



## Gypsum Block Soil Moisture (SM10)

### Features

- Robust PVC housing
- Fully weather proof
- Porous sensing block

### Applications

- General Meteorology
- Crop studies
- Irrigation Scheduling
- Ecology

### Description

The Gypsum Block Soil Moisture Sensor provides a method of reading soil moisture as a moisture potential over a range of 0.3 Bars to 10.0 Bars, (very wet to very dry) in low to moderately saline soils of pH 4.5 or higher.

The reading is also a function of soil type and salinity levels. It does, however, give a reliable relative reading of moisture content for a given soil type and salinity level.

The resistance of the blocks varies in an approximately logarithmic fashion with moisture potential. The sensor provides a pulse output which can be accumulated over a one or five minute period in the data recorder.

The gypsum block itself will deteriorate with time and eventually crumble away. Connection from the gypsum block to the electronics is via a 2-pin connector to allow easy replacement of the block.



Because of inconsistencies which occur in soils, it is often advisable to use a number of blocks and average their readings. When the blocks to be averaged are placed at the same depth, a series/parallel combination of four or nine blocks can be connected, to give better averaged results.

### Specifications

- Supply voltage: 5 - 7 volts DC
- Supply Current: <0.5 milliAmps
- Output: 7.85 - 18 Hertz
- Calibration curve:  
$$P = \text{EXP} (1.28 * \log_{10}(R - 450) - 3.5)$$
where P is in Bars, R is in Ohms or  
$$P_e(F) = \exp(1.28(0.434 \log(100((850/(0.8F-7)) - 19.5F + 252) - 450) - 3.5))$$
where F is frequency in Hertz.
- Accuracy (Resistance measurement) +/- 5%

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