EFENTO
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NB-IoT

Wireless soil moisture and temperature logger



The Efento NB-IoT wireless data logger is designed for continuous monitoring of soil moisture and temperature, ensuring reliable data transmission and high measurement accuracy. Using Narrowband IoT connectivity, it communicates directly over the cellular network. No gateways or additional infrastructure required.

Key Features

- **Effortless installation** - thanks to built-in NB-IoT connectivity, installation is as simple as mounting the device on a wall or placing it on a table - no gateways, cabling, or Wi-Fi configuration required.
- **Fast and intuitive setup** - with an integrated Bluetooth Low Energy (BLE) module and a dedicated mobile app, the sensor can be configured and activated in under 15 minutes.
- **Up to 8 years of battery life** - engineered for long-term, maintenance-free operation, the device uses intelligent data handling and optimized transmissions to achieve up to 8 years of operation on a single battery.
- **Cloud and system integration** - seamlessly connects with the Efento Cloud platform for data visualization, analysis, and alerting. Standard communication protocols also enable easy integration with custom server-based systems.
- **Remote management** - supports over-the-air firmware updates and secure remote configuration, reducing the need for on-site maintenance.
- **Calibration certificate (optional)** - the device can be supplied with a certificate issued by an accredited laboratory in accordance with ISO/IEC 17025, confirming measurement accuracy for high-precision applications.

Applications

The device is designed for monitoring soil moisture and temperature using external probes, enabling precise measurements directly in the soil-even in hard-to-access or remote locations. It is ideal for use in agriculture, horticulture, greenhouses, irrigation systems, specialized crops, and environmental monitoring.

Sensors

	Soil moisture	Temperature
Model	Watermark 200SS, 3-meter probe	Dallas DS18B20, 1-meter probe
Range	0-239 kPa	-55° to 125°C
Accuracy	Depends on the type of soil	+/- 0.5°C in the range from -10°C to +85°C +/- 2°C in the range from -55 to -10°C and +85°C to +125°C
Resolution	1 kPa	0.1°C
Drift	Not applicable	<0.1°C /year

Technical data

Data logging	
Memory size	100 000 measurements (evenly distributed across each channel)
Measurement interval	5 s - 30 days (user-configurable)
Bluetooth interface	
Radio module frequency	2.4 GHz
Power	2.5 mW (4 dBm)
Range	Up to 100 m (LOS)
Transmision period	1 s
Bluetooth version	Bluetooth Low Energy (4.0)
NB-IoT interface	
NB-IoT bands	1, 2, 3, 4, 5, 8, 12, 13, 17, 18, 19, 20, 25, 28, 66, 70, 85
3GPP	13 i 14 (LTE Cat NB2)
Power	23 dBm ±2 dB
Communication	
Protocol	CoAP
Transmission interval	1 min - 7 days (user-configurable)
Operating and Storage Conditions	
Main unit operating conditions	Temperature: -25°C to +70°C, humidity: 0-99% RH (non-condensing)
Probe operating conditions	Temperature: -25°C to 50°C
Storage conditions	Temperature: -25°C to +70°C
Charging conditions (variants with external power supply)	Temperature: 0°C to +45°C
Certifications	
Regulatory	CE (RED), FCC
Environmental	RoHS

Variants

EAN	Power Supply	Enclosure	Weight
5905309605411	38,000 mAh battery (replaceable). Battery life up to 8 years	IP67, dark grey ABS plastic Dimensions: 189.5 x 81.5 x 55	525g (including battery)
5905309605428	9-26V, with a 1,300 mAh rechargeable backup battery to maintain operation in case of power loss	IP67, dark grey ABS plastic Dimensions: 189.5 x 81.5 x 55	-