

Soil Sensor (Teros-12)

Measures volumetric water content (VWC), electrical conductivity (EC), and temperature of soil. This device, belonging to the PRO sensor series, includes Aranet Sub-GHz ISM band radio which wirelessly transmits sensor measurements to the Aranet PRO base station.



Product numbers

European Union	TDSPHE02
United States	TDSPHEU2
Asia	TDSPHEU2
Japan	TDSPHEJ2

Sensor performance

General notes

- 95 % of the sensors perform within the specified accuracy limits at the time of purchase, assuming they are in an equilibrium state.

Volumetric water content

Range	0–100 %
Resolution	0.1 %
Accuracy	±3 %

- The VWC range is dependent on the media the sensor is calibrated to. A custom calibration will accommodate the necessary ranges for most substrates.
- Given accuracy figure is typical for mineral soils that have solution electrical conductivity of <8 dS/m. The VWC accuracy is dependent on the media the sensor is calibrated to. A custom calibration can improve the accuracy up to 1 % of VWC reading.

Apparent dielectric permittivity

Range	1–80	
Resolution	0.01	
Accuracy	±1 % (in range 1–40)	±15 % (in range 40–80)

Bulk electrical conductivity

Range	0–20 dS/m	
Resolution	0.001 dS/m	
Accuracy	±8 % of reading	

Temperature

Range	–40–60 °C	–40–140 °F
Resolution	0.1 °C	0.1 °F
Accuracy	±0.5 °C	±1.0 °F

- Temperature measurement may not be accurate if sensor is not fully immersed in the medium of interest, due to longer time required to reach thermal equilibrium.

General specifications

Ingress protection rating	IP68	
Operating temperature range	–40–60 °C	–40–140 °F
Weight (incl. battery)	320 g	11.3 oz
Packaging includes	1 pc AA alkaline battery	

Aranet radio parameters

Line of sight range	3 km	1.9 mi
Transmitter power	14 dBm	25 mW
Data transmission interval	1, 2, 5 or 10 min	
Data protection	XXTEA encryption	

Battery lifetime

Measurement interval	Alkaline battery lifetime	Lithium battery lifetime
1 min	0.9 years	1.2 years
2 min	1.7 years	2.3 years
5 min	3.9 years	5.3 years
10 min	6.6 years	9.5 years

- Battery lifetime data has been obtained by mathematical extrapolation and is provided for descriptive purposes only and is not intended to make or imply any guarantee or warranty.
- Battery lifetime tests and calculations performed assuming device is at 20 °C (68 °F) and using *Fujitsu Premium LR6G07* (alkaline) and *Energizer Ultimate Lithium L91* (lithium) AA batteries as reference.
- The operating temperature range may vary based on the battery type used. Generally, the range for alkaline batteries is between -20–50 °C (-4–122 °F), whereas for lithium batteries, it is -20–60 °C (-40–140 °F).

Compliance information



Conformité Européenne



Federal Communications Commission (USA)



Innovation, Science and Economic Development Canada
