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## APPLICATION NOTE NO. 54

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### **Entering Calibration Coefficients for the Seapoint Fluorometer**

The Seapoint fluorometer is used for in situ measurements of chlorophyll-*a*. Chlorophyll-*a* in the sensing volume is excited using a blue light and fluoresces red light that passes through the detector window. The sensing volume is defined as the intersection of the lamp beams and the detectors cone of reception, allowing the fluorometer to be used with or without a pump. When used without a pump, the end plate of the instrument prevents ambient light from reaching the detector.

Sensitivity of the Seapoint fluorometer is determined by two control lines that allow the user to change the range and sensitivity as required for a particular application. Jumper cables may be purchased from Sea-Bird to allow the sensor range to be changed by inserting the jumper cable in line with the original cable purchased.

<u>GAIN</u>	<u>SENSITIVITY</u>	<u>RANGE</u>
30X	1.0 V /( $\mu$ g/l)	5 $\mu$ g/l
10X	0.33 V /( $\mu$ g/l)	15 $\mu$ g/l
3X	0.1 V /( $\mu$ g/l)	50 $\mu$ g/l
1X	0.033 V /( $\mu$ g/l)	150 $\mu$ g/l

In our SEASOFT V2 suite of programs, edit the CTD configuration (.con or .xmlcon) file using the Configure Inputs menu in Seasave V7 (real-time data acquisition software) or the Configure menu in SBE Data Processing (data processing software). Select *Fluorometer, Seapoint* as a voltage sensor when editing the configuration file; the software prompts for gain setting and range, and offset. SEASOFT calculates chlorophyll as:

$$\text{Output } (\mu\text{g/l}) = (\text{Voltage} * \text{Range} / 5) + \text{Offset}$$

The fluorometer is adjusted at the factory for a nominal range and sensitivity for a given gain setting. When greater accuracy is desired, calibrate the sensor prior to deployment. Factors such as fouling, scratches, or lamp degradation will reduce the sensitivity of the sensor. In cases when the sensor is calibrated, the user can enter an *offset* to correct for any discrepancies in the equation. Consult the fluorometer operating manual or Seapoint Sensors, Inc. for maintenance and calibration procedures.