle Separation	12 mm
Needles	Stainless Steel (Grade 316) - does not corrode in saline solutions
Exterior	ABS Plastic
Cable	4.5 m Standard
Related Products	
ICT Instrument	Soil Moisture Meter
Other	
Environment	Designed for permanent or temporary burial

MP306 Accuracy

The results from measurement of absolute volumetric soil water percent (VSW%) from prepared soil samples using the MP306 are given below *(Figure 1)*.

This result is typical of the results obtained from comparative testing of the MP306 in prepared soil samples, for a wide range of agricultural soils.

Standing Wave Technology and hence the **MP306 are not affected by changes in temperature or salinity of the soil or material being measured** and hence the values of VSW% are equivalent to oven dried water content.

MP306 Measurement of VSW% using Soil Samples as a standard

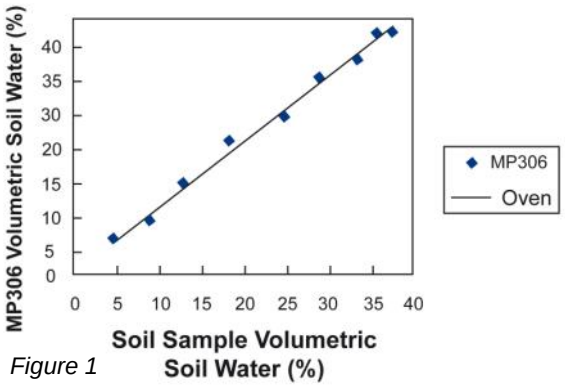


Figure 1

MP306 Measurement of VSW% using TDR as a standard

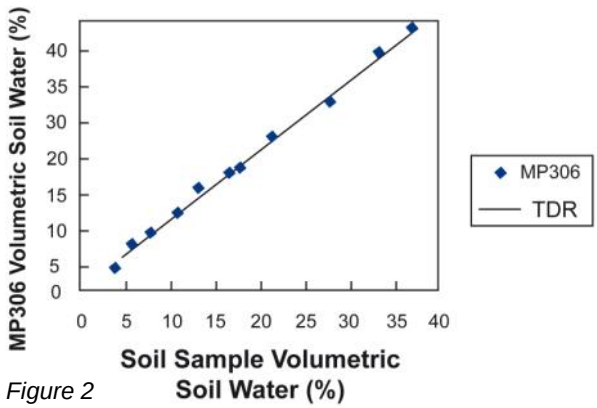


Figure 2

What is Standing Wave?

The standing wave technique uses an oscillator to generate an electrical field in order to detect the dielectric properties of a substrate of interest. The parallel needles of an MP306 act as a coaxial transmission line to generate a signal. The amplitude of the signal is related to the dielectric constant which in turn is directly related to moisture content.

For more information on the standing wave technique please visit:

http://www.ictinternational.com/standingwave.html