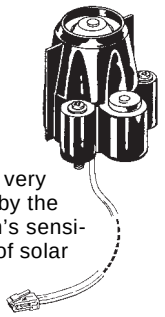
UV Sensor



6490

VANTAGE PRO

The UV Sensor measures the sunburning portion of the UV spectrum. Its spectral response matches very closely the Erythema Action Spectrum (EAS), defined by McKinlay and Diffey (1987) and adopted by the Commission Internationale de l'Eclairage (C.I.E.) as the standard representation of the human skin's sensitivity to UV radiation. The sensor measures global solar UV irradiance, the sum of the components of solar UV transmitted directly and those scattered in the atmosphere. Scattered UV is a major portion of global irradiance.

The transducer is a semiconductor photodiode that responds only to radiation in the region of interest. The diffuser provides an excellent cosine response. With multiple hard-oxide coatings, the interference filter provides the Erythema Action spectral response. It is stable in the presence of heat and humidity. The outer shell shields the sensor from thermal radiation and provides a path for convection cooling of the body, minimizing heating of the sensor interior. It provides a cutoff ring for cosine response, a level indicator, and fins to aid in aligning the sensor with the sun's rays. Spring-loaded mounting screws, in conjunction with the level indicator, enable rapid and accurate levelling of the sensor. Each sensor is calibrated against a secondary standard that is calibrated periodically against a Yankee Environmental Systems' Ultraviolet Pyranometer, model UVB-1, in natural daylight.

The UV Sensor is optional on Vantage Pro weather stations. It is standard on the Vantage Pro Plus.

Please refer to the WeatherLink for Vantage Pro Spec Sheet for optional data logging and charting capabilities available for this product.

Specifications

General

Operating Temperature	-40° to +150° F (-40° to +65° C)
Non-operating Temperature	-50° to +158°F (-45° to +70°C)
Transducer	Semiconductor photodiode
Spectral Response	280 to 360 nm (Erythema Action Spectrum)
Cosine Response	±4% of reading (0° to 65° incident angle); ±9% of reading (65° to 85° incident angle)
Supplied Cable Length	3' (0.9 m)
Cable Type	4-conductor, 26 AWG
Connector	Modular RJ-11
I/O Specs	
Green wire	Output (0 to 2.5VDC); 150 mV per UV Index, 364 mV per MED/hour
Black & Red wires	Ground
Yellow wire	+3V ±10%, 2.4 mA
Cable Length Measurement Error	
Housing Material	UV-resistant ABS plastic
Dimensions	2" x 2.75" x 2.25" (51 mm x 70 mm x 57 mm)
Weight	0.5 lbs. (226 g)

Sensor Output (as displayed by Vantage Pro consoles)

Ultra Violet (UV) Radiation Index	
Resolution and Units	0.1 Index
Range	0 to 16 Index
Accuracy	±5% of full scale (Reference: Yankee UVB-1 at UV Index of 10 (extremely high)) plus 0.5 UV Index per 100' (30 m) of additional cable
Cosine Reponse	±4% (0× to 65× incident angle); 9% (65× to 85× incident angle)
Update Interval	50 seconds to 1 minute (5 minutes when dark)
Current Data	Instant Reading and Hourly Average; Daily, Monthly High
Historical Data	Hourly Average, Daily, Monthly Highs
Alarm	High Threshold from Instant Calculation
Ultra Violet (UV) Radiation Dose	
Resolution and Units	0.1 MEDs to 19.9 MEDs; 1 MED above 19.9 MEDS
Range	0 to 199 MEDs
Accuracy	±5% of daily total
Drift	up to ±2% per year
Update Interval	50 seconds to 1 minute (5 minutes when dark)
Current Data	Latest Daily Total (user resetable at any time from Current Screen)
Historical Data	Hourly, Daily Totals (user reset from Current Screen does not affect these values)
Alarm	High Threshold from Daily Total
Alarm Range	0 to 19.9 MEDs

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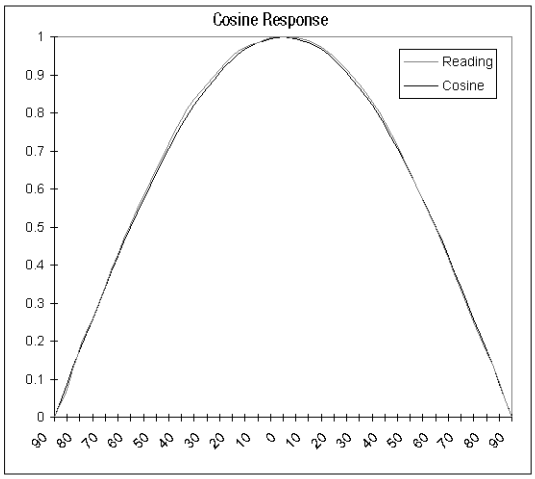
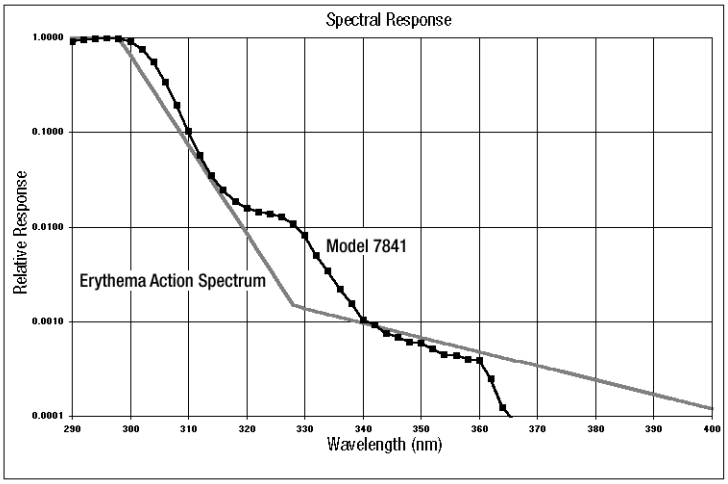
DS6490-00 (Rev. A, 01/24/03)

Cosine and Spectral Responses (typical)





Connections