

## Sensoterra

Science Park 106  
1098XG Amsterdam  
The Netherlands



# Single depth soil moisture probe

## Technical data sheet

Version 1.5

## General

<b>Measurement</b>	Soil moisture			
<b>Probe lengths</b>	15 cm	30 cm	60 cm	90 cm
<b>Dimensions</b>	20 x 8 x 8 cm	35 x 8 x 8 cm	65 x 8 x 8 cm	95 x 8 x 8 cm
<b>Weight</b>	0.21 kg	0.26 kg	0.35 kg	0.42 kg
<b>Power</b>	Non-replaceable internal Lithium Manganese Dioxide battery included			
<b>Operating voltage</b>	3.0 V			
<b>Life expectancy</b>	3-year using default reading rate			
<b>Operating environment</b>	- 20 to + 60 degrees Celsius			
<b>Waterproof enclosure</b>	Suitable for outdoor environments			
<b>Warranty</b>	1 year			
<b>Installation requirements</b>	By hand or rubber hammer			
<b>Certification</b>	LoRa Alliance FCC CE			

## Soil moisture

<b>Measurement protocol</b>	Soil resistivity and capacitance
<b>Measurement output</b>	Volumetric Water Content (%), or Sensoterra Index Scale
<b>Measurement volume</b>	6.2 cm <sup>3</sup>
<b>Default reading rate</b>	One measurement per hour
<b>Memory</b>	Last 6 measurements
<b>Resolution</b>	Reported to the nearest 0.1 %
<b>Range</b>	0 to the maximum water capacity of the soil by total volume - 53% for clay, 40% for sand and 83% for peat
<b>Accuracy</b>	±20% relative accuracy at pF>=2
<b>Operating environment</b>	Up to EC of 0.5 mS/cm
<b>Soil compatibility</b>	Factory calibrated for 5 common soil types, as well as a generic soil. Custom specified calibration on request

**Communication**

<b>Wireless protocol</b>	LoRaWAN 1.0.2, ADR enabled
<b>Frequency</b>	North America: 902-928 MHz, 72 uplink channels Europe: 863-870 MHz
<b>Transmit power</b>	North America and Australia: up to 20 dBm Other regions: up to 14 dBm
<b>Transmission rate</b>	24 uploads per day
<b>Data interface</b>	Web browser, iOS or Android
<b>Data storage</b>	Sensoterra database
<b>Export data</b>	<ul style="list-style-type: none"> <li>- Excel download</li> <li>- Open RESTful API</li> <li>- SenML server push notifications</li> <li>- GeoRSS feed</li> </ul>
<b>LoRaWAN provisioning</b>	3 years included
<b>Security</b>	<ul style="list-style-type: none"> <li>- LoRa communication encrypted with AES 128 up to the network servers</li> <li>- All API and application access encrypted with TLS/SSL</li> <li>- Hosting access secured by industry best practices like TFA, etc</li> </ul>

Date	Revision	Author	Summary of changes
2019-5-21	1.5	CF	Temp range, certifications and uplink frequencies
2019-3-14	1.4	CF	Normal use description, accuracy, transmission options
2019-2-4	1.3	TW	Added certification new address
2018-1-4	1.2	MR	Added security
2017-11-17	1.1	RB	Added Australian frequency
2017-6-9	1.0	RB	Initial version