

Sea-Bird Electronics, Inc.

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

Phone: (+1) 425-643-9866 Fax: (+1) 425-643-9854 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 9089
CALIBRATION DATE: 11-Jun-13

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

COEFFICIENTS:

g = -9.841734e-001
h = 1.380150e-001
i = -2.585328e-004
j = 3.776275e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 6.2311e-008

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	2674.46	0.00000	0.00000
1.0000	34.8131	2.97572	5362.31	2.97571	-0.00000
4.5000	34.7934	3.28278	5565.73	3.28278	0.00000
15.0000	34.7510	4.26445	6170.44	4.26445	0.00000
18.5000	34.7421	4.60959	6369.13	4.60959	0.00000
24.0000	34.7323	5.16751	6677.50	5.16749	-0.00002
29.0000	34.7261	5.68921	6953.18	5.68923	0.00002
32.5000	34.7232	6.06159	7143.22	6.06158	-0.00001

$$f = \text{INST FREQ} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$$

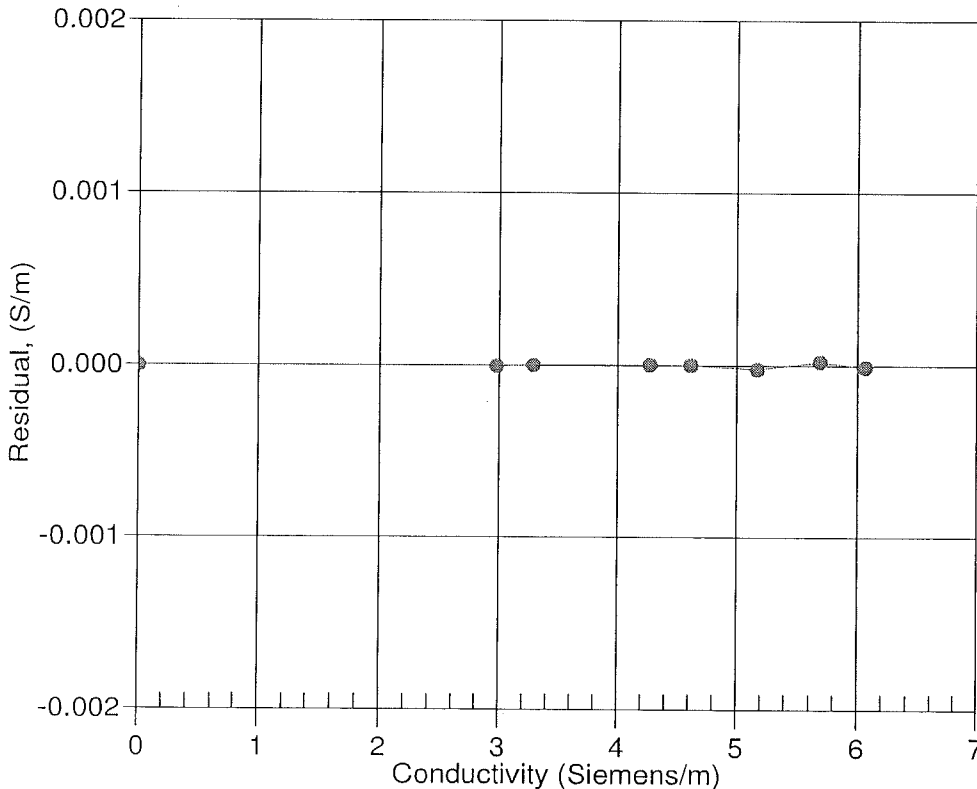
$$\text{Conductivity} = (g + hf^2 + if^3 + jf^4) / (1 + \delta t + \epsilon p) \text{ Siemens/meter}$$

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

Residual = instrument conductivity - bath conductivity

Date, Slope Correction

● 11-Jun-13 1.0000000



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: 9089
CALIBRATION DATE: 05-Jun-13

SLOCUM PAYLOAD CTD
PRESSURE CALIBRATION DATA
1450 psia S/N 3819476

COEFFICIENTS:

PA0 = -1.864496e-001	PTCA0 = 5.243810e+005
PA1 = 4.628919e-003	PTCA1 = -2.749577e+000
PA2 = -2.067570e-011	PTCA2 = 4.204343e-002
PTEMPA0 = -7.252224e+001	PTCB0 = 2.539825e+001
PTEMPA1 = 5.116372e-002	PTCB1 = 5.000000e-005
PTEMPA2 = -4.586820e-007	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FSR
14.64	527545.0	1879.0	14.64	0.00
314.92	592421.0	1883.0	314.84	-0.01
614.91	657290.0	1882.0	614.83	-0.01
914.92	722192.0	1884.0	914.80	-0.01
1214.92	787162.0	1884.0	1214.91	-0.00
1464.94	841310.0	1885.0	1464.90	-0.00
1214.96	787189.0	1883.0	1215.04	0.01
914.91	722244.0	1884.0	915.04	0.01
614.97	657330.0	1885.0	615.02	0.00
314.95	592453.0	1884.0	314.99	0.00
14.64	527548.0	1884.0	14.66	0.00

THERMAL CORRECTION

TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
32.50	2092	527574.50
29.00	2021	527576.80
24.00	1919	527577.50
18.50	1808	527584.30
15.00	1738	527587.40
4.50	1526	527609.11
1.00	1456	527617.00

TEMP (ITS90)	SPAN (mV)
-5.00	25.40
35.00	25.40

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

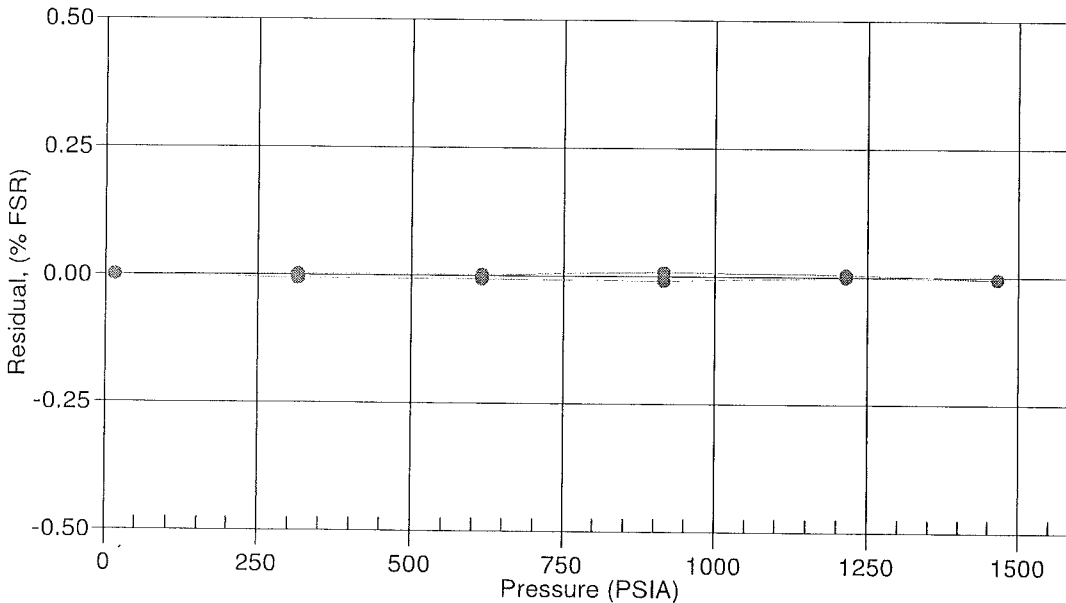
$$x = \text{pressure output} - PTCA0 - PTCA1 * t - PTCA2 * t^2$$

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

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

Date, Avg Delta P %FS

● 05-Jun-13 -0.00



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: 9089
CALIBRATION DATE: 11-Jun-13

SLOCUM PAYLOAD CTD
TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS

a0 = -1.404186e-004
a1 = 3.154505e-004
a2 = -5.119877e-006
a3 = 2.164279e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	575348.8	1.0000	0.0000
4.5000	491868.7	4.5000	-0.0000
15.0000	313454.9	15.0000	0.0000
18.5000	271442.7	18.5000	0.0000
24.0000	217813.7	24.0000	-0.0000
29.0000	179413.1	29.0000	-0.0000
32.5000	157163.9	32.5000	0.0000

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

Residual = instrument temperature - bath temperature

Date, Delta T (mdeg C)

11-Jun-13 0.00

