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SBE 39 Memory Limitations

Equipment Affected

All SBE 39s with firmware version 2.0 or 2.0a are affected (firmware version is shown in first line of status command [DS] response). Most SBE 39s with serial numbers in the range 1284 to 1975 have one of these firmware versions.

Description of Problem

A firmware bug prevents the SBE 39 from recording data in half of the 4 MB memory, effectively reducing the available memory size to 2 MB. Once 2 MB of memory is filled, the SBE 39 continues to sample, but overwrites the existing data in memory. If outputting real-time data (TXREALTIME=Y), the real-time data continues to be output correctly.

- 2 MB of available memory space corresponds to 299,000 samples of temperature and time, or 233,000 samples of temperature, pressure, and time.

Example for SBE 39 with optional pressure sensor:

If taking a sample every 5 minutes (12 samples/hour), what is the maximum deployment length before the available 2 MB of memory is filled? $233,000 \text{ samples} / (12 \text{ samples/hour} * 24 \text{ hours/day}) = 809 \text{ days}$

Solution

For customers powering the SBE 39 with internal battery:

The standard lithium battery powers the acquisition of approximately 188,000 samples of temperature and time, or 150,000 samples of temperature, pressure, and time. This is less than the number of samples that can be stored in the available 2 MB of memory. **Therefore, the firmware bug has no impact on deployment duration if you take the following steps each time you replace the battery:**

1. Upload all data from memory.
2. Re-initialize the memory (SAMPLENUM=0). This tells the SBE 39 to begin recording data at the beginning of memory when it starts logging again, making the entire 2 MB of memory available for recording.

When you return your SBE 39 to Sea-Bird for its next scheduled calibration and/or repair, we will upgrade it to the current firmware version, at no charge, to eliminate the bug and make the full 4 MB of memory available.

For customers powering the SBE 39 externally:

The deployment duration is limited by the number of samples that can be stored in the available 2 MB of memory (299,000 samples of temperature and time, or 233,000 samples of temperature, pressure, and time). Once 2 MB of memory is filled, the SBE 39 continues to sample, but overwrites the existing data in memory. If outputting real-time data (TXREALTIME=Y), the real-time continues to be output correctly.

- If the deployment will provide less than 299,000 samples of temperature and time, or 233,000 samples of temperature, pressure, and time, the bug has no impact on deployment duration. As described above for customers powering the SBE 39 with an internal battery, upload all data and reinitialize memory after each deployment.
- If you will use and process only the real-time data, the bug has no impact on the deployment duration. Real-time data continues to be output correctly, regardless of how much data is in memory.
- **If the deployment will provide more than 299,000 samples of temperature and time, or 233,000 samples of temperature, pressure, and time, and you plan to use and process the data in memory, contact Sea-Bird to schedule the return of your SBE 39. Sea-Bird will upgrade the SBE 39 to the current firmware version, at no charge, to eliminate the bug and make the full 4 MB of memory available.**