Aranet Soil sensor (Teros-12)

Measures volumetric water content,

electroconductivity and temperature of soil

TDSPHE02 (EU) TDSPHEU2 (US,AS)

Volumetric Water Content (VWC)Apparent dielectric permittivityBulk Electrical Conductivity (EC)Temperature1Range0-100 %21-800-20 dS/m-40 °C to 60 °C (-40 °F to 140 °F)Resolution0.1 %0.010.001 dS/m0.1 °C (0.1 °F)Accuracy3 ± 3 %41-40 ± 1 40-80 ± 8 % of reading ± 0.5 °C (± 1.0 °F)Radio parameters ± 3 %41-40 ± 1 40-80 ± 8 % of reading ± 0.5 °C (± 1.0 °F)Radio parameters ± 0.5 % ± 1.40 (± 1.0 °F) ± 1.40 (± 1.0 °F)Supported ISM bandsEU868, RU869 US920, AS923Transmitter power14 dBmData transmission interval Data protection1, 2, 5 or 10 minutes XXTEA encryption7 years1.2 yearsData protectionXXTEA encryption5 minutes 3.9 years5.3 yearsGeneral-40 °C to 60 °C (-40 °F to 140 °F) -40 °C to 60 °C (-40 °F to 140 °F)Cempliance Innovation, Science and Economic Development CanadaWeight5320 g (11.3 oz)Innovation, Science and Economic Development CanadaInnovation, Science and Economic Development Canada	Sensor performance							
Resolution0.1 %0.010.001 dS/m0.1 °C (0.1 °F)Accuracy3±3 %41-40±1 40-80±8 % of reading±0.5 °C (±1.0 °F)Radio parameters40-80:15%× A batteryLine of sight range3 km (1.9 mi)TypeAlkaline ⁶ Lithium7Supported ISM bandsEU868, RU869 US920, AS923TypeAlkaline ⁶ Lithium7Transmitter power14 dBmTx intervalBattery lifetime at 20 °C (68 °F) ⁶ TData transmission interval1, 2, 5 or 10 minutes2 minutes1.7 years2.3 yearsData protectionXXTEA encryption5 minutes3.9 years5.3 yearsCompatible base stationsAranet PRO6.6 years9.5 yearsIngress protection rating Operating temperature rangeIP68 -(40 °F to 140 °F)Cto 60 °C -(40 °F to 140 °F)CEConformité EuropéenneWeight5320 g (11.3 oz)Innovation, Science and Economic Development CanadaECCFederal Communications Commission								Temperature ¹
Accuracy3 $\pm 3 \%^4$ $1-40$ $40-80$ ± 11 $40-80$ $\pm 8 \%$ of reading $\pm 0.5 °C$ $(\pm 1.0 °F)$ Radio parametersPowerAA batteryLine of sight range $3 \text{ km} (1.9 \text{ mi})$ TypeAlkaline ⁸ Lithium7Supported ISM bandsEU868, RU869 US920, AS923TypeAlkaline ⁸ Lithium7Transmitter power14 dBmTypeAlkaline ⁸ Lithium7Data transmission interval1, 2, 5 or 10 minutes2minute0.9 years1.2 yearsData protectionXXTEA encryption5minutes3.9 years5.3 yearsCompatible base stationsAranet PROComplianceCIngress protection rating rangeIP68 (-40 °F to 140 °F)ComplianceCOperating temperature range-40 °C to 60 °C (-40 °F to 140 °F)ComplianceCWeight5320 g (11.3 oz)Innovation, Science and Economic Development CanadaEcc.Federal Communications Commission	Range	0-100 % ²	1-80				0 – 20 dS/m	
$40-80 : 15\%$ $(\pm 1.0 ^\circ F)$ Radio parameters $(\pm 1.0 ^\circ F)$ Line of sight range $3 \mathrm{km} (1.9 \mathrm{mi})$ TypeAA batterySupported ISM bandsEU868, RU869 US920, AS923TX intervalBattery lifetime at 20 °C (68 °F)8Transmitter power14 dBmTX intervalBattery lifetime at 20 °C (68 °F)8Data transmission interval1, 2, 5 or 10 minutes2 minutes1.7 years2.3 yearsData protectionXXTEA encryption5 minutes3.9 years5.3 years5.3 yearsCompatible base stationsAranet PROComplianceCellComplianceIngress protection rating rangeIP68 (-40 °F to 140 °F)CellConnormité EuropéenneCellOperating temperature range-40 °C to 60 °C (-40 °F to 140 °F)Innovation, Science and Economic Development CanadaEconomic Federal Communications Commission	Resolution	0.1 %	0.01				0.001 dS/m	• •
Line of sight range3 km (1.9 mi)TypeAlkaline ⁶ Lithium ⁷ Supported ISM bandsEU868, RU869 US920, AS923TX intervalBattery lifetime at 20 °C (68 °F) ⁸ Transmitter power14 dBm1minute0.9 years1.2 yearsData transmission interval1, 2, 5 or 10 minutes2minutes1.7 years2.3 yearsData protectionXXTEA encryption5minutes3.9 years5.3 years5.3 yearsCompatible base stationsAranet PRO10minutes6.6 years9.5 yearsGeneral-40 °C to 60 °C (-40 °F to 140 °F)CComplianceCEConformité EuropéenneVeight ⁵ 320 g (11.3 oz)320 g (11.3 oz)Innovation, Science and Economic Development CanadaECCFederal Communications Commission	Accuracy ³	± 3 % ⁴		. –	_		±8 % of reading	
Supported ISM bandsEU868, RU869 US920, AS923TX intervalBattery lifetime at 20 °C (68 °F)8Transmitter power14 dBmData transmission interval1, 2, 5 or 10 minutesData protectionXXTEA encryptionCompatible base stationsAranet PROIngress protection ratingIP68Operating temperature range-40 °C to 60 °C (-40 °F to 140 °F)Weight5320 g (11.3 oz)Included in the boxAA alkaline battery	Radio parameters				Pov	/er	AA battery	
TX intervalBattery lifetime at 20 °C (68 °F)8Transmitter power14 dBmData transmission interval1, 2, 5 or 10 minutesData transmission interval1, 2, 5 or 10 minutesData protectionXXTEA encryptionCompatible base stationsAranet PROGeneralIminutesIngress protection ratingIP68Operating temperature range-40 °C to 60 °C (-40 °F to 140 °F)Weight5320 g (11.3 oz)Included in the boxAA alkaline battery	Line of sight range	3 km (1.9 mi)			Тур	е	Alkaline ⁶	Lithium ⁷
Transmitter power14 dBm1minute0.9 years1.2 yearsData transmission interval1, 2, 5 or 10 minutes2minutes1.7 years2.3 yearsData protectionXXTEA encryption5minutes3.9 years5.3 yearsCompatible base stationsAranet PRO10minutes6.6 years9.5 yearsCemeralIngress protection ratingIP68Operating temperature range-40 °C to 60 °C (-40 °F to 140 °F)CemplianceCEConformité EuropéenneIncluded in the boxAA alkaline battery5320 g (11.3 oz)Innovation, Science and Economic Development CanadaFCCFederal Communications Commission	Supported ISM bands				тхі	nterval	Battery lifetime	e at 20 °C (68 °E) ⁸
Data transmission interval1, 2, 5 or 10 minutesData protectionXXTEA encryptionCompatible base stationsAranet PROGeneral10 minutesIngress protection ratingIP68Operating temperature range-40 °C to 60 °C (-40 °F to 140 °F)Weight5320 g (11.3 oz)Included in the boxAA alkaline battery	Transmitter power	14 dBm					-	. ,
Data protectionXXTEA encryptionCompatible base stationsAranet PROGeneral10Ingress protection ratingIP68Operating temperature range-40 °C to 60 °C (-40 °F to 140 °F)Weight5320 g (11.3 oz)Included in the boxAA alkaline battery	Data transmission interval	1, 2, 5 or 10 minute	es		2	minute	-	-
Compatible base stationsAranet PRO10 minutes6.6 years9.5 yearsGeneralIngress protection ratingIP68ComplianceCellComplianceOperating temperature range-40 °C to 60 °C (-40 °F to 140 °F)CEConformité EuropéenneCellCellWeight5320 g (11.3 oz)Innovation, Science and Economic Development CanadaCellInnovation, Science and Economic Development CanadaIncluded in the boxAA alkaline batteryECCFederal Communications Commission	Data protection	XXTEA encryptior	ı		5	minute		-
Ingress protection ratingIP68CEConformité EuropéenneOperating temperature range-40 °C to 60 °C (-40 °F to 140 °F)CEConformité EuropéenneWeight5320 g (11.3 oz)Innovation, Science and Economic Development CanadaIncluded in the boxAA alkaline batteryFederal Communications Commission	Compatible base stations	Aranet PRO			10	minute	s 6.6 years	•
Ingress protection ratingIP68Operating temperature range-40 °C to 60 °C (-40 °F to 140 °F)Weight5320 g (11.3 oz)Included in the boxAA alkaline battery	General				Con	npliance	1	
Operating temperature-40 °C to 60 °Crange(-40 °F to 140 °F)Weight5320 g (11.3 oz)Included in the boxAA alkaline batteryECCFederal Communications Commission	Ingress protection rating	IP68						
Weight5320 g (11.3 oz)ICDevelopment CanadaIncluded in the boxAA alkaline batteryFederal Communications Commission							•	
Elli	Weight ⁵	320 g (11.3 oz)			IC			
(USA)	Included in the box	AA alkaline battery			FCC			tions Commission

² The VWC range is dependent on the media the sensor is calibrated to. A custom calibration will accommodate the necessary ranges for most substrates.

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¹ Temperature measurement may not be accurate if sensor is not fully immersed in the medium of interest, due to longer equilibration time.

³ 95 % of the sensors measure within these typical limits in equilibrium state at the time of sale.

⁴ A typical value in mineral soils that have solution EC <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.

⁵ Weight with alkaline Fujitsu Premium LR6G07 AA batteries.

⁶ Fujitsu Premium LR6G07 AA batteries used for tests and calculations.

⁷ Energizer Ultimate Lithium L91 AA batteries used for tests and calculations.

⁸ 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.