SPHERAG

SOIL MOSTURE AND TEMPERATURE SENSOR

The soil temperature sensor is demanded by the horticultural sector to know the temperature at different depths as well as other crops such as grass in the garden.

This new data will allow to control the temperature in soil and subsoil and to compare the data with the ambient temperature and other parameters.

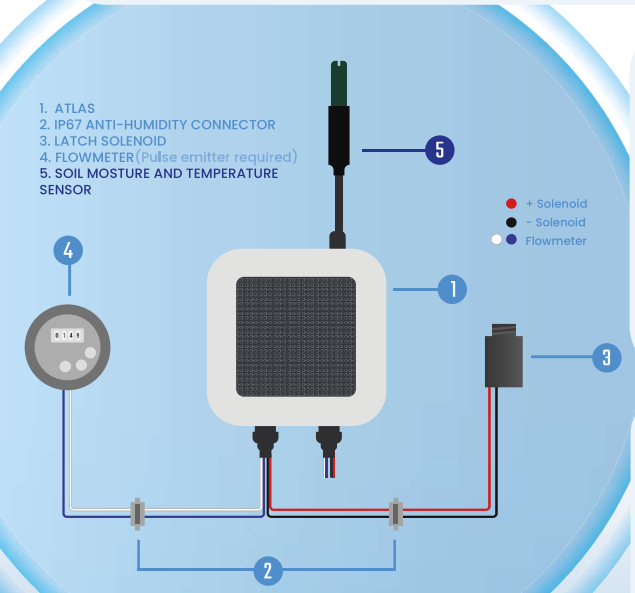
The temperature of the agricultural soil conditions the microbial processes that take place in the soil. Temperature also influences the absorption of nutrients, especially phosphorus, which is lower in cold soils. Soil temperature is important because it influences:

- On biotic processes.
- In the chemical ones.
- For germination, which is normally above 5ºC and which is measured in real time with the soil temperature sensor.

Each plant has its own specific requirements.

The surface layer of the agricultural soil suffers the greatest temperature oscillations. The temperature of the surface layer is transmitted upwards to the air, and downwards to lower soil layers and the subsoil, damping off rapidly, especially downwards.

Water, an essential resource in plants, can be a scarce commodity in many instances, so many crops depend on irrigation. A new study shows that soil temperature influences how the plant acquires this resource. According to scientists, if soil temperature decreases, even with enough water to meet the plant's demands, trees such as olive and almond trees have more difficulty acquiring water resources.



	Resolution	Range / Tolerance
Dielectric permittivity (ε)	0.1ε	1 (air) to 80 (water) / 5%
Volumetric water content (VWC) VWC calculation from Dielectric permittivity ε VWC = 0.002974 * pow(ε,2) + 0.07424 * ε - 1.295		
Electrical Conductivity (mS/m) (0.1 mS/m = 1 uS/cm)	0.1 mS/m	0...300 mS/m 20% 300...800 mS/m 40%
Temperature (ºC)	0.1ºC	-20 to 70ºC/3%
Degree of water saturation in the soil	0.1%	0 – 100% /8%

Applications

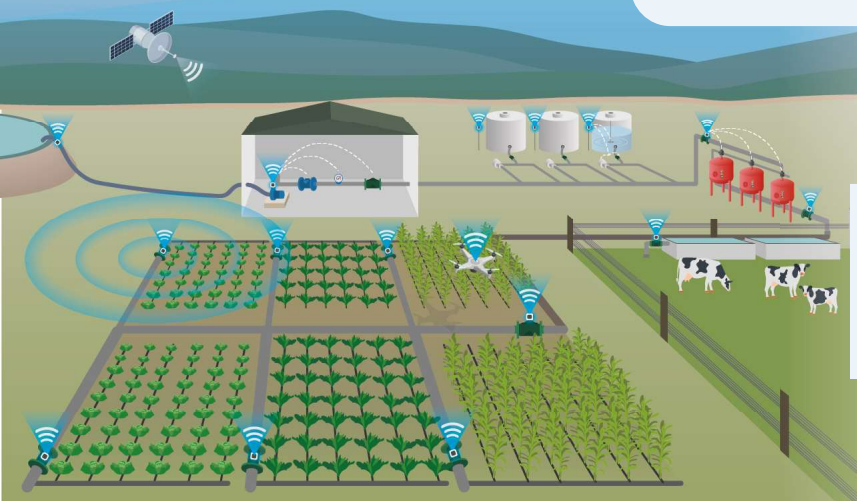
- Soil temperature control at different depths
- Knows the temperature of the roots which indicates the beginning of root activity of the crop
- Compares data with ambient temperature and other parameters to make growth models.
- Identifies the best time to start nutritional and watering inputs.

Features

- Dust and waterproof
- EC Calibration & Dielectric permittivity
- Low cost and easy to use
- Fairly accurate readings

Electrical and physical properties

- Supply voltage: 2.2 - 5V
- Working current: 0 - 14 Ma
  In case you need to power up sensor before measurement, time to wait before taking measurement is 100ms
- Operating temperature range: -20°C - 70°C
- Dimensions: 114 x 24 x 11 mm
- Cable lenght: 1.5 m



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