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APPLICATION NOTE NO. 16

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Entering Calibration Coefficients for D&A Instrument's OBS-3 Optical Backscatter Sensor

Note: See Application Note 81 for the OBS-3+ sensor.

Calibration

The gain of the OBSTM sensor was set at the factory at a value of 400 FTU (Formazin Turbidity Units) per volt, and is designed to produce signal voltages in the range of 0 - 5 volts as required by your Sea-Bird CTD. The factory-preset gain should be sufficient for most, if not all, oceanographic conditions. If the preset gain is not appropriate for your application, it is possible to make a hardware change of the gain by adjusting resistance values on the circuit board within the pressure housing. The OBS Instruction Manual contains instructions for this procedure.

The OBS sensor sensitivity is dependent upon the characteristics of the particles in the water that are being measured. As a result, the sensor should be calibrated before and after use in different water types, using particles from the water that is being measured. Consult the OBS Instruction Manual for the correct calibration procedures. The resulting sensitivity, in mg/l or FTUs per volt, is entered in the CTD configuration (.con or .xmlcon) file.

Configuration File Entry

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 *OBS/Nephelometers, OBS, Backscatterance (D & A)* as a voltage sensor when editing the configuration file; the software prompts for gain and offset.

- SBE *9plus*, *16*, *16plus*, *16plus-IM*, *16plus V2*, *16plus-IM V2*, *19*, *19plus*, *19plus V2*, and *25*:
For the gain, enter the OBS gain setting in FTU/volt (for example, enter 400 for the standard factory calibration).
- SBE *9*
The differential input on the SBE 9 can have a gain of 1 or 2. If it has a gain of 2 (AV=2), enter half the value of the OBS gain in FTU/volt (for example, enter 200 for the standard factory calibration).