

FYTA Terra – Smart Soil & Climate Sensor



FYTA Terra is a smart outdoor soil and environmental monitoring sensor engineered for use in heterogeneous outdoor environments such as garden beds and lawns. It combines capacitive soil moisture and conductive salinity sensing (direct) with extended environmental measurement capabilities to support time-series-based assessments of plant and soil conditions under variable field conditions.

Terra operates autonomously as part of a FYTA system in conjunction with optional Hubs (LTE-M) that automate data transfer. Calibration models optimized for outdoor and mixed-substrate soils are included; adaptive and custom calibration approaches can be developed for specific field scenarios.

Parameter	Technical Specification
Body dimensions	93.5 x 72 x 72 mm
Measurement range	VWC: 0–100 % (effective range depends on substrate dielectric properties) EC: 0–10 mS/cm (depending on substrate) Temp.: –5 °C to +50 °C PPFD: 0–2000 $\mu\text{mol}/\text{m}^2/\text{s}$
Accuracy	VWC: ± 5 % of reading (depending on substrate), improved with custom calibration EC: ± 10 % of reading in soils, improved with custom calibration Temp.: $\pm 2^\circ\text{C}$ PPFD: ± 5 %
Resolution (default)	VWC: 1 % VWC EC: 0.1 mS/cm Temp.: 0.1°C PPFD: 1 $\mu\text{mol}/\text{m}^2/\text{s}$
Sensing frequency	15 min (default), configurable upon request
Data transmission frequency	15 min (default) via FYTA Hub, configurable upon request
Data storage	Measurement data and conversion parameters are stored locally for up to 10 days and synchronized with the FYTA Cloud for long-term storage & analysis.
Soil probe dimensions	Diameter: 5.5 mm Length: 3–350 mm Probe spacing: 10.5 mm
Weight (incl. battery)	98 g
Operating temperature	–3 °C to +50 °C
Bits per sample	VWC: 12-bit (multi-channel capacitive measurement) EC: 16-bit (conductive measurement) Temp: 12-bit PPFD: 16-bit
Number of data channels	1
Connectivity	Bluetooth Low Energy (BLE) 5.4 and 2.4GHz WiFi (integrated) LTE connectivity via LTE Hub
Ingress protection	IP 65
Power supply	2 x NiMH AA rechargeable batteries (solar-assisted)
Typical runtime	3–6 months without solar input; extended / autonomous runtime with sufficient solar exposure