



# LIGHT

## SKR 1800 2 Channel Sensors

### Taking Measurements with and without the diffusing head

The raw output (microamps or millivolts) from each of the two sensor channels are related to each other by the spectral response and transmission of each channel. This relationship cannot be determined absolutely for the sensor when the cosine correcting diffuser head is not in place.

We can however say that when the channels are equally illuminated (by a single constant output light source) then the sensitivities of the two channels can be directly related.

This means that these sensors cannot measure calibrated light intensities when the diffuser is removed, only the ratio between the 2 narrow angle light channels is available. These sensors are generally used to compare the ratio between 2 waveband channels of incident light (calibrated intensities with the cosine head in place) against the ratio of 2 identical waveband channels of reflected light (no cosine head, narrow angle).

#### EXAMPLE

A number of umoles/m<sup>2</sup>/sec falling on Channel 1 gives rise to an output of 1 microA and the equal number of umoles/m<sup>2</sup>/sec falling on Channel 2 gives rise to an output of 1.19 microA.

To make the two Channels equally sensitive the current output of Channel 2 must be multiplied by  $1 / 1.19 = 0.84$

e.g. if Channel 1 reads 1.5 uA (**A**)  
and Channel 2 reads 2.0 uA (**B**)

from the above example, to equalise the sensitivity multiply the output of Channel 2 by 0.84  
 $2 \times 0.84 = 1.68$

To calculate the ratio between the two equally sensitive Channels

$$\begin{aligned} \text{Channel 1} / \text{Channel 2} &= \mathbf{A} / (0.84 \times \mathbf{B}) && \mathbf{***} \\ &= 1.5 / (0.84 \times 2) \\ &= 1.5 / 1.68 \\ &= 0.893 \end{aligned}$$

**\*\*\* PLEASE SEE THE CALIBRATION CERTIFICATE OF YOUR OWN SENSOR FOR EXACT MULTIPLICATION VALUE FOR EACH SENSOR**

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