

SEASOFT COEFFICIENTS  
 FOR THE LI-COR QUANTUM SENSOR  
 S/N UWQ-3583

Your Sea-Bird Instrument has been adapted to record light data from a LI-COR Quantum sensor. The current output of this sensor is measured through a log amplifier in order to obtain adequate resolution over the measurement range.

Log Amplifier transfer function:

$$I(\text{microamps}) = 10^6 * 10^{((\text{volts}-B)/M)}$$

$$I(\text{microamps}) = \text{current into the log amplifier}$$

$$\text{Volts} = \text{measured voltage out of the log amplifier}$$

Make the following entries in SEACON

$$\text{log amp M} = -0.78589$$

$$\text{log amp B} = -3.48681$$

where M and B were determined from the factory calibration of the log amplifier.

From the LI-COR calibration sheet obtain:

$$C \text{ (Calibration Constant in water)} = 3.82 \text{ microamp}/1000 \text{ microEinsteins s}^{-1} \text{ m}^{-2}$$

For purposes of comparing the 'shape' of data sets taken at disparate light levels, the multiplier entry may be used to scale data. For example, a multiplier of 10 would make a 100 microEinsteins  $\text{s}^{-1} \text{ m}^{-2}$  light level plot as 1000 microEinsteins  $\text{s}^{-1} \text{ m}^{-2}$ . DO NOT USE THE 'LI-1000 MULTIPLIER' as shown on the Li-Cor calibration certificate. The LI-1000 Multiplier is used only with a proprietary readout box manufactured by Li-Cor. The multiplier should be set to 1 using SEACON for normal operation:

$$\text{Multiplier} = 1$$

SEASOFT calculates  $\text{microEinsteins s}^{-1} \text{ m}^{-2} = \text{multiplier} * 1000 * I / C$ . Since SEASOFT plots light on a log scale, the minimum and maximum values should be finite numbers (i.e., do not enter '0' as the minimum value).

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From the LI-COR calibration sheet obtain:

$$C \text{ (Calibration Constant in water)} = 2.89 \text{ microamp/1000 microEinsteins s}^{-1} \text{ m}^{-2}$$

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APP NOTES

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