

MPKit

SPECIFICATIONS

MP406 Probe:

Measurement Range:

0–100 VSW% (Volumetric Soil Water %)

Accuracy: 1 VSW% after calibration to a specific soil type, or 5 VSW% using the supplied generic soil calibration

Response Time: Less than 0.5 seconds

Stabilization Time: 3 seconds approximately from power-up

Environment: Environmentally sealed, can be permanently buried in the soil.

Mechanical:

Total length: 215 mm

Needle length: 60 mm

Needle diameter: 4 mm

Needle separation: 14 mm

Needles: Stainless Steel

Exterior: ABS Plastic

Cable: 4.5 m Standard

MPM160 Meter:

Analogue input signal range: 0–1200 mV

Resolution: 0.1 VSW%.

Display: 1 line 16 character LCD which displays battery status, reading number, raw mV and calibrated VSW%

Keys: Light touch, field rugged keyboard; Double sided READ key for easy right or left single-handed field use

Optional Auger Set:

Shell Auger: 50mm x 1m

Spiral Auger: 50mm x 1m

Extension: 40mm x 0.6m

T-Handle

The MPKit is a portable soil moisture sensor that enables rapid sampling of Volumetric Soil Water Content (VSW%). The MP406 is inserted to the required depth of measurement and the moisture content is read out on the display of the MPM160 meter.

The MPKit consists of the following:

MP406 Moisture Probe rapidly measures the soil moisture by pushing the needles of the sensor into the soil surface or the soil profile in an augered hole. The needles are welded to the body and will not break.

MPM160 is especially designed for use with MP406 Moisture Probe. It provides the power to the MP406 Moisture Probe for the reading and display of MP406 measurements. The measurements are displayed directly in both raw mV and calibrated Volumetric Soil Water Content (VSW%).

MPExt Rod consists of a pair of chrome extension rods. Each rod is 35 cm long enabling measurement of soil moisture to 70 cm depth in the soil profile. One rod connects to the MP406 and the other has a “T” handle.



MP Case is made of high quality aluminium with strong foam cutout. The case carries the MP406, MPM160 and MPExt Rod.

MP Auger Set (optional) consists of a spiral drill bit and T handle. The auger set drills a 50 mm diameter hole enabling the MP406 to be easily pushed to the depth required for measurement.

MP406 Soil Moisture Probe

The MP406 can be used to measure the soil moisture for scientific research or irrigation management. In either situation the MP406 can:

- rapidly measure soil moisture by pushing the needles of the sensor into the soil surface or soil profile. (MPKit)
- make measurements over time by permanently burying the MP406 and connecting it to a data logger.
- control irrigation by permanently burying the MP406 and connecting it into an irrigation controller with industry standard 4-20mA interface. (MP406C)

The MP406 Moisture Probe can also be used to measure the moisture content in many materials such as soil, food and materials used in roadway and building construction.

Theory of Operation

The MP406 has a high frequency moisture detector, which uses the standing wave principle to indicate the ratio of two or more substances forming a body of material, each substance having a different dielectric constant (K_a).

The moisture measurement of the material is based upon the fact that in a water:soil:air matrix, the dielectric constant is dominated by the amount of water present. Then the soil water content can be measured exactly because changes in water content of the soil result in changes in the dielectric constant of the soil.

The material that can be measured by the MP406 is often soil but can be any composition of non-metallic powdered-, liquid- or solid-phase substance into which the needles are inserted.

Typical Applications

- **Soil moisture measurements in:**
Parks and gardens,
Sporting fields,
Golf courses,
Turf farms,
Greenhouses
- **Irrigation scheduling of fruit and vegetable crops, for example:**
Potatoes, lettuce, strawberries, bananas,
pineapples, sugar cane, melons and roses
- **Portable soil moisture monitoring for:**
Meeting regulatory requirements,
Building foundations,
Compost



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