

LIGHT

PAR Quantum Sensor

- Measures Photosynthetically Active Radiation
- Counts quanta of photons in $\mu\text{mol m}^{-2} \text{s}^{-1}$
- Ideal or square PAR spectrum response
- For plant and crop research
- Commercial horticulture applications
- Suitable for natural and artificial light sources
- Calibrated to National Standards

Skye Instruments have been specialising in light and radiation sensors since 1983. All are designed, manufactured and calibrated to the highest standards. Each is supplied with a Calibration Certificate traceable to the UK's National Physical Laboratory (NPL).

There are three PAR sensors in the range, PAR Quantum, PAR Special and PAR Energy models. All measure the Photosynthetically Active Radiation between 400-700 nm, the part of the solar spectrum used by plants for

photosynthesis and sugar production.

The most popular is the PAR Quantum sensor which is used to measure photon irradiance, or quantity of PAR light. It is calibrated in units of $\mu\text{mol m}^{-2} \text{s}^{-1}$ (number or quanta of photons).


Sensors are suitable for use in natural solar radiation or any lamp or light source. Each is fully waterproof and guaranteed submersible to 4m depth. Indoor versions are also

available, please ask for details of sensors for environmental control.

As with all Skye sensors, the PAR Quantum sensor has been quoted in many scientific references, please ask for a list of publications. They are compatible with Skye Display Meters, SpectroSense meters and DataHog loggers. A choice of outputs are also available to suit most dataloggers and controllers.



SKP 215 SPECIFICATIONS

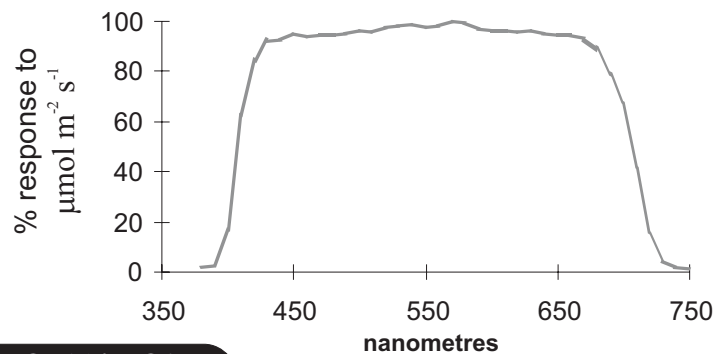
Dimensions	Weight	Construction	Cable	Sensor	Detector	Filters	Sensitivity -current (1)	Sensitivity -voltage	Working range (2)
	130g. (with 3m cable)	Material Dupont 'Delrin' fully sealed to IP68	2 core screened DEF std 61-12/4.5	Cosine corrected head	Blue enhanced silicon photocell. Low fatigue characteristics	Optical Glass	2 μ A/100 μ mol m ⁻² s ⁻¹	1mV/100 μ mol m ⁻² s ⁻¹	0-5x10 ⁴ μ mol m ⁻² s ⁻¹
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%	$\pm 0.1\%/^{\circ}\text{C}$	$\pm 2\%$	10ns	c.350 ohms	-35 to +75 $^{\circ}\text{C}$	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 $^{\circ}$ 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 $^{\circ}$ elevation over 360 $^{\circ}$
- (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 quoted
- (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 904 4 channel SpectroSense2 display meter
SKL 908 8 channel SpectroSense2 logging display meter
SDL 5000 series DataHog datalogger

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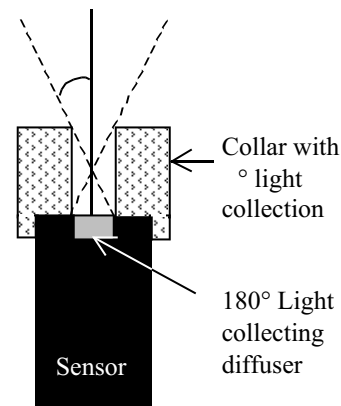
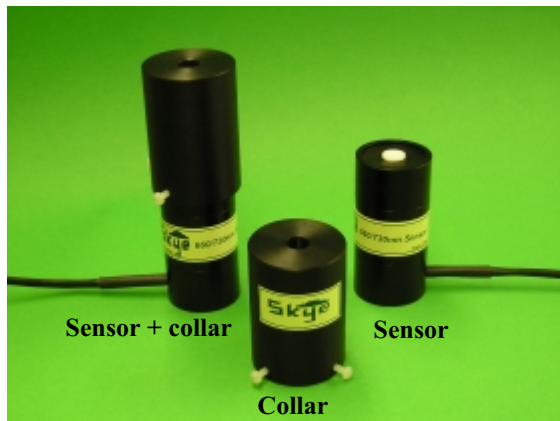
WEB <http://www.skyeinstruments.com>





LIGHT

NARROW ANGLE COLLAR FOR REFLECTED PAR MEASUREMENTS



Skye's standard light sensors have a cosine correcting diffuser head which allows light to enter the sensor from 180° above it according to Lambert's Cosine Law. This type of sensor is ideal for measuring incident solar radiation, as it always measures from the whole area of the sky regardless of sun position.

This 180° wide acceptance angle is not suitable for reflectance measurements and so Skye offers an adapter collar which collimates the incoming light to a narrow angle. According to simple geometry, the height of this collar dictates the angle of light acceptance and so a range of angles can be accommodated as required.

To avoid errors and minimise internal reflectance through the collar's collimator, the hole is coarsely threaded. The sensor is calibrated with and without the collar in place to give our usual calibration traceable to UK National Standards. Both calibration factors are given on the Calibration Certificate.

The above photograph and diagram show examples for 1-channel sensors such as the PAR sensor, and the SKR 110 Red / Far-red sensor which also has a single point light entry. For the SKR 1800 and 1850 2 and 4-channel sensors, please see the separate datasheet as these collars have a different construction.

ORDERING INFORMATION

SKL 135/ Collimating Collar for 1-channel sensor
(where θ is the angle acceptance required)

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