

Wireless Soil Moisture/Temperature/ Electrical Conductivity Sensor with a Waterproof Housing

Wireless Network Based on LoRa Technology



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Introduction

The device is a wireless communication device that detects soil temperature, soil moisture and soil electrical conductivity. It transmits the detected data to other devices through a wireless network for display. It adopts SX1276 wireless communication module.

Main Characteristic

- Adopt SX1276 wireless communication module
- 2 ER14505 batteries AA SIZE (3.6V / section) in parallel power supply
- Main unit protection level IP67
- The base is equipped with a magnet that can be attached to a ferrous object
- Soil moisture detection
- Soil temperature detection
- Soil electrical conductivity
- Compatible with LoRaWAN™ Class A
- Frequency hopping spread spectrum technology
- Configuring parameters and reading data via third-party software platforms, and set alarms via SMS text and email (optional)
- Applicable to third-party platforms: Actility / ThingPark, TTN, MyDevices / Cayenn
- Low power consumption and longer battery life:

*Battery life is determined by sensor reporting frequency and other variables, please refer to

http://www.netvox.com.tw/electric/electric_calc.html/

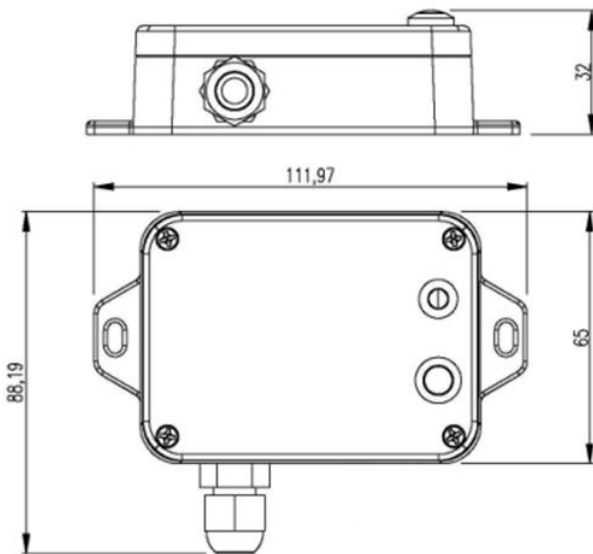
On this website, users can find battery life of various models in different configurations.

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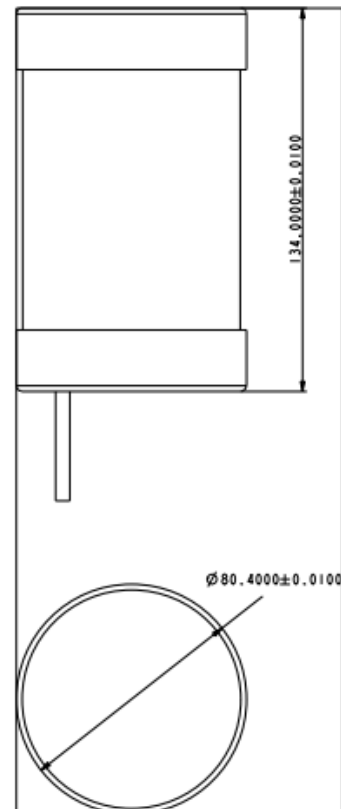
Application

- Soil moisture detection
- Soil temperature detection
- Soil electrical conductivity
- Golf course moisture detection
- Other

Dimension



Main Unit



Cylinder Dimension

Wireless Soil Moisture/Temperature/Electrical Conductivity Sensor with a Waterproof Housing**Electric**

Power Supply	2 ER14505 lithium batteries (3.6 V, 2400mAh / section) in parallel
Battery Life	2.7 years (condition: ambient temperature 25 ° C, 60 min report once, TX power = 20 dBm, LoRa spreading factor SF = 10)
Standby Current	20 uA
Wakeup Current	Wakeup current range 0.8mA-20 mA * When not transmitting /receiving LoRa data
Battery Measurement Accuracy	± 0.1V

Module-R100H

Wake-up Current	0.8mA - 8mA/ 3.3V
RF Receiving Current	11mA/ 3.3V
RF Transmitting Current	120mA/ 3.3V

* Specific electrical characteristics will vary depending on the power supply voltage.

Frequency

Frequency Range	863MHz-928MHz 470MHz-510MHz
TX Power	US915 20dbm AS923 16dbm AU915 20dbm CN470 19.15dbm EU868 16dbm KR920 14dbm IN865 20dbm
Receiving Sensitivity	-136 dBm (LoRa, Spreading Factor=12, Bit Rate = 293bps) -121 dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Built-in antenna
Communication Distance	Up to 10 km (visible linear obstacle-free transmission distance , actual transmission distance depends on the environment)
Data Transfer Rate	0.3 kbps to 50 kbps (LoRaWAN) 1.2 kbps to 300 kbps (FSK)
Modulation System Mode	LoRa/ FSK (Note: choose one of them)
Supportable LoRaWAN Band	EU863-870, US902-928, AU915-928, KR920-923, AS923, CN470-510, IN865 (Note: The frequency band is optional and needs to be configured shipment)

Wireless Soil Moisture/Temperature/Electrical Conductivity Sensor with a Waterproof Housing**Sensor - Soil Moisture/Temperature/Electrical Conductivity**

Operation Current	6mA/ 5VDC
Soil Temperature Resolution	0.1 °C
Soil Temperature Measurement Accuracy	± 0.5°C
Soil Temperature Range	-40 ~ 80°C
Soil Moisture Resolution	0.03% within 0-50% 1% within 50-100%
Soil Moisture Accuracy	± 2% within 0-50% ± 3% within 50-100%
Soil Moisture Range	0-100%
Sensor Detection Range	The detecting radius of the sensor is about 7 cm, meaning that the percentage of soil moisture will vary significantly when there is water permeability within a radius of 7 cm.
Electrical Conductivity Resolution	0.1 ds/m
Electrical Conductivity Accuracy	In the range of 0-10 ds/m: ±0.3 ds/m In the range of 10-20 ds/m: ±1 ds/m
Electrical Conductivity Range	0-20 ds/m

Physical

Main Unit Dimension	L: 112 mm*W: 65 mm*H: 32 mm
Cylinder Dimension	ø80mm, length 134mm
Main Unit Weight	About 160g (excluding shell cylinder)
Ambient Temperature Range	-20°C ~ 55°C
Ambient Humidity Range	<90% RH (No condensation)
Storage Temperature Range	-40 °C ~ 85 °C