

## Aranet Soil sensor (Teros-12)

Measures volumetric water content,  
electroconductivity and temperature of soil

TDSPHE02 (EU)  
TDSPHEU2 (US, AS)

### Sensor performance

|                       | Volumetric Water Content (VWC) | Apparent dielectric permittivity | Bulk Electrical Conductivity (EC) | Temperature <sup>1</sup>              |
|-----------------------|--------------------------------|----------------------------------|-----------------------------------|---------------------------------------|
| Range                 | 0 – 100 % <sup>2</sup>         | 1 – 80                           | 0 – 20 dS/m                       | -40 °C to 60 °C<br>(-40 °F to 140 °F) |
| Resolution            | 0.1 %                          | 0.01                             | 0.001 dS/m                        | 0.1 °C<br>(0.1 °F)                    |
| Accuracy <sup>3</sup> | ± 3 % <sup>4</sup>             | 1–40 : ±1<br>40–80 : 15%         | ±8 % of reading                   | ±0.5 °C<br>(±1.0 °F)                  |

### Radio parameters

|                            |                              |
|----------------------------|------------------------------|
| Line of sight range        | 3 km (1.9 mi)                |
| Supported ISM bands        | EU868, RU869<br>US920, AS923 |
| Transmitter power          | 14 dBm                       |
| Data transmission interval | 1, 2, 5 or 10 minutes        |
| Data protection            | XXTEA encryption             |
| Compatible base stations   | Aranet PRO                   |

### General

|                             |                                       |
|-----------------------------|---------------------------------------|
| Ingress protection rating   | IP68                                  |
| Operating temperature range | -40 °C to 60 °C<br>(-40 °F to 140 °F) |
| Weight <sup>5</sup>         | 320 g (11.3 oz)                       |
| Included in the box         | AA alkaline battery                   |

### Power

| Type        | AA battery                                     |
|-------------|--|
|             | Alkaline <sup>6</sup> Lithium <sup>7</sup>     |
| TX interval | Battery lifetime at 20 °C (68 °F) <sup>8</sup> |
| 1 minute    | 0.9 years      1.2 years                       |
| 2 minutes   | 1.7 years      2.3 years                       |
| 5 minutes   | 3.9 years      5.3 years                       |
| 10 minutes  | 6.6 years      9.5 years                       |

### Compliance

|     |  |
|-----|--|
| CE  | Conformité Européenne                                  |
| IC  | Innovation, Science and Economic<br>Development Canada |
| FCC | Federal Communications Commission<br>(USA)             |

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

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

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

<sup>4</sup> 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.

<sup>5</sup> Weight with alkaline Fujitsu Premium LR6G07 AA batteries.

<sup>6</sup> Fujitsu Premium LR6G07 AA batteries used for tests and calculations.

<sup>7</sup> Energizer Ultimate Lithium L91 AA batteries used for tests and calculations.

<sup>8</sup> 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.