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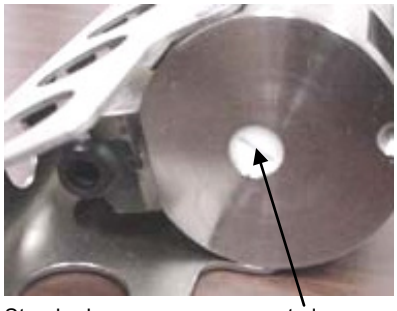
**APPLICATION NOTE NO. 84** **Revised January 2014**

# Using Instruments with Druck Pressure Sensors in Muddy or Biologically Productive Environments

This Application Note applies to many Sea-Bird instruments with **Druck** pressure sensors, for moored applications or other long deployments that meet **either** of the following conditions:

- used in a **high-sediment (muddy)** environment, in a **pressure sensor end up** orientation
- used in a **biologically productive** environment, in **any** orientation



Standard pressure sensor port plug. (***Note:*** Photo is SBE 37-SM. Pressure port details are similar for all instruments included in this application note)

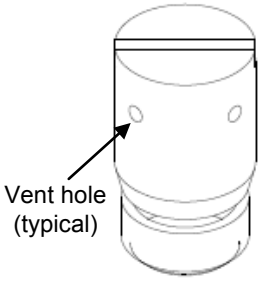
At Sea-Bird, a pressure port plug with a small (0.042-inch diameter) vent hole in the center is inserted in the pressure sensor port. The vent hole allows hydrostatic pressure to be transmitted to the pressure sensor inside the instrument.

- If the instrument is deployed in a **high-sediment (muddy)** environment **with the pressure sensor end up**, the pressure port may partially fill with sediment (through the vent hole) over time, causing a delay in the pressure response.
- If the instrument is deployed in a **biologically productive** environment, the vent hole may be covered with biological growth over time, causing a delay in the pressure response, or in extreme cases completely blocking the pressure signal.

## *High-Head* Pressure Port Plug Description and Applicability

Sea-Bird developed a high-head pressure port plug, Part Number 233186, for deployment in muddy and/or biologically productive environments. The high-head plug extends beyond the surface of the instrument end cap, and has *four* horizontal vent holes connecting *internally* to a vertical vent hole.

- The horizontal orientation of the external holes prevents the deposit of sediment inside the pressure port.
- Each of the four vent holes is larger (0.062-inch vs. 0.042-inch diameter) than the single vent hole in the standard pressure port plug, significantly reducing the possibility that biological growth will cover all of the hole(s).




*High-Head*
Pressure Port Plug,
**Part Number 233186**

**Note:** The high-head pressure port plug cannot be used with:

- Pumped MicroCATs with version 4.0 firmware or later (SBE 37-SMP, SIP, IMP); version 4.0 firmware for these models was released in 2011.
- Any IDO or ODO MicroCAT (SBE 37-SMP-IDO, SMP-ODO, SIP-IDO, SIP-ODO, IMP-IDO, IMP-ODO).

The pressure port is located under the clamp in these instruments, preventing installation of the high-head plug.

## *High-Head* Pressure Port Plug Installation

1. Unscrew the standard pressure port plug from the pressure port.
2. Rinse the pressure port with warm, de-ionized water to remove any particles, debris, etc. **Do not put a brush or any object in the pressure port;** doing so may damage or break the pressure sensor.
3. Install the *high-head* pressure port plug in the pressure port.

**Note**: Until the early 2000's, Sea-Bird filled the pressure port with silicon oil at the factory. For **Druck** pressure sensors, we determined that this was unnecessary, and no longer do so. It is not necessary to refill the oil in the field. However, for **Paine** or **Paroscientific Digiquartz** pressure sensors, the pressure port **does** need to be refilled with silicon oil. Contact Sea-Bird with your instrument's serial number if you are unsure of the pressure sensor type.

## Application Note Revision History

| Date | Description |
|---|---|
| July 2006 | Initial release. |
| January 2014 | Clarify that not applicable to newer pumped MicroCATs, plus all IDO and ODO MicroCATs, because pressure sensor is under the clamp. |