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## Field Service Bulletin No. 22

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### **SBE 3 Frequency Shift with SBE 25 CTD and Cold Temperature Applications**

#### **Equipment Affected**

This field service bulletin applies to SBE 3s that meet **all** of the following criteria:

- SBE *3plus*, 3F, or 3S with serial numbers 5179 and higher.
- Integrated with an SBE 25 CTD **or** a non-Sea-Bird system that provides less than 11.5 V of power to the SBE 3
- Used in very cold water (approximately 2 °C or less)

Note: The Field Service Bulletin **does not apply** to an SBE 3 on an **SBE 9plus CTD**; the *9plus* provides a much higher voltage to the SBE 3, eliminating any possibility of the frequency shift described below.

#### **Description of Problem**

For the specified SBE 3s, customers **may** see a frequency shift in the SBE 3 output, resulting in decreasing the period of the output frequency by approximately 6.4  $\mu$ S (corresponding to approximately  $\pm 0.1$  °C) when at 2 °C or below and at lower than typical supply voltage. The frequency shift appears as a step change in the data, and remains as an offset in the data until the temperature rises above approximately 2 °C or the supply voltage is increased.

- The SBE 25 provides 11.5 V  $\pm$  0.125 V to the SBE 3. The frequency shift is likely to occur only on the low end of the specified voltage range.

**We are unaware of any customers with bad data as a result of this problem.**

#### **Solution**

If your data demonstrates the shift described above, contact Sea-Bird and send us the data for evaluation. If we agree that the temperature data exhibits the frequency shift problem, we will replace the SBE 3.