The Helios Range

EvapoSensor & EvapoMeter

- **Measures Evaporation-Transpiration**
- **Wet & dry black 'leaf' elements react to RH, T, wind and radiation**
- **EvapoMeter displays temperature difference in Degree Days**
- **Fraction of the cost of a weather station**
- **Compares very well with AWS PET calculations**

This sensor and meter system 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 is measured. 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.

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 cost of an EvapoSensor with an EvapoMeter is around a tenth of the cost of an automatic weather station, making it an excellent value product.

The EvapoSensor can be used with most dataloggers or controllers, including the Skye DataHog logger. Alternatively the specially designed EvapoMeter will record and display temperature differentials in Day Degree totals of 24 hour periods and cumulative totals. The advantage of the EvapoMeter is that the display can be easily read daily by technical and non-technical staff alike, connection to a PC is not necessary.

SPECIFICATIONS Meter

Housing	Dimensions	Weight	Sensor Connector	Display	Controls	Operating Temperature	Measurement Temperature	Resolution
Grey ABS base with clear lid. Sealed to IP65	122 x 120 x 55mm	450 grams including magnet	Binder sub-miniature 3 pin socket, sealed to IP65 when mated with plug or blanking cap	16 x 2 line alphanumeric liquid crystal display	2 magnetically operated reed switches to activate display menus	-20 to +70°C	-55 to +125°C	0.0625°C

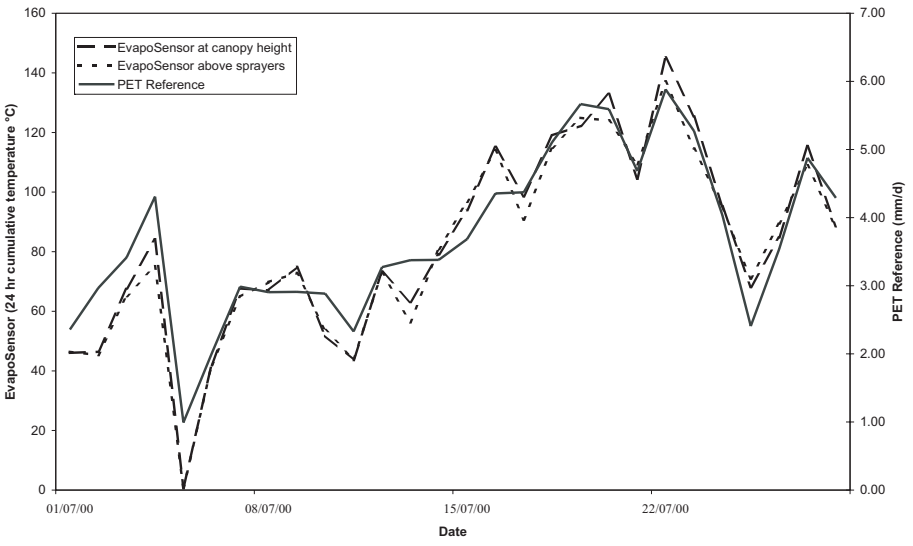
Accuracy	Measurement Frequency	Memory	Alarm Feature	Calibration feature	Power	Power Consumption	Clock	Input Choices
Typically better than 0.2°C at 25°C. Total error of 0.5°C over the range -55 to +85°C	Every 1 minute	Stores 4 parameters:- Total Accumulated Degree Hours since last reset (maximum 4095.9 before rollover). Previous Total Accumulated Degree Hours. Accumulated Degree Hours in current 24 hour period. Total Accumulated Degree Hours in previous 24 hour period. Memory is not lost if main battery fails	Flashing red LED if Degree Hour threshold is met or exceeded	To normalise differences between a sensor pair	PP3 or MN1604 9 volt alkaline battery. Typical battery life 6.5 weeks. Display of battery voltage and status indication. LED display switches off if inactive for 10 seconds to conserve power	'Sleeping' mode with green LED flashing - 360μA. 'Sleeping' mode with green LED and red alarm LED flashing - 600μA	24 hour real time clock, backed up by a separate lithium battery if main battery fails	Temperature, tensiometer, solar radiation, raingauge.

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 connectors for a DataHog logger
SKTS 500/PT100	EvapoSensor with PT100 output for other loggers

Meter & Loggers

SEM 550	EvapoMeter
SDL 5000 series	DataHog logger

Skye Instruments Ltd
21, Ddole Enterprise Park
Llandrindod Wells
Powys LD1 6DF
United Kingdom

TEL +44 (0)1597 824811
FAX +44 (0)1597 824812

EMAIL skyemail@skyeinstruments.com
WEB http://www.skyeinstruments.com