



SEA-BIRD ELECTRONICS, INC.

13431 NE 20th Street Bellevue, Washington 98005 USA

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

Conductivity Calibration Report

Customer:	The University of Alaska, Fairbanks		
Job Number:	71684	Date of Report:	2/13/2013
Model Number	SBE 04-01/0	Serial Number:	040369

Conductivity sensors are normally calibrated 'as received', without cleaning or adjustments, allowing a determination of sensor drift. If the calibration identifies a problem or indicates cell cleaning is necessary, 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 the coefficients used to convert sensor frequency to conductivity. 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 'slope' allows small corrections for drift between calibrations (consult the SEASOFT manual). Calibration coefficients obtained after a repair or cleaning apply only to subsequent data.

'AS RECEIVED CALIBRATION'

☒ Performed ☐ Not Performed

Date: 2/5/2013 Drift since last cal: 0.0000 PSU/month*

Comments:

'FINAL CALIBRATION'

☒ Performed ☐ Not Performed

Date: 2/13/2013 Drift since 05 Mar 10 +0.00010 PSU/month*

Comments:

The O-rings were replaced.

**Measured at 3.0 S/m*

Cell cleaning and electrode replatinizing tend to 'reset' the conductivity sensor to its original condition. Lack of drift in post-cleaning-calibration indicates geometric stability of the cell and electrical stability of the sensor circuit.

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SENSOR SERIAL NUMBER: 0369
CALIBRATION DATE: 05-Feb-13

SBE4 CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

GHIJ COEFFICIENTS

g = -4.28782839e+000
h = 5.38258842e-001
i = -2.55798577e-003
j = 1.68747579e-004
CPcor = -9.5700e-008 (nominal)
CTcor = 3.2500e-006 (nominal)

ABCDM COEFFICIENTS

a = 6.31112210e-009
b = 5.27488302e-001
c = -4.24474036e+000
d = -1.90895610e-005
m = 7.4
CPcor = -9.5700e-008 (nominal)

BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (kHz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
0.0000	0.0000	0.00000	2.83803	0.00000	0.00000
-0.9999	34.7797	2.80191	7.81795	2.80189	-0.00002
1.0001	34.7795	2.97313	8.02233	2.97314	0.00002
15.0001	34.7796	4.26760	9.42124	4.26762	0.00002
18.5001	34.7795	4.61402	9.76044	4.61403	0.00000
29.0001	34.7762	5.69650	10.74821	5.69645	-0.00005
32.5001	34.7654	6.06813	11.06588	6.06816	0.00004

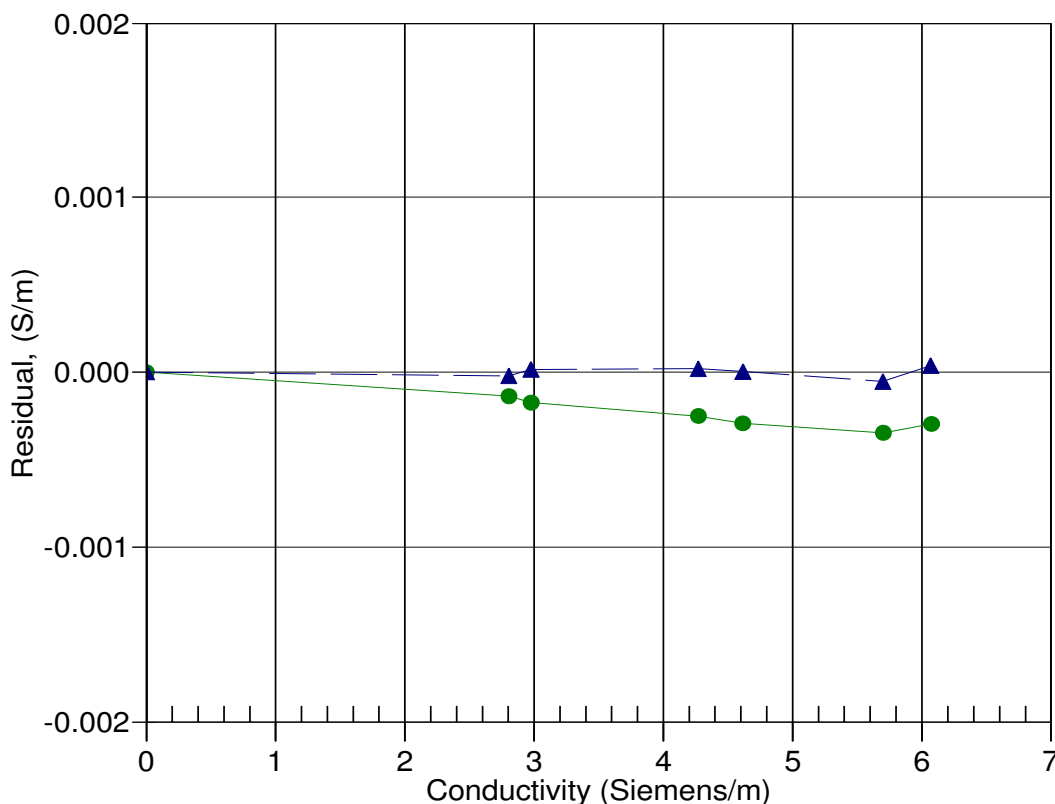
Conductivity = $(g + hf^2 + if^3 + jf^4) / 10(1 + \delta t + \epsilon p)$ Siemens/meter

Conductivity = $(af^m + bf^2 + c + dt) / [10(1 + \epsilon p)]$ Siemens/meter

t = temperature[°C]; p = pressure[decibars]; δ = CTcor; ϵ = CPcor;

Residual = (instrument conductivity - bath conductivity) using g, h, i, j coefficients

Date, Slope Correction



05-Mar-10 1.0000567
05-Feb-13 1.0000000

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SENSOR SERIAL NUMBER: 0369
CALIBRATION DATE: 13-Feb-13

SBE4 CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Seimens/meter

GHIJ COEFFICIENTS

g = -4.28703083e+000
h = 5.38121387e-001
i = -2.54065351e-003
j = 1.68220429e-004
CPcor = -9.5700e-008 (nominal)
CTcor = 3.2500e-006 (nominal)

ABCDM COEFFICIENTS

a = 8.15733287e-009
b = 5.27432676e-001
c = -4.24411854e+000
d = -1.58230044e-005
m = 7.3
CPcor = -9.5700e-008 (nominal)

BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (kHz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
0.0000	0.0000	0.00000	2.83801	0.00000	0.00000
-0.9999	34.7436	2.79927	7.81496	2.79929	0.00002
1.0000	34.7442	2.97039	8.01921	2.97037	-0.00002
15.0001	34.7442	4.26371	9.41745	4.26372	0.00000
18.5001	34.7442	4.60985	9.75652	4.60985	0.00000
29.0001	34.7421	5.69154	10.74400	5.69154	-0.00000
32.5001	34.7344	6.06333	11.06185	6.06333	-0.00000

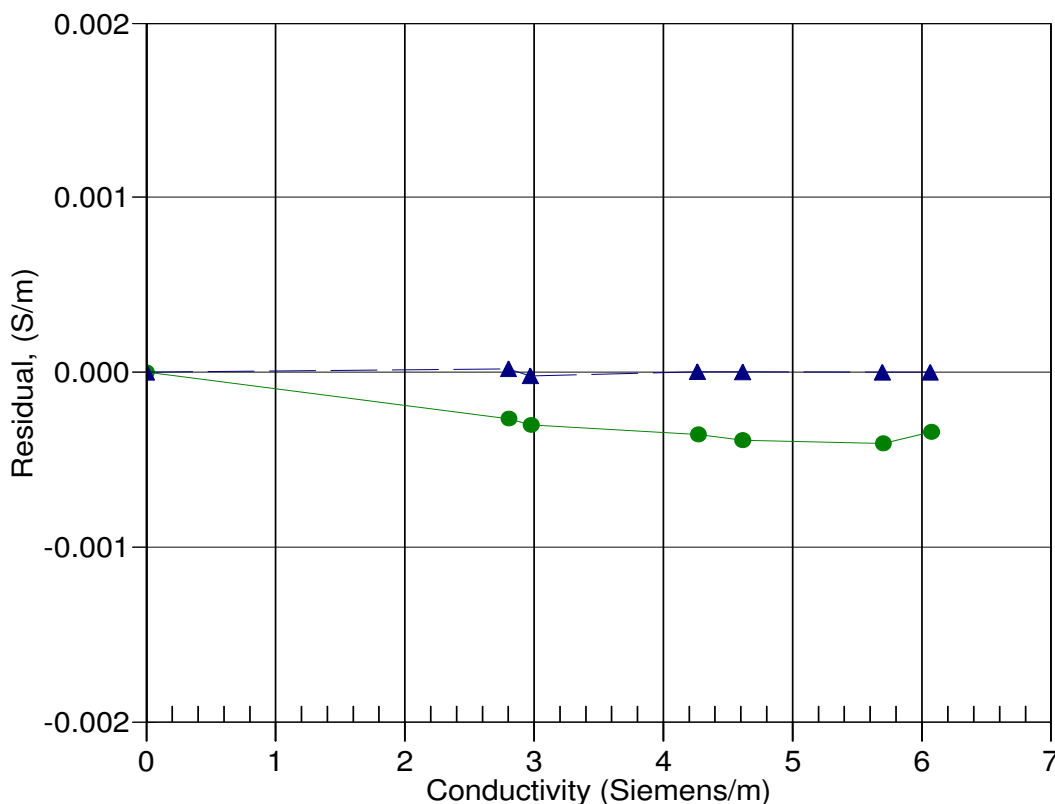
Conductivity = $(g + hf^2 + if^3 + jf^4) / 10(1 + \delta t + \epsilon p)$ Siemens/meter

Conductivity = $(af^m + bf^2 + c + dt) / [10(1 + \epsilon p)]$ Siemens/meter

t = temperature[°C]; p = pressure[decibars]; δ = CTcor; ϵ = CPcor;

Residual = (instrument conductivity - bath conductivity) using g, h, i, j coefficients

Date, Slope Correction



05-Mar-10 1.0000747
13-Feb-13 1.0000000