

LIGHT

PAR Quantum Sensor

- Design of lighting arrays in greenhouses and environmental chambers
- Choice of planting sites in gardens or indoor growth facilities
- Predicting the efficiency of photosynthetic activity in plant growth, particularly under fluctuating light environments such as plant canopies
- Comparison of photosynthetic efficiencies of light sources differing in spectral emission
- Assessment of drift in radiation sources



The PAR Quantum sensor counts quanta falling between 400 and 700nm. Light in this wave band is that used by plants for photosynthesis and such light is often referred to as 'PAR' (Photosynthetically Active Radiation).


The sensor is calibrated in units of $\mu\text{mol}/\text{m}^2/\text{sec}$. A μmol is the new name for the unit $\mu\text{Einstein}$, which is one

millionth of Avagadro's number of quanta or photons.

The Quanta below 400nm are not generally used in photosynthesis and those above 700nm have insufficient energy for the process. The number of quanta is related to sugar production and this measurement is now a standard referred to in scientific papers worldwide.

The measurement may be accurately made, because of the filtering within the sensor, on light of any nature, sunlight, tungsten, fluorescent or xenon lamps etc.

SKP 215 SPECIFICATIONS

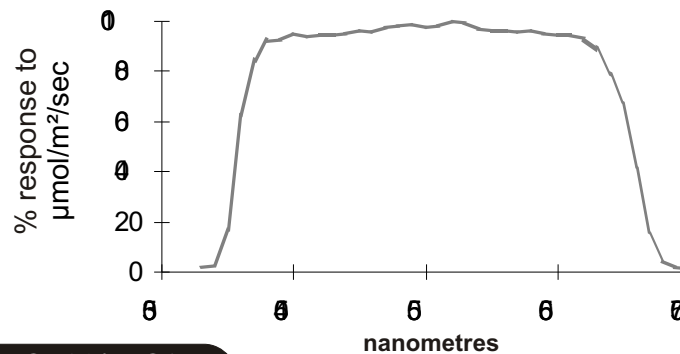
Dimensions	Weight	Construction	Cable	Sensor	Detector	Filters	Sensitivity -current (1)	Sensitivity -voltage	Working range (2)
	130g. (with 3m cable)	Material Dupont 'Delrin' fully sealed to IP68	2 core screened DEF std 61-12/4.5	Cosine corrected head	Blue enhanced silicon photocell. Low fatigue characteristics	Stable glass and metal interference	2µA/100 µmol/m ² /sec	1mV/100 µmol/m ² /sec	0-5x10 ⁴ µmol/m ² /sec
Linearity error	Absolute calibration error (3)	Cosine error (4)	Azimuth error (5)	Temperature coefficient	Longterm stability (6)	Response time (7) - voltage output	Internal resistance - voltage output	Temperature range	Humidity range
<0.2%	typ. <3% 5% max.	3%	<1%	±0.1%/°C	±2%	10ns	c.350 ohms	-35 to +75°C	0-100% RH

NOTES ON SPECIFICATIONS

- (1) Current output varies from sensor to sensor. Each individual unit will have a slightly different output. A calibration certificate is supplied with each sensor
- (2) All Skye sensors will work at levels of irradiance well above that found in terrestrial sunlight conditions, room or growth chamber lighting
- (3) Main source of this error is uncertainty of calibration of Reference Lamp. Skye calibration standards are directly traceable to N.P.L. standard references.
- (4) Cosine error to 80° is typically 5% max. Figures shown are for normal use sources, e.g., sun plus sky, diffuse sun, growth chambers, etc.
- (5) Measured at 45° elevation over 360°
- (6) Maximum change in one year. Calibration check recommended at least every two years. Experience has shown that changes are typically much less than figures
- (7) Times are generally less than the figure quoted, which is in nanoseconds. They may be slightly increased if long leads are fitted, or those of a higher capacity cable

GRAPH

PAR QUANTUM SENSOR SKP 215



ORDERING INFORMATION

Sensor

SKP 215

PAR 'Quantum' sensor

Accessories

SKM 221

Levelling unit

SKM 226

Long arm pole/wall mount

Meters and dataloggers

SKP 200

Display meter

SKL 900

Spectr Sense

SDL 5000 series

DataHog datalogger

DataHogs also available for 'plug-in sensors'. Please inquire.

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