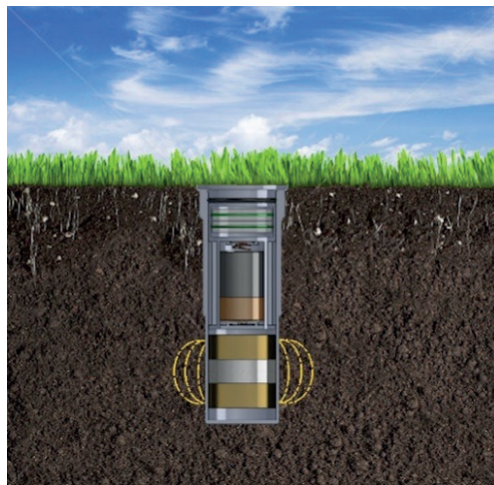




# SOIL MOISTURE SENSOR iMOISTURE

Sensor for measuring the volumetric content of water in the soil



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## PRODUCT DESCRIPTION

Smart volumetric water content in soil sensor ("Soil Moisture") with wireless transmission of the data to a gateway or directly to the Internet (IOT - Internet of Things).

Some of the main features of the sensor are given below:

- The sensor can comprise one or more measuring heads at different installation depths to adapt to the different depths of the root apparatus of the crop.
- Presence on board of a **dual processor** for determining the VWC and communication management.
- **Power supplied** by a type D battery able to ensure 12 months of autonomy in the case of daily data transmission.
- **Communication**: the sensor has multiple connectivity
- **ISM free band radio** for communicating with the gateway in LORA technology; range 15 km
- **GPRS modem** for putting the sensor online (**IOT, Internet Of Things**)

## MAIN FEATURES

The iMoisture soil moisture sensor determines the volumetric water content (VWC - Volumetric Water Content) by measuring the constant dielectric of a soil sample used as dielectric of a capacitor whose armours are carried onto the sensor; as the water content varies, so does the capacitor capacity, whose measurement provides the VWC. The measurement technique used and the processing capacity on board minimise the effects of the soil salinity, which in any case are calculated and totally cancelled.

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Completing the sensor is a wireless transmission part that is both via radio (in free band, low consumption and high flow rate LORA) and GPRS (IOT - Internet Of Things); a wired version is also available.

### Some of the main features of the iMoisture sensor follow:

- Soil Moisture Measuring Point In A Local Irrigation Network On A Farm According To The Principles Of Precision Farming
- Measurement Node For Mapping The Soil Moisture Of A Vast Area Served By A Web-Controlled Irrigation System
- Specific Sensor For The Operational Maintenance Of Lawns For Sports Use
- Specific Sensor For Preventing Fungal Plant Diseases In Crops

## MAIN FEATURES

### Adaptability and performance:

the sensor in question is totally customisable in all of its components, starting from the selectable transmission vector (radio, GPRS or wired version) and up to the power supply (batteries or solar panels). The adaptability of the sensor also extends to the applications on which this sensor can be used to perform smart maintenance of lawns for sports use, to prevent fungal plant diseases in crops, and much more.

### Long battery lifetime:

the operational lifetime is guaranteed for 12 months using a type D battery in the case of daily data transmission.

### Sturdy and reliable construction:

makes it an instrument with a long lifetime, which safeguards the customer's investment.

### Flexibility

the sensor can comprise one or more measuring heads and be installed at different depths. In this way it can reach the root systems of any crop and hence allow the iMoisture sensor to be used standard in any crop.

## INSTALLATION

The sensor is easily installed in the soil by removing a 10 cm diameter core from it slightly higher than the sensor. The instrument is totally inserted while taking care to place part of the soil removed on its sides and on top, and lastly a signal picket is placed in the immediate vicinity. The measurement are will be a vertical cylindrical crown, coaxial with the sensor, about 20 cm high and 10 cm thick, whose centre line plane coincides with the horizontal axis of the sensitive part.

The sensor requires no maintenance, but requires battery replacement should they go flat.

## COMPONENTS THAT CAN BE ADDED OR BE BUILT INTO THE PRODUCT

The sensor in question can be supplied in different configurations: wired, with LORA radio connectivity and with GPRS connectivity. Depending on the type of installation chosen, a number of possible customisations are available upon request.

## TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
Sensor type	Calculation of the volumetric content of water by calculating the dielectric constant
Connectivity	<ul style="list-style-type: none"><li>• Dual band GPRS modem</li><li>• RF modem in ISM free band</li><li>• Also a wired solution is available</li></ul>
Battery lifetime	12 months with daily transmission
Range of measurement	0-100 %
Operating temperature	0 – 50 C°
Precision	±3 %