



## Summary

The soil environment largely determines soil and plant health. In particular, the pH and oxygen availability determine whether beneficial (or harmful) microorganisms develop in the soil. The availability of most mineral elements is also strongly related to the soil environment. Our soil life sensors give you real-time insight into the soil environment. This allows you to immediately see the effect of fertilization and other treatments on the soil.

## Connectivity

2G	850/900/1800/1900 MHz
4G LTE-M / NB-IoT	Modem works on all major global LTE-M and NB-IoT brands.  Compatible LTE-bands: 1*, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 26*, 28 (* roaming bands)
SIM card size	Internal Micro 3FF SIM card

## Power

Replaceable batteries	4 x C
Battery type	Alkaline
Battery life	~ 1 year

## Housing

Dimensions	90 mm diameter x 135 mm length
Weight	1050 g
Material	Polyvinyl Chloride
IP code	IP68
Temperature	-20 °C to 60 °C
Humidity	0 to 100 %
Installation	Just below ground level or optionally in a drainage pipe.

## Location

Manual	Using software
GPS antenna (optional)	Internal

## Security

Data security (Mobile - 2G/4G LTE-M)	Military-grade AES-256 encryption from device to OEM server to protect the integrity and confidentiality of telematics data.
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## Sensors

pH
Oxygen index
Electrical conductivity (EC)
Soil moisture (Volumetric Water Content)
Soil temperature



## pH sensor

Range	2 – 13
Resolution	± 0.1
Accuracy	± 0.1
Response time	95% in 4 seconds
Zero point	pH 7.00 (0 mV)
Temperature range	1 ° C to 60 ° C. There are also pH sensors available with a wider temperature range. Please contact us for this.
Maximum pressure	50 PSI
Maximum depth	45 m
Cable length	0.75 m
Dimensions	12 mm diameter x 150.6 mm length
Weight	49 g
Materials	EPDM, Nylon, Polycarbonate, Glass, Polyvinyl Chloride, Polyethylene, Gold
Cleaning	The type of coating determines the cleaning technique. Soft coatings can be removed by stirring vigorously or by using a spray bottle. Organic chemicals or hard coatings must be removed chemically. Soaking for a few minutes in a light bleach solution or a 5 - 10% hydrochloric acid (HCl) solution often removes many coatings.
Time for recalibration	Annually
Lifespan	~ 1.5 years

## Oxygen index sensor

Range	0 – 100 % ( $\pm$ 1100 mV)
Resolution	$\pm$ 0.1 %
Accuracy	$\pm$ 0.1 % between 0 – 100 %
Response time	95% in 4 seconds
Temperature range	1 ° C to 60 ° C. Oxygen index sensors are also available with a wider temperature range. Please contact us for this.
Maximum pressure	50 PSI
Maximum depth	31 m
Cable length	1 m
Dimensions	12 mm diameter x 150.6 mm length
Weight	49 g
Materials	EPDM, Nylon, Polycarbonate, Glass, Polyvinyl Chloride, Polyethylene, Gold
Cleaning	The type of coating determines the cleaning technique. Soft coatings can be removed by stirring vigorously or by using a spray bottle. Organic chemicals or hard coatings must be removed chemically. Soaking for a few minutes in a light bleach solution or a 5 - 10% hydrochloric acid (HCl) solution often removes many coatings.
Time for recalibration	Annually
Lifespan	~ 1.5 years

## Electrical conductivity (EC), soil moisture and soil temperature probe

Dimensions	9.4 cm x 2.4 cm x 7.5 cm (L x W x H)
Needle length	5.5 cm
Cable length	5 m (standard) to 75 m (maximum)  Please contact us if a non-standard cable length is required.
Temperature	-40 to 60 °C
Lifespan	> 3 years

## Electrical conductivity (EC)

Range	0 to 20 dS/m
Resolution	0.001 dS/m
Accuracy	± 5% + 0.01 dS/m from 0 to 10 dS/m ± 8% from 10 to 20 dS/m

## Soil moisture - Volumetric Water Content (VWC)

Range	Mineral soil calibration: 0.00–0.70 m <sup>3</sup> /m <sup>3</sup> Calibration of soilless media: 0.0–1.0 m <sup>3</sup> /m <sup>3</sup> Permittivity (ε): 1 (air) to 80 (water)
Resolution	0.001 m <sup>3</sup> /m <sup>3</sup>
Accuracy	General calibration: ± 0.03 m <sup>3</sup> /m <sup>3</sup> (± 3.00% VWC) typical in mineral soils with a solution EC <8 dS/m.  Medium specific calibration: ± 0.01 – 0.02 m <sup>3</sup> /m <sup>3</sup> (± 1-2% VWC) in any porous medium.  Permittivity (ε): ± 1 ε from 1 to 40 15% of the reading from 40 to 80.

## Soil temperature

Range	-40 to 60 °C
Resolution	0.1 °C
Accuracy	± 0.5 °C from -40 to 0 °C ± 0.3 °C from 0 to 60 °C

## Guarantee

Factory guarantee	1 year if it can be demonstrated that it concerns a manufacturing defect. In case of improper use, repair costs will be charged.
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## Contact

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