AWX-ET

Professional, autonomous, low-cost weather station for evapotranspiration calculation and frost alarm

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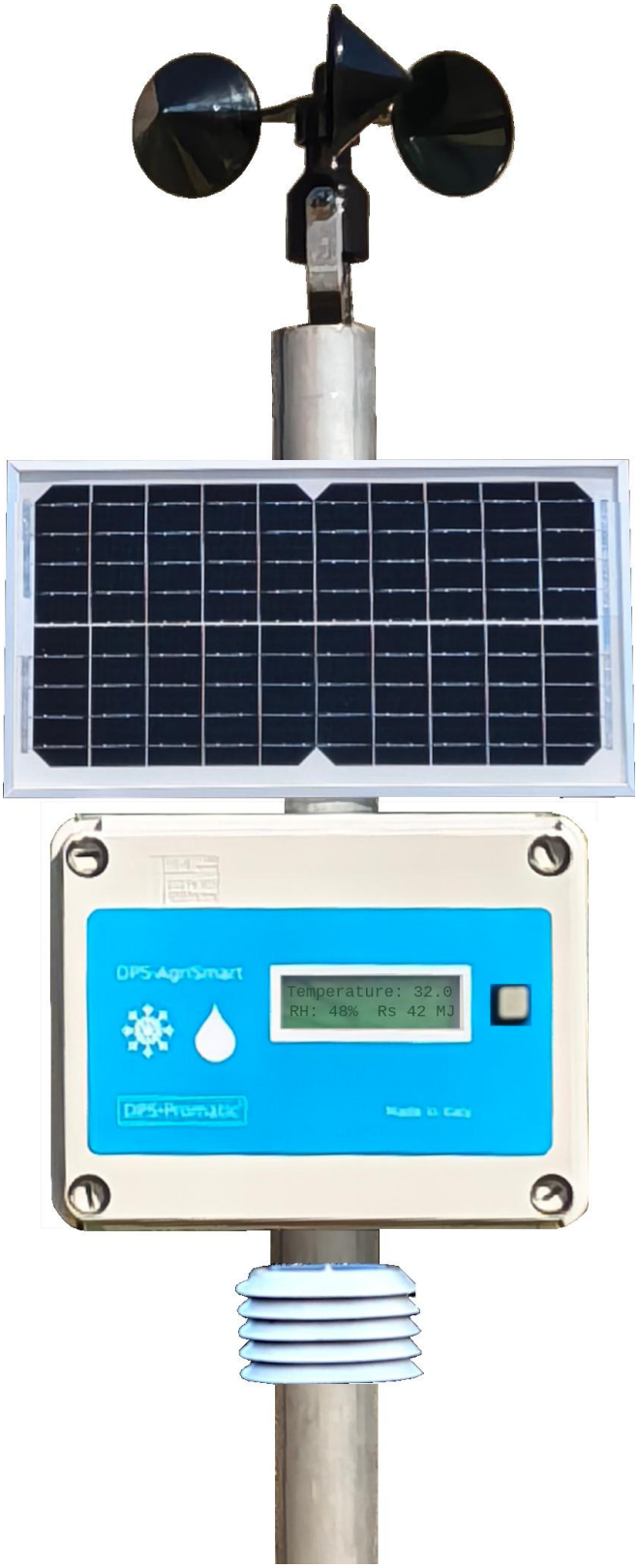

Evapotranspiration (ET) is the combined process by which water moves from the land surface into the atmosphere. It represents the sum of two distinct actions: evaporation (water turning from liquid to vapor and rising from soil and water bodies) and transpiration (water absorbed by plants and released as vapor through tiny leaf pores).
The calculation of evapotranpiration is a fundamental step to assess proper irrigation of crops. In the past decades there have been various studies about the optimal way to extract this value from known data. The Hargreaves-Samani formula relies on temperature differences and solar radiation, usually based on statistical data and measured data.
The Penman-Monteith formula, is an internationally adopted FAO standard and is more complex and complete, because it also considers altitude, barometric pressure, wind speed and humidity of the air, besides temperature and solar radiation. These data may come from tables, based on statistical data, and this is better than nothing, but it is much better to really measure these values on site, expecially in our times, when weather seems to be deviating from standards.
The main reason why farmers do not use real data is because of the cost of a weather station. This is why we have developed the **affordable AWX-ET**, that measures all and only parameters needed to perform this calculation. In addition to this, we offer a free on-line application and also aocal readout, in case of poor connectivity.
There is also the possibility of adding a Rain Collector, that is not needed for the calculation, expecially in areas where rain is scarce, but of course it can be useful to assess how much water is needed, in addition to natural rain, in places where it rains more often.

The AWX-ET weather station can be used in many ways, depending on connectivity:
1- it can using standard LTE 4G to send data to our server. In this case we offer a service that calculates Et0 with Hargreaves and Penman-Monteith formulas. This service may be free, with no warranty of any kind, or may come with a database and more details, for a reasonable price (about 95 Euro/Year)
2- it can use optional Lora connectivity, in case of poor network coverage, that works well up to 2/3 km and send data locally to a Lora receiver (sold separately) that stores data for a local view on a computer.
3- It can calculate Et0 locally , with an ALU option, and show last 7 days value on the LCD display of the station, so, as a last resort, it can be used without connectivity.

AWX-ET made in Italy by DPS-Promatic srl is a robust affordable solution with stand-alone operation, that includes solar panel and battery, and has been designed thanks to 25 years of experience in weather stations, and many years spent on the fields, with farmers. We hope it can help farmers world-wide to optimize their irrigation needs.

FROST Alarm: the same unit it is also a frost alarm, and can be used in late winter or early spring, when sudden frost can destroy flowers or fruits in their early stages. In this case, wind speed is not needed and the unit costs less.

Made in Italy: DPS-Promatic srl
via Ugo Buli 8, 47122 Forlì
e-mail: dps1@dps-promatic.com
https://dps-promatic.com
whatsapp: +39-348-2572023

MADE IN ITALY