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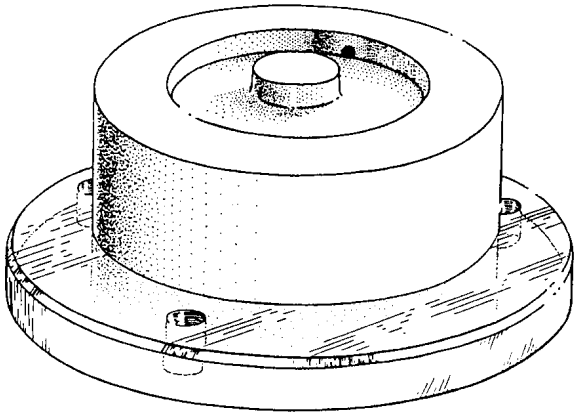
Precision Weather Monitoring Instruments

MIDDLETON SP440
LOW COST SILICON PYRANOMETER



Product Specifications:

Spectral Response	70% response points, 500nm and 900nm, peak response 700nm	
Time Constant	Better than 1millisecond.	
Output	1 μA/watt/m^2 nominal. Works Certificate supplied.	
Linearity	Better than 1%	
Temperature	0° to 70°C operational.	
Temperature Coefficient	Better than -0.1%/°C between 0° to 50°C.	
Calibration	With ±5% of Grade 1 pyranometer	
Cosine Response	Angles to horizon	
	0 - 15°	Better than 10%
	15 - 30°	Better than 5%
	30 - 90°	Better than 1%
Dimensions	Sensor Shaft Diameter	40mm
	Base Diameter	70mm
	Overall Height	38mm
Termination	2 metre, shielded 2 core cable.	

Specifications subject to change without notice.
Ver 5, 08/02

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Details

The SP440 uses an unfiltered silicon cell to measure the intensity of solar radiation. The silicon cell responds primarily to "short wave" radiation. The response range includes the visible region, peaking at the lower limit of the human eye's response (700nm).

Angular correction by the PTFE cover ensures that the SP440 responds to radiation falling on the horizontal surface.

The silicon cell is hermetically sealed, and the pyranometer also is further sealed against water penetration.

Installation

Mount and screw down the base onto a level substrate. A small drain hole is provided on the pyranometer surface, and this should be positioned away from direct sunlight, that is, towards the south in the Southern Hemisphere and north in the Northern Hemisphere. Do not mount on surfaces that will absorb heat or insulate from surfaces to avoid temperature errors.

Signal Termination

The SP440 produces a current proportional to solar radiation intensity and so must be terminated into a low impedance (current amplifier). The calibration certificate supplied indicates sensitivity in microamperes per watt upon each square metre.

If it desired to connect the SP440 to a high input impedance voltage amplifier then a terminating load resistor must be placed in parallel with the amplifier input. A 120 ohm load resistor is the recommended maximum value.

Cable termination is as follows:

Silicon Cell Anode	White
Silicon Cell Cathode	Blue
Shield (not terminated within SP440)	Braid.

Maintenance

Accumulated dirt on top of the PTFE diffuser should be cleaned off periodically using mild soap solution and applying it with a brush. There is no need to clean the side of the diffuser.

The drain hole should be checked for blockage and cleaned regularly.

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