



SEA-BIRD ELECTRONICS, INC.

13431 NE 20th St. Bellevue, Washington 98005 USA

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

Temperature Calibration Report

Customer:	The University of Alaska, Fairbanks		
Job Number:	71684	Date of Report:	2/22/2013
Model Number	SBE 03Plus	Serial Number:	03P4551

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. 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: 2/5/2013 Drift since last cal: -0.00042 Degrees Celsius/year

Comments:

'FINAL CALIBRATION'

☒ Performed ☐ Not Performed

Date: 2/22/2013 Drift since 20 Dec 07 -0.00043 Degrees Celsius/year

Comments:

The O-rings were replaced.

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Phone: (+1) 425-643-9866 Fax (+1) 425-643-9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 4551
CALIBRATION DATE: 05-Feb-13

SBE3 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS

g = 4.33689732e-003
h = 6.33893277e-004
i = 2.01262007e-005
j = 1.65192473e-006
f0 = 1000.0

IPTS-68 COEFFICIENTS

a = 3.68121201e-003
b = 5.96719226e-004
c = 1.48633076e-005
d = 1.65329059e-006
f0 = 2907.781

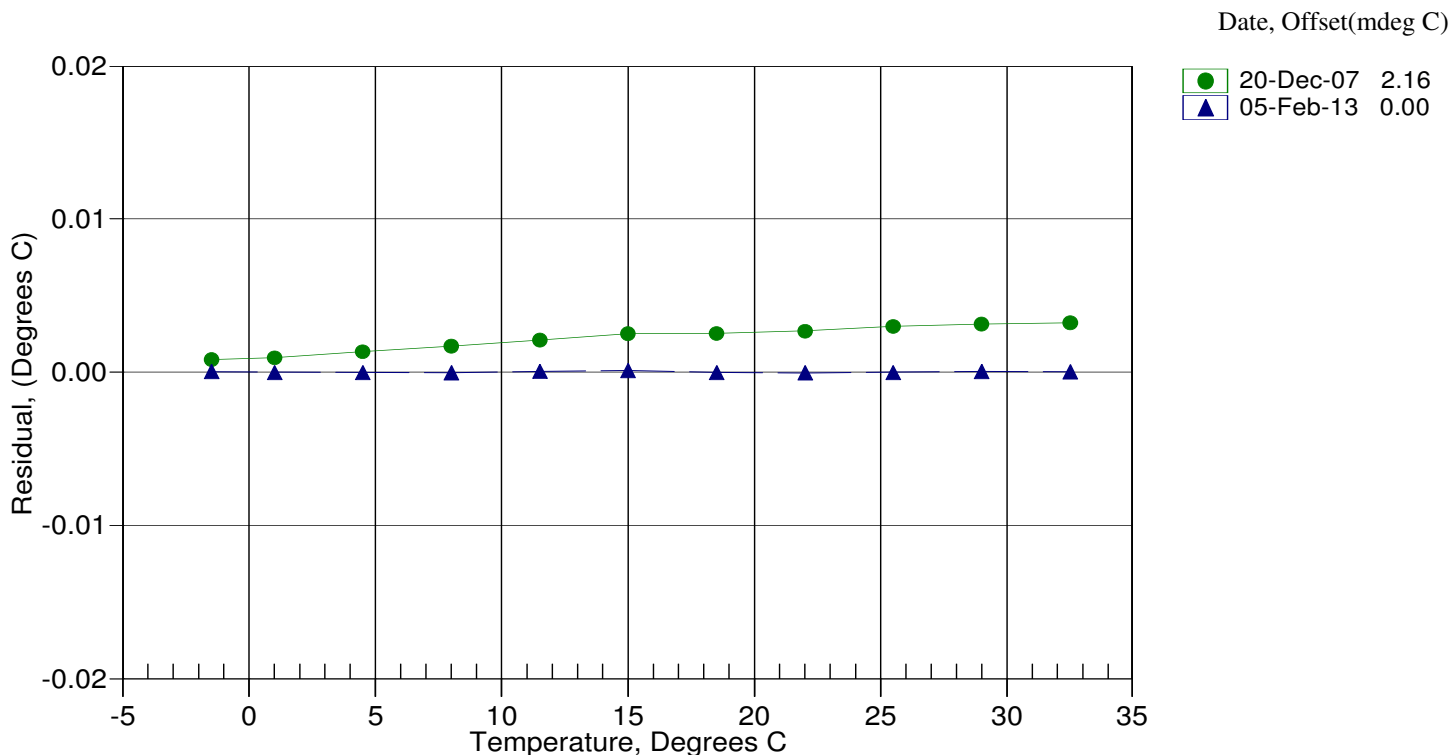
BATH TEMP (ITS-90)	INSTRUMENT FREQ (Hz)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	2907.781	-1.5000	0.00002
1.0000	3076.332	1.0000	-0.00001
4.5000	3324.015	4.5000	-0.00003
8.0000	3585.715	8.0000	-0.00005
11.5000	3861.828	11.5000	0.00005
15.0000	4152.719	15.0001	0.00010
18.5000	4458.742	18.5000	-0.00003
22.0000	4780.277	21.9999	-0.00006
25.5000	5117.668	25.5000	-0.00002
29.0000	5471.243	29.0000	0.00003
32.5000	5841.314	32.5000	0.00000

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



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SENSOR SERIAL NUMBER: 4551
CALIBRATION DATE: 22-Feb-13

SBE3 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS

g = 4.33692581e-003
h = 6.33960692e-004
i = 2.01752527e-005
j = 1.66329440e-006
f0 = 1000.0

IPTS-68 COEFFICIENTS

a = 3.68121183e-003
b = 5.96720848e-004
c = 1.48759649e-005
d = 1.66466278e-006
f0 = 2907.775

BATH TEMP (ITS-90)	INSTRUMENT FREQ (Hz)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	2907.775	-1.5000	0.00004
1.0000	3076.323	1.0000	-0.00003
4.5000	3324.006	4.5000	-0.00004
8.0000	3585.710	8.0000	-0.00001
11.5000	3861.821	11.5000	0.00005
15.0000	4152.712	15.0001	0.00009
18.5000	4458.736	18.5000	-0.00004
22.0000	4780.272	21.9999	-0.00007
25.5000	5117.667	25.5000	-0.00000
29.0000	5471.242	29.0000	0.00004
32.5000	5841.311	32.5000	-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

