

GSENSE-100 [SOIL MOISTURE SENSOR]

INTRODUCTION

gSense-100 enable measurement of soil moisture levels by using frequency domain concepts. The sensor is made of a corrosion resistant element and giving it a long service life. gSense-100 is rugged, battery operated, low power & long-range sensor using IoT network. The sensor offers a rapid response time. gSense-100 will give a better idea of how fast soil water is being depleted in different areas of field which helps in tracking effectiveness of Rain water and Irrigation water. gSense-100 is water and weather proof.



SPECIFICATIONS

- Sensor element is constructed of FR4 material.
- No electrical contacts, capacitive sensor.
- Battery operated – Capacity 2.1AH, 3.6V
- Operating temperature -20°C to +65°C
- Sensing element size: 10in (L) x 1.93in (W) x 0.1in (T)
- Sensor electrical cap size: 3in x 2in x 0.75in

FEATURES

- Unique ID shall be provided on each sensor.
- Sensor does not corrode.
- Rugged and designed for long term use.
- Sensitivity adjustable.
- Wireless reporting. Low power operation.
- Accurate measurements
- Measure soil, air temperature & moisture levels.
- Convenient installation.
- Remote configurable settings using downlink.
- Factory testing option over serial port.
- Alarm trigger [moisture, temperature, tilt level is out of thresholds]
- Remote activation/ deactivation.

APPLICATIONS

- Smart Agriculture
- Gardening and Farming
- Landscape irrigation & sprinkler
- Rain and environmental monitoring

Confidential

<i>Specifications</i>	
<i>Power Supply</i>	Internal Battery
<i>Communication</i>	Wireless SigFox, 865 – 867MHz
<i>Battery</i>	3.6V, 2.1AH
<i>Battery type</i>	Non-Rechargeable, AA Size
<i>Tx power level</i>	16dBm peak EIRP**; 14dBm Typ. EIRP**.
<i>Receiver sensitivity</i>	-127dBm
<i>Soil Moisture measurement range</i>	0% to 100% [units %]; $\pm 10\%$ *
<i>Soil Temp measurement range</i>	-20°C to +85°C [units °C]; $\pm 1^\circ\text{C}^*$
<i>Air Humidity measurement range</i>	0% to 100% [units %]; $\pm 3\%$ *
<i>Air Temp measurement range</i>	-20°C to +65°C [units °C]; 0.5°C^*
<i>Operating Temperature</i>	-20°C to +65°C
<i>Sensor Material</i>	FR4
<i>Enclosure</i>	Waterproof; ABS
<i>Sensor response time</i>	3 Secs
<i>Tilt Sensor</i>	± 10 Degrees
<i>Interface</i>	Serial port [debug lab/ factory access]
<i>Sensor</i>	10 ln x 1.93 ln x 0.12 ln
<i>Data Storage</i>	1-week data [latest 1-week data shall be stored in Memory]
<i>Calibration</i>	Refer calibration note below.
<i>Power Consumption</i>	<5 μA in Sleep Mode. 125mA Max in Transmit Mode [500 mSec duration]. 10mA in Sensor Sampling Mode [Approx. 2 Sec].
<i>Battery backup time</i>	2.5 years* @ 2.1AH 7.5 years* @ 2.1AH x 3 batteries 4 messages a day. Every 15 mints sampling sensor values.
<i>Product operational life</i>	7 years*

** Tx power settings @ 15

* Under Standard Conditions; Refer installation guide.

Calibration Note: Sensor calibrated at factory level; However, the site-specific calibration may be required if soil type is different than that is calibrated at factory. Refer installation guide for more info.