



Field Service Bulletin 25

April 2012

SBE 56 Temperature Sensors

Equipment Affected

This field service bulletin applies to SBE 56s manufactured and delivered before 2012 - Serial Numbers (SN) < 1088.

Description of Problem

1. Battery

The SBE 56 uses a Saft LS14500 battery. A few customers have reported that battery endurance was significantly below the value estimated by SeatermUSB software. Investigation and thorough testing at Sea-Bird, and extensive discussion with the battery manufacturer, has confirmed that the battery endurance could be reduced by up to 40% if **all** of the following apply:

- **Battery *button end* (+) down** – Batteries are deployed with the *button end* (+) down; this corresponds to a typical deployment with the SBE 56 thermistor end pointing down.
- **Low temperature** – Batteries are used in cold temperatures (< 15 °C water temperature).
- **Limited agitation** – Batteries are relatively stationary; this corresponds to a typical moored deployment. Typical oceanographic agitation (strumming, tidal and wave motion) is not sufficient to prevent the problem.

Comparative testing at Sea-Bird of other bobbin-style AA lithium batteries from various manufacturers did not eliminate this problem; all of these batteries had similar characteristics.

NOTE: For most typical customer applications, the SBE 56 battery endurance is sufficient, even with the potential 40% reduction. For example, the calculated endurance for a 15-second sample interval is 717 days (≈ 2 years). With a potential 40% reduction in battery capacity, the SBE 56 could be deployed for 430 days (≈ 1.2 years).

If **any one of the described conditions is removed**, the battery will regain its expected endurance. For example, if you change the orientation, the SBE 56 will begin sampling again and should provide the originally estimated number of samples.

2. Desiccant

The desiccant *pills* originally used in the SBE 56 were discontinued by all desiccant suppliers. The industry has moved to a larger *capsule*, which does not fit in the existing SBE 56 housing.

Solution

1. Battery

Affected SBE 56s:

If you require the full battery capacity calculated by SeatermUSB, and must deploy/redeploy the SBE 56 before returning it to Sea-Bird, and deploy it in a **horizontal orientation**, or **thermistor end up** (battery *button end* (+) up).

If requested on the Service Request Form when the SBE 56 is returned for service/calibration, Sea-Bird will change the battery cradle orientation in the housing, so that for the typical deployment (thermistor end down) the battery *button end* (+) is up.

SBE 56s manufactured in 2012 and later (SN ≥ 1088):

Sea-Bird changed the battery cradle orientation in the housing, so that for the typical deployment (thermistor end down) the battery *button end* (+) is up.

2. Desiccant

Sea-Bird extended the housing length by approximately 1 cm to accommodate the larger desiccant capsule. When the SBE 56 is returned for service/calibration, we will replace the housing with the longer housing.

Deployment Orientations for Best Battery Capacity

