

# SEA-BIRD ELECTRONICS, INC.

1808 136th Place N.E., Bellevue, Washington, 98005 USA

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

SENSOR SERIAL NUMBER: 0315  
CALIBRATION DATE: 16-Oct-09

SBE 38 TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## ITS-90 COEFFICIENTS

a0 = -4.501998e-005  
a1 = 2.797438e-004  
a2 = -2.596485e-006  
a3 = 1.627054e-007

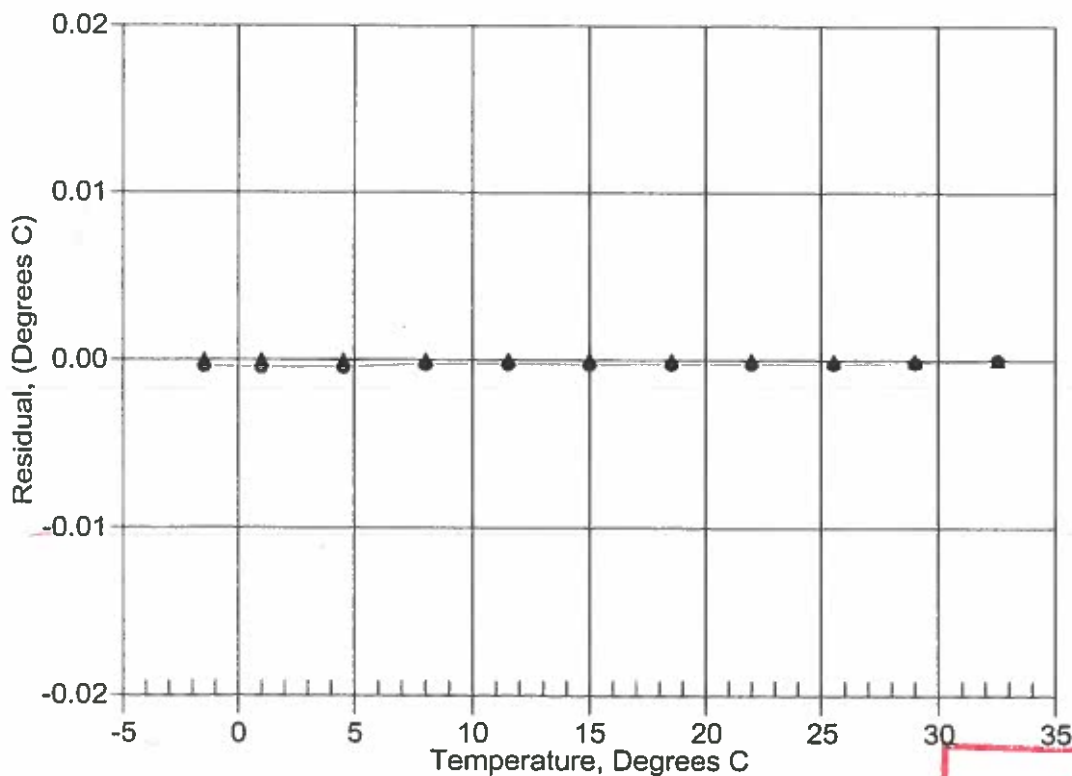
BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.50010	786653.6	-1.50008	0.00002
0.99980	703050.8	0.99979	-0.00001
4.49990	602427.7	4.49986	-0.00004
7.99990	517882.3	7.99989	-0.00001
11.49990	446605.0	11.49993	0.00003
14.99990	386317.5	14.99994	0.00004
18.49990	335162.8	18.49990	0.00000
21.99990	291621.9	21.99991	0.00001
25.49990	254450.9	25.49985	-0.00005
28.99990	222623.6	28.99988	-0.00002
32.49990	195294.5	32.49993	0.00003

Temperature ITS-90 =  $1 / \{a_0 + a_1[\ln(n)] + a_2[\ln^2(n)] + a_3[\ln^3(n)]\} - 273.15$  (°C)

Residual = instrument temperature - bath temperature

Date, Delta T (mdeg C)

● 11-Nov-06 -0.29  
▲ 16-Oct-09 0.00



**POST CRUISE  
CALIBRATION**



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Phone: (425) 643-9866 Fax: (425) 643-9954 [www.seabird.com](http://www.seabird.com)

### Temperature Calibration Report

Customer:	Ole A. Nordby AS		
Job Number:	56122	Date of Report:	10/16/2009
Model Number:	SBE 38	Serial Number:	3844844-0315

*Temperature sensors are normally calibrated 'as received', without adjustments, allowing a determination sensor drift. If the calibration identifies a problem, then a second calibration is performed after work is completed. The 'as received' calibration is not performed if the sensor is damaged or non-functional, or by customer request.*

*An 'as received' calibration certificate is provided, listing coefficients to convert sensor frequency to temperature. Users must choose whether the 'as received' calibration or the previous calibration better represents the sensor condition during deployment. In SEASOFT enter the chosen coefficients using the program SEACON. The coefficient 'offset' allows a small correction for drift between calibrations (consult the SEASOFT manual). Calibration coefficients obtained after a repair apply only to subsequent data.*

#### 'AS RECEIVED CALIBRATION'

☒ Performed ☐ Not Performed

Date: 10/16/2009

Drift since last cal: +0.00010 Degrees Celsius/year

Comments:

#### 'CALIBRATION AFTER REPAIR'

☐ Performed ☒ Not Performed

Date:

Drift since Last cal: Degrees Celsius/year

Comments:

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

SENSOR SERIAL NUMBER: 0199  
CALIBRATION DATE: 16-Oct-09

SBE 38 TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## ITS-90 COEFFICIENTS

a0 = -5.194867e-005  
a1 = 2.907533e-004  
a2 = -3.517530e-006  
a3 = 1.888905e-007

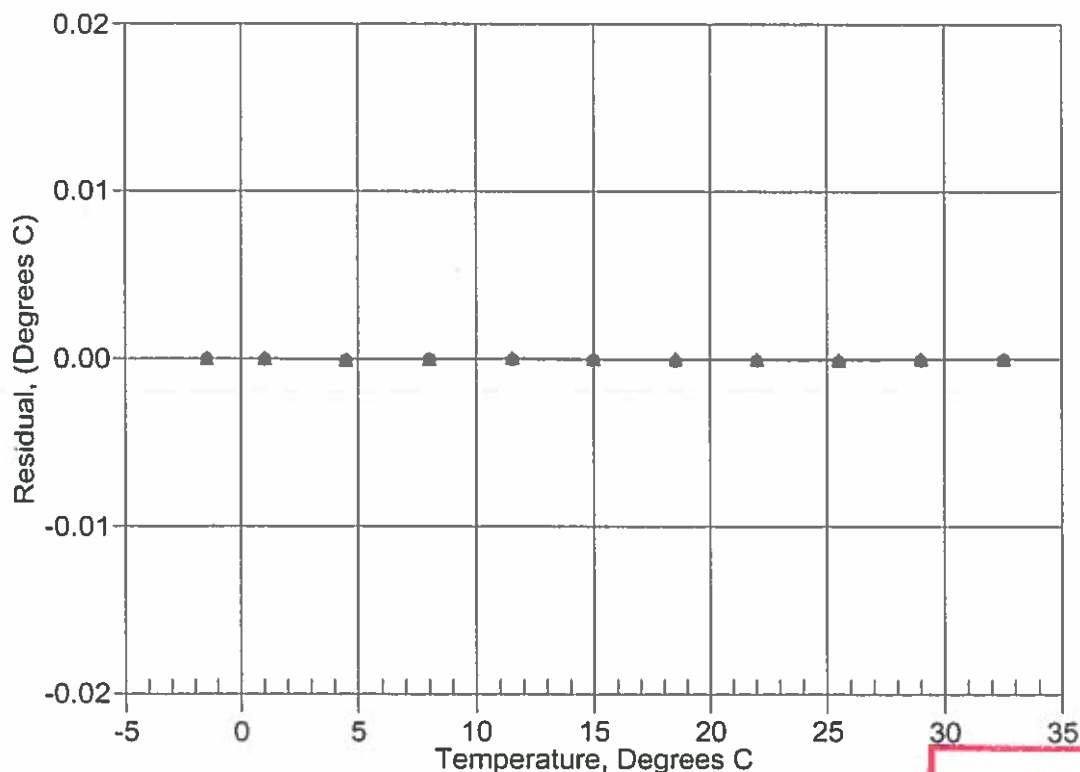
BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.50010	692122.6	-1.50008	0.00002
0.99980	618428.4	0.99981	0.00001
4.49990	529750.1	4.49984	-0.00006
7.99990	455258.2	7.99989	-0.00001
11.49990	392473.0	11.49997	0.00007
14.99990	339384.6	14.99991	0.00001
18.49990	294349.9	18.49992	0.00002
21.99990	256030.5	21.99988	-0.00002
25.49990	223326.5	25.49985	-0.00005
28.99990	195332.5	28.99992	0.00002
32.49990	171303.1	32.49991	0.00001

Temperature ITS-90 =  $1 / \{a_0 + a_1[\ln(n)] + a_2[\ln^2(n)] + a_3[\ln^3(n)]\} - 273.15$  (°C)

Residual = instrument temperature - bath temperature

Date, Delta T (mdeg C)

● 19-Jan-05 -0.08  
▲ 16-Oct-09 0.00



**POST CRUISE  
CALIBRATION**



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### Temperature Calibration Report

Customer:	Ole A. Nordby AS		
Job Number:	56122	Date of Report:	10/16/2009
Model Number:	SBE 38	Serial Number:	3832689-0199

*Temperature sensors are normally calibrated 'as received', without adjustments, allowing a determination sensor drift. If the calibration identifies a problem, then a second calibration is performed after work is completed. The 'as received' calibration is not performed if the sensor is damaged or non-functional, or by customer request.*

*An 'as received' calibration certificate is provided, listing coefficients to convert sensor frequency to temperature. Users must choose whether the 'as received' calibration or the previous calibration better represents the sensor condition during deployment. In SEASOFT enter the chosen coefficients using the program SEACON. The coefficient 'offset' allows a small correction for drift between calibrations (consult the SEASOFT manual). Calibration coefficients obtained after a repair apply only to subsequent data.*

#### 'AS RECEIVED CALIBRATION'

☒ Performed ☐ Not Performed

Date: 10/16/2009

Drift since last cal: +0.00002 Degrees Celsius/year

Comments:

#### 'CALIBRATION AFTER REPAIR'

☐ Performed ☒ Not Performed

Date:

Drift since Last cal: Degrees Celsius/year

Comments: