

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: 9061
 CALIBRATION DATE: 11-Apr-13

SLOCUM PAYLOAD CTD
 TEMPERATURE CALIBRATION DATA
 ITS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS

a0 = -8.936456e-005
 a1 = 3.081456e-004
 a2 = -4.780945e-006
 a3 = 2.088871e-007

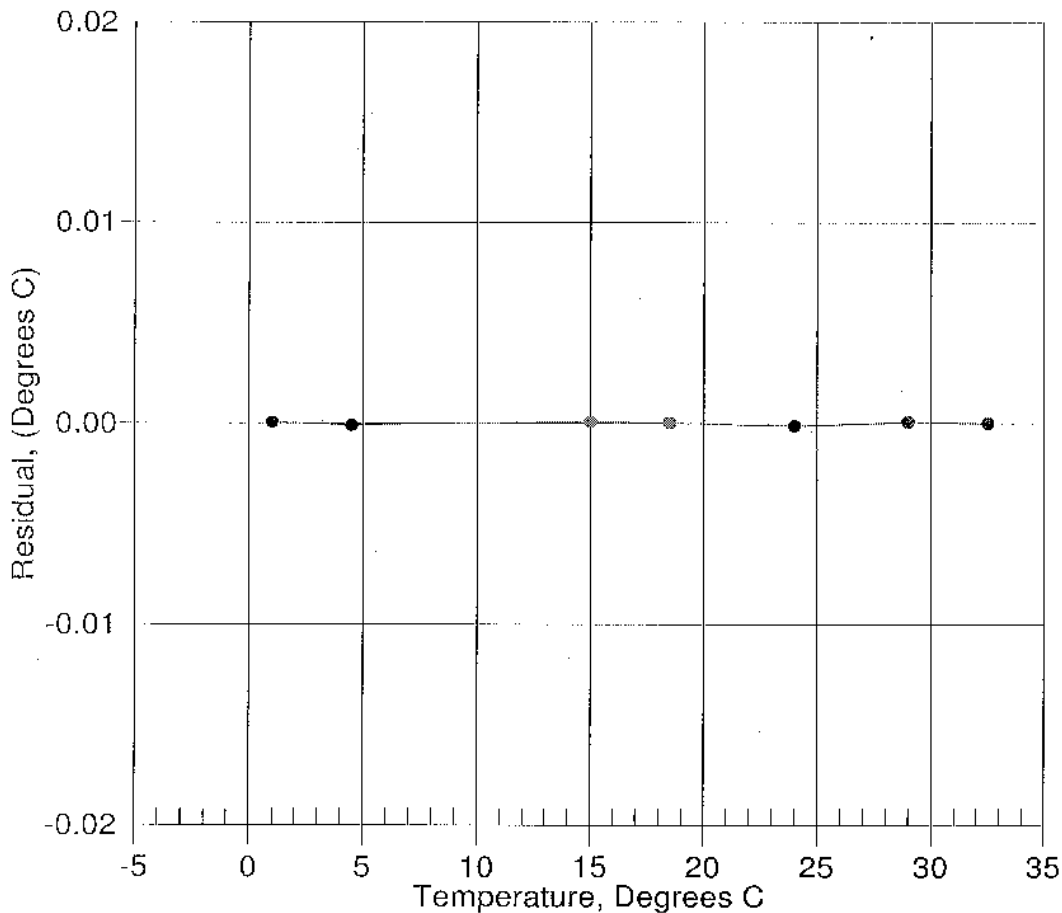
BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	582900.6	1.0000	0.0000
4.5000	497733.0	4.4999	-0.0001
15.0000	316074.6	15.0001	0.0001
18.5000	273395.4	18.5000	0.0000
24.0001	218985.8	24.0000	-0.0001
29.0000	180086.4	29.0001	0.0001
32.5000	157577.2	32.5000	-0.0000

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

$$\text{Residual} = \text{instrument temperature} - \text{bath temperature}$$

Date, Delta T (mdeg C)

11-Apr-13 0.00



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

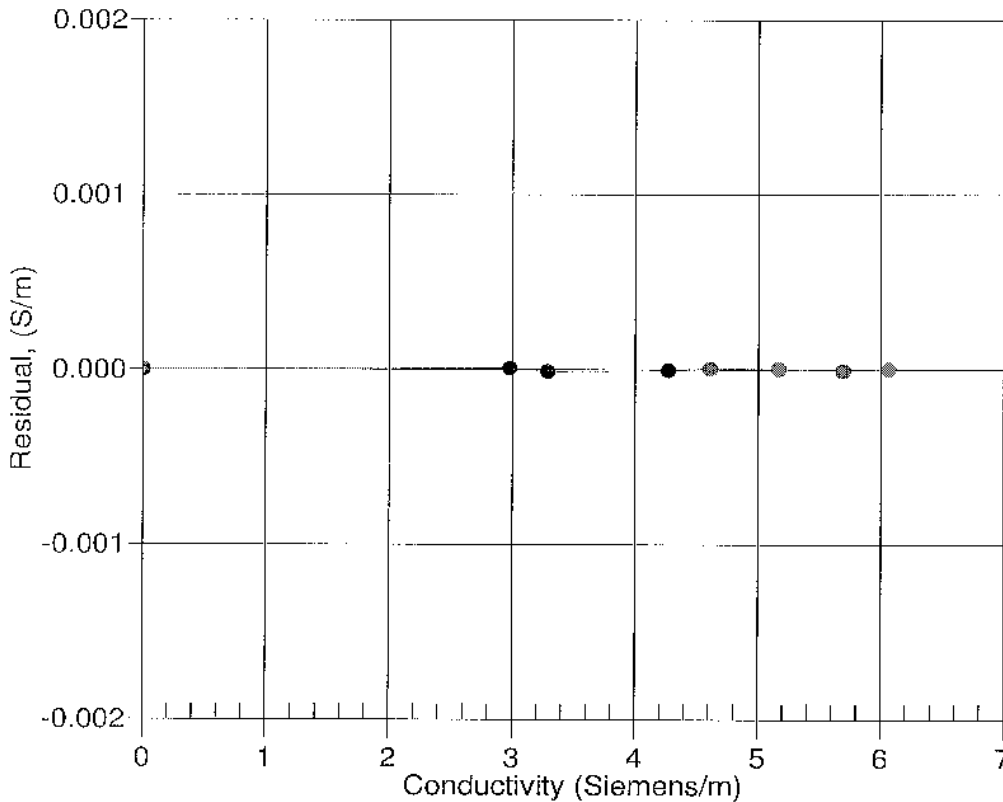
COEFFICIENTS:

g = -9.837634e-001	CPcor = -9.5700e-008
h = 1.342562e-001	CTcor = 3.2500e-006
i = -3.968340e-004	WBOTC = 3.6226e-006
j = 4.555102e-005	

BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2714.34	0.00000	0.00000
1.0000	34.8378	2.97763	5448.42	2.97764	0.00001
4.5000	34.8180	3.28487	5655.26	3.28486	-0.00001
15.0000	34.7753	4.26712	6270.13	4.26711	-0.00000
18.5000	34.7660	4.61242	6472.11	4.61242	0.00001
24.0001	34.7557	5.17062	6785.56	5.17062	0.00000
29.0000	34.7494	5.69259	7065.71	5.69259	-0.00001
32.5000	34.7451	6.06498	7258.74	6.06498	0.00000

f = INST FREQ * sqrt(1.0 + WBOTC * t) / 1000.0
 Conductivity = (g + hf² + if³ + jf⁴) / (1 + δt + εp) Siemens/meter
 t = temperature[°C]; p = pressure[decibars]; δ = CTcor; ε = CPcor;
 Residual = instrument conductivity - bath conductivity

Date, Slope Correction



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SENSOR SERIAL NUMBER: 9061
CALIBRATION DATE: 08-Apr-13

SLOCUM PAYLOAD CTD
PRESSURE CALIBRATION DATA
1450 psia S/N 3819470

COEFFICIENTS:

PA0 = 5.817845e-001
PA1 = 4.768495e-003
PA2 = 1.740571e-011
PTEMPA0 = -7.292171e+001
PTEMPA1 = 4.995410e-002
PTEMPA2 = 3.555750e-007

PTCA0 = 5.259696e+005
PTCA1 = 5.926627e+000
PTCA2 = -2.030660e-002
PTCB0 = 2.555325e+001
PTCB1 = -1.550000e-003
PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FSR
14.66	529042.0	1922.0	14.68	0.00
314.93	591928.0	1923.0	314.87	-0.00
614.93	654806.0	1924.0	614.89	-0.00
914.94	717717.0	1923.0	914.93	-0.00
1214.94	780648.0	1925.0	1214.93	-0.00
1464.99	833118.0	1926.0	1464.95	-0.00
1214.91	780657.0	1925.0	1214.97	0.00
914.88	717721.0	1925.0	914.95	0.00
614.93	654815.0	1924.0	614.94	0.00
314.95	591942.0	1924.0	314.94	-0.00
14.66	529042.0	1925.0	14.68	0.00

THERMAL CORRECTION

TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
32.50	2143	529147.80
29.00	2071	529135.20
24.00	1968	529110.40
18.50	1855	529081.00
15.00	1783	529060.40
4.50	1567	529006.20
1.00	1496	528983.80

TEMP (ITS90)	SPAN (mV)
-5.00	25.56
35.00	25.50

$$y = \text{thermistor output}; t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2$$

$$x = \text{pressure output} - PTCA0 - PTCA1 * t - PTCA2 * t^2$$

$$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$$

$$\text{pressure (psia)} = PA0 + PA1 * n + PA2 * n^2$$

Date, Avg Delta P %FS

● 08-Apr-13 0.00

