New Products & Services Summary

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New Options for SBE 39 Temperature (optional Pressure) Recorder

More Versatile Standard Housing and Additional Pressure Sensor Depth Range

A 600-meter PETP plastic housing has replaced the 350-meter standard Celcon plastic housing. To match the housing, we added a 600-meter pressure sensor to the available pressure sensors (20/100/350/1000/2000/3500/7000 m), providing a low cost instrument at a depth previously attainable only with the more costly 10,500 meter titanium housing.

New Options and Features for SBE 26*plus* SEAGAUGE Wave & Tide Recorder

Strain Gauge Pressure Option

The 26*plus* is now available with an optional Druck strain gauge pressure sensor, in place of the Quartz pressure sensor. The strain gauge pressure sensor provides a lower cost solution for applications where high quality wave data is desired, but tide monitoring is not needed. Accuracy with the strain gauge pressure sensor is 0.1% of full scale, compared to 0.01% for the Quartz sensor. For a 45 psia (20 m) sensor, this translates to 30 mm vs 3 mm accuracy.

Real-Time Data Processing and Output

Real-time tide and/or wave burst data are now available from the 26*plus*, simultaneous with internal recording of the raw data. User-selectable real-time outputs include:

- tide data — date/time, pressure (psia), temperature (°C), plus conductivity (S/m) and salinity (psu) with optional conductivity sensor.
- wave data — date/time, pressure (psia).
- wave statistics — auto-spectrum (total variance and energy, significant period and wave height) and time series (total variance and energy, average wave height and period, maximum wave height, significant wave height and period, H1/10, H1/100).

SBE 49 FastCAT Real-Time Processing Provides Better Data for ROV / AUV Applications

Most Sea-Bird fast-sampling CTDs directly output conductivity, temperature, and pressure, and rely on post-processing software to calculate salinity, sound velocity, and other derived parameters. Doing these calculations in post-processing allows you to make adjustments to the fundamental, measured data before calculating derived parameters. These adjustments include:

- **Aligning —** Aligning temperature, conductivity, and pressure ensures that calculations of derived parameters are made using measurements from the same parcel of water, eliminating *spiking* caused by misaligned values in areas with sharp gradients. The three principal causes of misalignment of CTD measurements are the physical misalignment of the sensors in depth; the inherent time delay of the sensor responses, and the water transit time delay in a pumped plumbing line.
- **Filtering —** Filtering matches the time constants of the temperature and conductivity sensors.
- **Correcting for Cell Thermal Mass —** The glass conductivity cell stores heat, causing water in the cell to be a different temperature than the temperature sensor measured a moment earlier. Removing conductivity cell thermal mass effects from the measured conductivity provides improved results in areas with steep temperature gradients.

The FastCAT is frequently integrated with an AUV or ROV. A typical AUV/ROV data acquisition system does not record a complete time series from the FastCAT (16 samples/second). For example, the AUV/ROV may record data on command, with uneven time intervals between each recorded measurement. The lack of a true time series from the FastCAT in these applications prevents aligning, filtering, and correcting for cell thermal mass in post-processing.

However, **a new feature allows the FastCAT to make these corrections in real-time**, providing corrected conductivity, temperature and pressure output. By correcting the data in real-time, the measurements recorded in an AUV / ROV are inherently correct, regardless of the lack of a true time series. Customer post-processing software can perform straightforward algorithms to calculate salinity, sound velocity, and other derived parameters from the measurements. Alternatively, the FastCAT can calculate salinity and sound velocity in real-time, based on the corrected conductivity, temperature, and pressure.

Software and Data Analysis

Battery and Memory Budget Calculator for Moored Instruments

The calculator is an aid for quickly determining the number of samples for a specified sample duration or rate, based on our conservative estimate of battery capacity and memory capacity. This tool allows you to quickly iterate to a sampling scheme that maximizes the number of samples taken during the expected deployment duration. It applies to the following instruments: SBE 16 (not current production), 16*plus*, 16*plus*-IM, 19*plus* (in moored mode), 37-IM, 37-IMP, 37-SM, 37-SMP, 39, and 44. The calculator was developed in Microsoft Excel 2002; you must have Excel installed on your computer to run the calculator.

To get the calculator, download **SBE_Battery_Budget_Calculator_V*_*.xls** from our ftp site (ftp://ftp.halcyon.com/pub/seabird/OUT/).

Website Tips (www.seabird.com)

Check out the following recent website additions:

- Frequently Asked Questions (FAQs) — general instrument questions, oceanography, recommended practices, service, ordering, software, data analysis and processing, and manufacturing. Click *Frequently Asked Questions (FAQs)* on our home page to go to www.seabird.com/FAQs/FAQsMainPage.htm.
- Configuration Details — standard features and options for each product with their Sea-Bird part numbers, along with explanatory information, illustrations, and photographs to guide you in selecting the appropriate configuration for your application. Click *Sales Information* on our home page to go to www.seabird.com/sales_info/quotetips.htm; from there click *Configuration Details Index* to go to www.seabird.com/sales_info/configuration_details/ConfigDetailsIndex.htm.

Training

Our training classes continue to **fill up rapidly**, typically several months before each class. The curriculum covers profiling instruments (days 1-3) and moored instruments, thermosalinographs, and wave and tide recorders (day 4). The class is hands-on in nature, and includes extensive *practice* using our instruments for real-time data acquisition and processing the data. The course syllabus and course handouts are available on our website; click on *Training* on our home page to go to www.seabird.com/training/trainingclass.htm. Our January 2005 class is full; additional classes are scheduled for April 25 - 28 and September 26 - 29, 2005.

Personnel

Ken Lawson, the President of Sea-Bird, retired on November 1. We all wish Ken happy sailing.

Ken Lawson

With Ken's retirement, Nordeen (Norge) Larson is President of Sea-Bird. The company is wholly owned by its officers, Nordeen Larson and John Backes (Vice-President). Both have extensive ocenaographic and sea-going experience, form the active top management of the company, and also perform a large part of the engineering design. Major responsibility for operating management is in the hands of Rick Baumann (V.P. of Operations), Heddy Gundersen (C.F.O.), David Murphy (Research and Development Manager), Dave Armstrong (Customer Service Manager), and Doug Bennett (Engineering Sales Manager).

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