

# SEA-BIRD ELECTRONICS, INC.

13431 NE 20th Street, Bellevue, Washington, 98005-2010 USA

Phone: (425) 643 - 9866 Fax (425) 643 - 9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 5171  
CALIBRATION DATE: 15-Feb-11

SBE3 TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## ITS-90 COEFFICIENTS

g = 4.39237658e-003  
h = 6.45406736e-004  
i = 2.29698970e-005  
j = 2.13709910e-006  
f0 = 1000.0

## IPTS-68 COEFFICIENTS

a = 3.68121097e-003  
b = 6.01404466e-004  
c = 1.56661011e-005  
d = 2.13860073e-006  
f0 = 3137.667

| BATH TEMP<br>(ITS-90) | INSTRUMENT FREQ<br>(Hz) | INST TEMP<br>(ITS-90) | RESIDUAL<br>(ITS-90) |
|-----------------------|-------------------------|-----------------------|----------------------|
| -1.4999               | 3137.667                | -1.4999               | -0.00000             |
| 1.0001                | 3318.099                | 1.0001                | 0.00001              |
| 4.5001                | 3583.129                | 4.5001                | -0.00000             |
| 8.0001                | 3863.022                | 8.0001                | -0.00003             |
| 11.5001               | 4158.184                | 11.5001               | 0.00002              |
| 15.0001               | 4468.990                | 15.0001               | 0.00005              |
| 18.5001               | 4795.806                | 18.5001               | -0.00003             |
| 22.0001               | 5139.006                | 22.0000               | -0.00005             |
| 25.5001               | 5498.945                | 25.5001               | 0.00004              |
| 29.0001               | 5875.932                | 29.0001               | 0.00001              |
| 32.5001               | 6270.299                | 32.5001               | -0.00001             |

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

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

