

# Sea-Bird Electronics, Inc.

13431 NE 20th Street, Bellevue, WA 98005-2010 USA  
 Phone: (+1) 425-643-9866 Fax (+1) 425-643-9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 2327  
 CALIBRATION DATE: 11-Jan-14

SBE3 TEMPERATURE CALIBRATION DATA  
 ITS-90 TEMPERATURE SCALE

### ITS-90 COEFFICIENTS

g = 4.35177051e-003  
 h = 6.42620940e-004  
 i = 2.31464483e-005  
 j = 2.22914568e-006  
 f0 = 1000.0

### IPTS-68 COEFFICIENTS

a = 3.68121204e-003  
 b = 6.00532183e-004  
 c = 1.59433529e-005  
 d = 2.23067967e-006  
 f0 = 2948.226

| BATH TEMP<br>(ITS-90) | INSTRUMENT FREQ<br>(Hz) | INST TEMP<br>(ITS-90) | RESIDUAL<br>(ITS-90) |
|-----------------------|-------------------------|-----------------------|----------------------|
| -1.5000               | 2948.226                | -1.5000               | 0.00002              |
| 1.0000                | 3118.021                | 1.0000                | 0.00000              |
| 4.5000                | 3367.468                | 4.5000                | -0.00005             |
| 8.0000                | 3630.963                | 8.0000                | -0.00002             |
| 11.5000               | 3908.878                | 11.5000               | 0.00000              |
| 15.0000               | 4201.582                | 15.0001               | 0.00005              |
| 18.5000               | 4509.425                | 18.5001               | 0.00007              |
| 22.0000               | 4832.743                | 22.0000               | -0.00003             |
| 25.5000               | 5171.885                | 25.5000               | -0.00004             |
| 29.0001               | 5527.169                | 29.0000               | -0.00007             |
| 32.5000               | 5898.887                | 32.5001               | 0.00006              |

$$\text{Temperature ITS-90} = 1 / \{ g + h[\ln(f_0/f)] + i[\ln^2(f_0/f)] + j[\ln^3(f_0/f)] \} - 273.15 \text{ (}^\circ\text{C)}$$

$$\text{Temperature IPTS-68} = 1 / \{ a + b[\ln(f_0/f)] + c[\ln^2(f_0/f)] + d[\ln^3(f_0/f)] \} - 273.15 \text{ (}^\circ\text{C)}$$

Following the recommendation of JPOTS:  $T_{68}$  is assumed to be  $1.00024 * T_{90}$  (-2 to 35 °C)

Residual = instrument temperature - bath temperature

