

HUMIDITY AND TEMPERATURE SENSOR



■ MAIN PURPOSE

REACOM's RSMT3L Sensor is a humidity and temperature sensor developed for agriculture applications which is able to measure:

- soil moisture at three depth levels
- soil temperature at three depth levels
- air temperature

The RSMT3L Sensor can be easily installed by simple burying in any field or garden by non-professional personal.

■ PRINCIPLE OF OPERATION

The RSMT3L Sensor is using a capacitive measurement method for soil moisture and RTD measurement method for temperature. This device is a wireless communication tool that detects air temperature, soil temperature and soil moisture and transmits the detected data to the software applications through a LoRaWAN network. This sensor has been developed without a direct electrical contact with a soil. Which eliminates corrosion of electrodes and guarantees long life cycle usage. The RSMT3L Sensor can be preconfigured for sending data payload to the dashboards or any third party software.

MAIN FEATURES

1. Air temperature
2. 3 depth level soil temperature 5/15/25 cm, measurement accuracy $\pm 0.5^{\circ}\text{C}$
3. 3 depth level soil moisture 5/15/25 cm., measurement accuracy $\pm 2\%$
4. Ability to change the depth of measurement within -2.5 cm/+5 cm
5. Battery voltage status
6. Wireless range - up to 10 km*
7. LoRaWANTM Class A compatible
8. Improved interference immunity
9. Improved power management for longer battery life
10. Encrypt-RF™ Security (Diffie-Hellman Key Exchange+ AES-128 CBC for sensor data messages)
11. Battery Life — up 5 years**

EXAMPLE OF APPLICATIONS

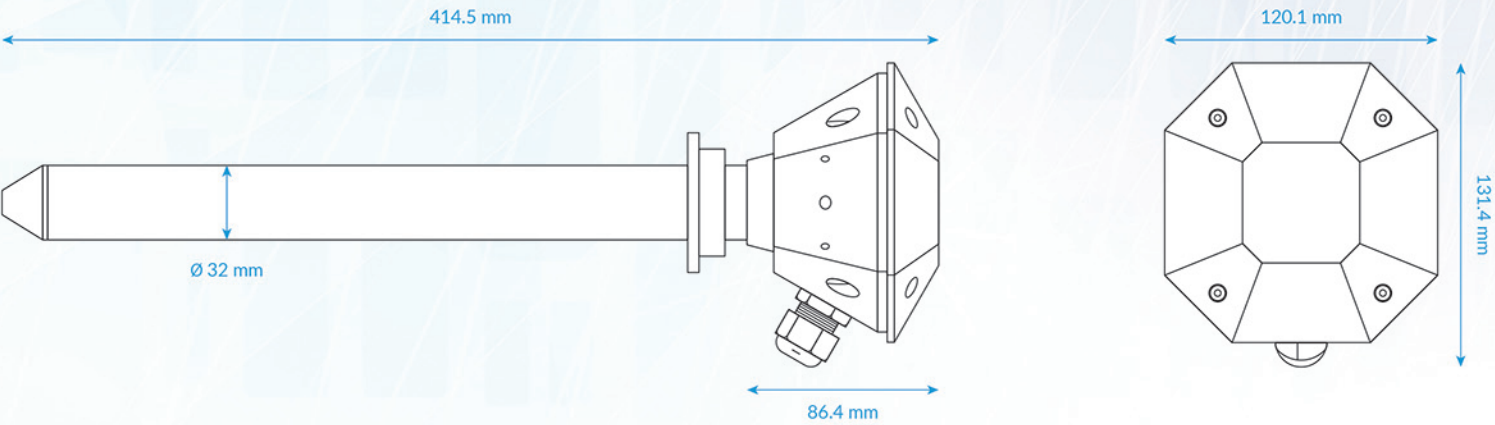
1. Field state monitoring and analytics
2. Soil irrigation
3. Greenhouses, Farming
4. Plant nurseries

*Conditions: no obstacles, direct line-of-sight

**Conditions: temperature 25°C, 4 triggers/day, txpower = 13 dBm, LoRa spreading factor SF = 10

The RSMT3L Sensor can be preconfigured optionally with REACOM's proprietary software, that is user friendly and can be easily integrated to any Third-Party online monitoring and notification System to view data, set alerts, etc.***

Main Body



TECHNICAL SPECIFICATIONS

ELECTRIC

- Input Power..... 1x3.6V Li-SOCl 2 battery
- Working Voltage..... DC 2.4V ~ 3.6V
- Standby Current..... 2uA / 3.0V
- Transmitting Current (max).... 120 mA / 3.0V
- Receiving Current (max)..... 14.8 mA / 3.0V
- Low Voltage Threshold 2.4V
- Battery Voltage
- Measurement Accuracy..... ±0.1V

FREQUENCY

- TX Power..... 13 dBm ± 1d Bm
- Rx Sensitivity..... -136 dBm
- (LoRa, Spreading Factor=7-12
- Bit Rate=5470-293 bps)
- 121 dBm
- Antenna Type..... Build-in or external antenna
- Data Transfer Rate..... 0.3 kbps~50 kbps

PHYSICAL

- Main Body Dimension..... 414.4x131.4x120.1mm
- Weight..... 400 g
- Operating Temperature..... -20° C ~ 55° C
- Environment Humidity Range.... <90% RH (No condensation)
- Storage Temperature..... -40° C ~ 85° C

- Communication Range..... 10 km (line-of-sight, the actual transmission distance depends on the environment)
- Spread Technique..... LoRa/FSK
- Available Frequency..... EU863-870
- Other regional bands can be configured before shipment

***Optional