

The Helios Range

EvapoSensor

-  **Measures Evaporation-Transpiration**
-  **Outputs in Degree Days which relates to water use by the crop**
-  **Wet & dry black 'leaf' elements react to RH, T, wind and radiation**
-  **Use for irrigation scheduling - saves water**
-  **Range of outputs for loggers and controllers**



This sensor was produced by Skye Instruments during their participation in the HortLink project "Improving the Efficiency of Water Use in Container-Grown Nursery Stock", however it is suitable for use in any horticulture or agriculture application.

The Skye EvapoSensor consists of 2 black 'leaf' elements, one dry and one kept wet via a wick and water reservoir. The temperature of these 2 'leaves' are measured individually and the temperature differential can be recorded by most dataloggers, including the Skye DataHog logger.

The sensor can also be attached directly to a controller for automatic irrigation scheduling, based on actual crop water use. The HortLink project has shown that this results in reduced total water use while maintaining crop quality.

The design of the EvapoSensor was initialised by Horticulture Research International at East Malling, Kent, UK. The 2 simulated leaves are affected by their local environment just like plant leaves, and react to the four weather factors which drives water loss from plants, namely relative humidity, air temperature, wind speed and solar radiation.

Output from the EvapoSensor is wet & dry "leaf" temperature. Degree hours of temperature difference is directly related to Evaporation-Transpiration.

Comparisons of the EvapoSensor directly against Potential Evaporation-Transpiration calculations, made using the Penman-Monteith method from automatic weather station measurements, are extremely good, please see overleaf for details.

The EvapoSensor is also available as a system with the Skye EvapoMeter, which is simple and easy to use. It has a direct Degree Hour display with no need for PC connection.



SPECIFICATIONS

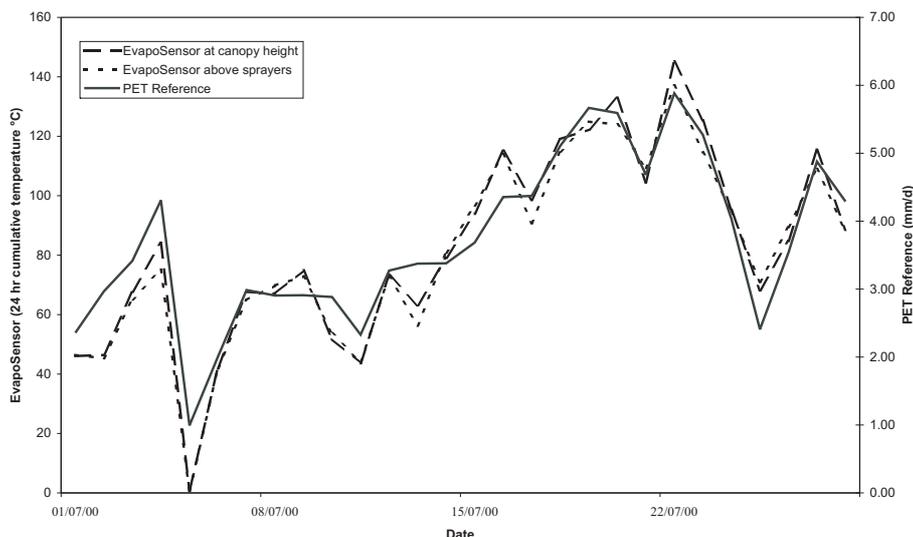
Housing	Dimensions	Weight	Cable	Outputs	Operating Environment	Operating Temperature	Connectors	Wicks
Grey ABS Base contains water reservoir Lid with sensors sealed to Ip65	100 x 85 x 65 mm	200g	3m screened cable DEF std 61-12/4 (Other lengths available)	Two separate temperature outputs for wet and dry "leaves"	0-100% RH	-20 to +70°C	5 pin Binder sub miniature connector for Skye loggers / meters Wire ended for other devices	Two black wicks supplied for wet "leaf". Wicks can be washed and reused
SKTS 500/D Version	Output	Accuracy	SKTS 500/10k Version	Output	Accuracy	SKTS 500/PT100 Version	Output	Accuracy
Semiconductor temperature sensor	Output compatible with Skye EvapoMeter	Typically better than 0.2°C at 25°C. Total error of 0.5°C over the range -55 to +85°C	Curve matched thermistor	Two 10k ohm thermistor resistance outputs	0.2°C from 0 to 60°C (0.3°C at -20°C)	Pt100 Platinum Resistance Thermometer 1/3rd DIN	Option1: Two 4 wire PT100 resistance outputs for optimum accuracy Option 2: 4 wire output for direct measurement of the temperature differential	Option 1: ±0.05°C Max error at 0°C

PET COMPARISON

Two EvapoSensors were installed in an outdoor site, one at a crop canopy height so that it would be subject to irrigation with the crop, and the second at 1m above the canopy and sprinklers. An automatic weather station was also installed nearby and Potential Evaporation-Transpiration (PET) calculated from measurements of relative humidity, air temperature, wind speed and solar radiation using the Penman-Monteith method.

The graph shows excellent correlation between the pair of EvapoSensors, irrespective of whether in the irrigation zone or not, and also between the weather station PET calculations.

Reference: More for the Pots. Article in The Grower Magazine, p 14 & 15, issue March 14 2002.



ORDERING INFORMATION

EvapoSensors

SKTS 500/D/I

EvapoSensor with connector for EvapoMeter

SKTS 500/10k/I

EvapoSensor with thermistor output and connectors for a DataHog logger

SKTS 500/PT100

EvapoSensor with PT100 output for other loggers / controllers

SKTS 500/PT100/4

EvapoSensor with PT100 output for direct temperature differential Measurement

Meter & Loggers

SEM 550

EvapoMeter

SDL 5000 series

DataHog2 logger

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