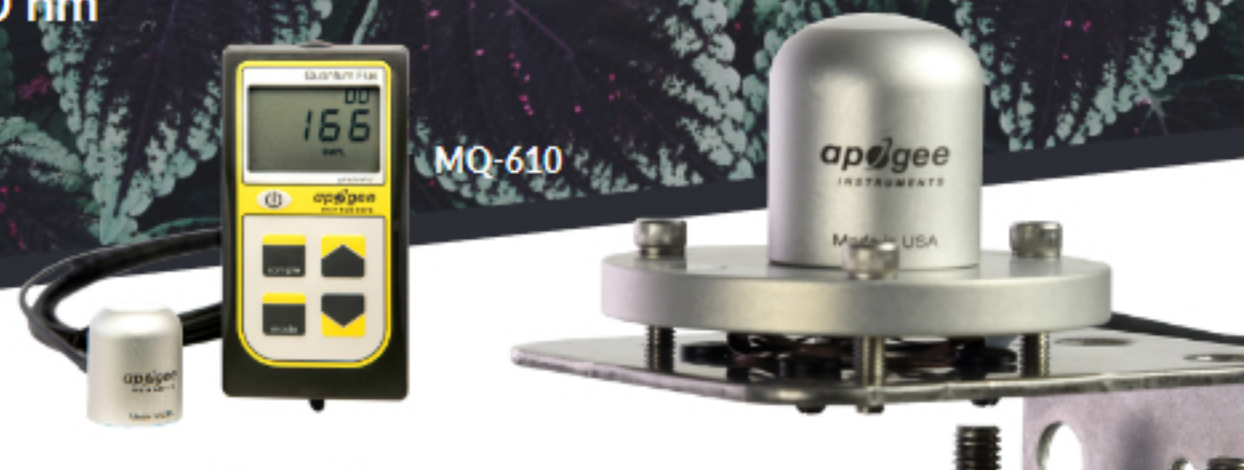


ePAR Sensors

Measures the newly defined ePAR range of 400-750 nm under all light sources



	SQ-610-SS	MQ-610
Power Supply	Self-powered	CR 2320 coin cell battery
Sensitivity	0.01 mV per $\mu\text{mol m}^{-2} \text{s}^{-1}$	—
Calibration Factor (reciprocal of sensitivity)	100 $\mu\text{mol m}^{-2} \text{s}^{-1}$ per mV	—
Calibration Uncertainty	$\pm 5\%$	
Calibrated Output Range	0 to 40 mV	—
Measurement Range	0 to 4000 $\mu\text{mol m}^{-2} \text{s}^{-1}$	
Measurement Repeatability	Less than 0.5 %	
Long-term Drift	Less than 2 % per year	
Non-linearity	Less than 1 % (up to 4000 $\mu\text{mol m}^{-2} \text{s}^{-1}$)	
Response Time	Less than 1 ms	
Field of View	180°	
Spectral Range	383 to 757 nm ± 5 nm (wavelengths where response is greater than 50 % of maximum)	
Directional (cosine) Response	$\pm 2\%$ at 45°; $\pm 5\%$ at 75° zenith angle	
Azimuth Error	Less than 0.5 %	
Tilt Error	Less than 0.5 %	
Temperature Response	-0.11 \pm 0.04 % per C	
Operating Environment	-40 to 70 C; 0 to 100 % relative humidity, can be submerged in water up to depths of 30 m	0 to 50 C; less than 90 % non-condensing relative humidity up to 30 C; separate sensor can be submerged in water up to depth of 30 m
Sensor Dimensions	30.5 mm diameter, 37 mm height	
Meter Dimensions	—	126 mm length, 70 mm width, 24 mm height
Mass (with 5 m of cable)	140 g	
Warranty	4 years against defects in materials and workmanship	

Overview

The new Apogee ePAR sensor was created to measure the newly defined 400-750 nm ePAR radiation range. Emerging research is showing this new range to be photosynthetically active beyond the traditional 400-700 nm range. Much of the transformative work to define the ePAR range was conducted by Dr. Shuyang Zhen and Dr. Bruce Bugbee at Utah State University's Crop Physiology Laboratory. Amplified and digital outputs are also available for the sensors (similar to the full-spectrum quantum sensor series, page 6). See other ePAR models on our website.

Typical Applications

- Total ePAR intensity measurements over plant canopies in all growing environments
- Monitor and adjust grow lights
- Research plant morphogenic activity
- Photobiology studies

Right: Spectral response of the new ePAR sensor (green) compared to the "ePAR" target response (dashed) and the traditional PAR response (dotted).

