



Tensiomark™

Application

Measurement of soil matric potential throughout the year; maintenance-free and frost-resistant.

Principles of operation

The Tensiomark sensor measures the heat capacity in a porous equilibrium body using the patented measuring principle of the pF-Meter, but with a comparatively simpler construction.

The changes of soil humidity lead to increases or decreases of the heat capacity of the sensor head. The correlation of matric potential values and the measured heat capacity is achieved by a sensor-specific calibration curve. Depending on the requirements of range and accuracy the sensor is manufactured in different calibration classes (technical data see below).

Advantages:

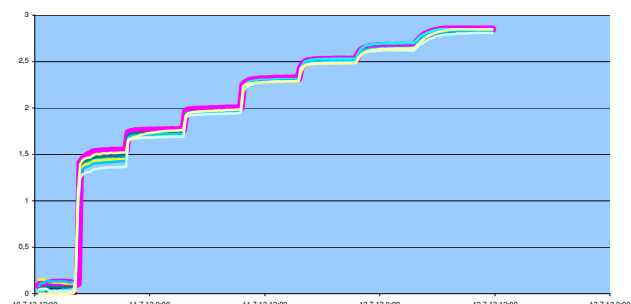
- Completely maintenance-free (no filling required)
- Unlimited measuring range (no missing values by dehydration)
- Spontaneous reaction to moisture changes (see fig. below)
- No frost damage, no influence of salinity
- Measurement of soil temperature (only in SDI-12 mode)

Technical Data

- Ranges of matric potential pF 0 ... pF 2,85
pF 0 ... pF 7,0
- Range of temperature – 40 ... + 80 °C
- Supply voltage 7-15 V, 8 V ideal
- Power demand 45-50 mA for ca. 5 s
- Standby 1,5 mA
- Signal Digital (SDI 12), optionally analogue
- Dimensions ca. 23 x 15 x 125 mm
- Cable length 5 m, others as desired

Options and accessories

- Data logger enviLog (up to 24 Tensiomarks)
- Data logger enviLog with GPRS data transmission
- Analog output
- Cable extension



Readings [pF] from 8 Tensiomark sensors in a Multistep Outflow Experiment with 7 vacuum pressure values pF 1,5 bis 2,85



Overview

The Tensiomark SDI12 was designed to operate simultaneously as analog and digital (SDI12-System). The SDI12 implementation covers only required commands (V1.1, see www.sdi-12.org). There are two modes of operation: With and without analog mode. The digital mode is always active. In analog mode the pF value can easily be measured with a simple voltage meter.

Connection

Supply voltage is 7-14 Volt (8-12 Volt recommended, 8V is ideal). Normally the current is about 1.5 mA. During a measurement the peak current is 50 mA for up to 5 seconds. We recommend to switch the Tensiomark off when it is not used.

Digital/Supply:

Brown: Supply (power +, 8-12 V recommended). Important: The supply has only protection against short overvoltage pulses. If there is a risk of reverse connection, it is important to use an extra external „Fast Blow“ fuse (500 mA) in the supply!

Grey: SDI12 signal (nominal 0 to 5 V)

Yellow: GND (power GND)

