

# 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: 9286  
CALIBRATION DATE: 26-Feb-15

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

**COEFFICIENTS:**

g = -9.864255e-001  
h = 1.535565e-001  
i = -1.153342e-004  
j = 3.110168e-005

CPcor = -9.5700e-008  
CTcor = 3.2500e-006  
WBOTC = 9.8598e-008

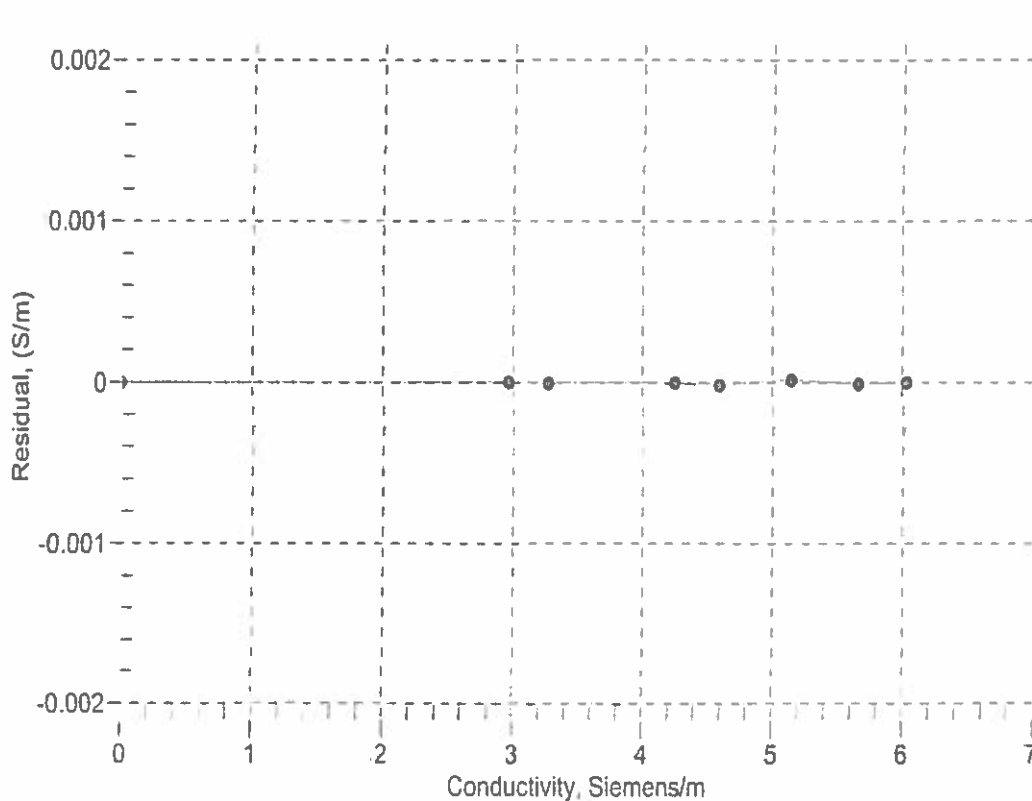
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2535.29	0.00000	0.00000
1.0000	34.6602	2.96389	5068.50	2.96389	0.00000
4.5000	34.6404	3.26976	5260.41	3.26976	-0.00000
15.0000	34.5971	4.24756	5831.05	4.24756	0.00000
18.5000	34.5868	4.59120	6018.52	4.59118	-0.00001
23.9940	34.5717	5.14563	6309.03	5.14565	0.00002
29.0000	34.5650	5.66577	6569.61	5.66576	-0.00001
32.5000	34.5600	6.03633	6748.98	6.03633	0.00000

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

$$\text{Conductivity} = (g + h * t^2 + i * f^2 + j * t^3) / (1 + \delta * t + \epsilon * p) \text{ Siemens / meter}$$

$$t = \text{temperature}[^{\circ}\text{C}]; p = \text{pressure}[\text{decibars}]; \delta = \text{CTcor}; \epsilon = \text{CPcor};$$

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



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CALIBRATION DATE: 26-Feb-15

Slocum Payload CTD TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

### COEFFICIENTS:

a0 = -2.214432e-005  
a1 = 2.899803e-004  
a2 = -3.231910e-006  
a3 = 1.683314e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	574645.0	1.0000	0.0000
4.5000	491063.3	4.4999	-0.0001
15.0000	312555.8	15.0002	0.0002
18.5000	270557.0	18.4998	-0.0002
23.9940	217010.3	23.9940	-0.0000
29.0000	178598.8	29.0001	0.0001
32.5000	156382.0	32.5000	-0.0000

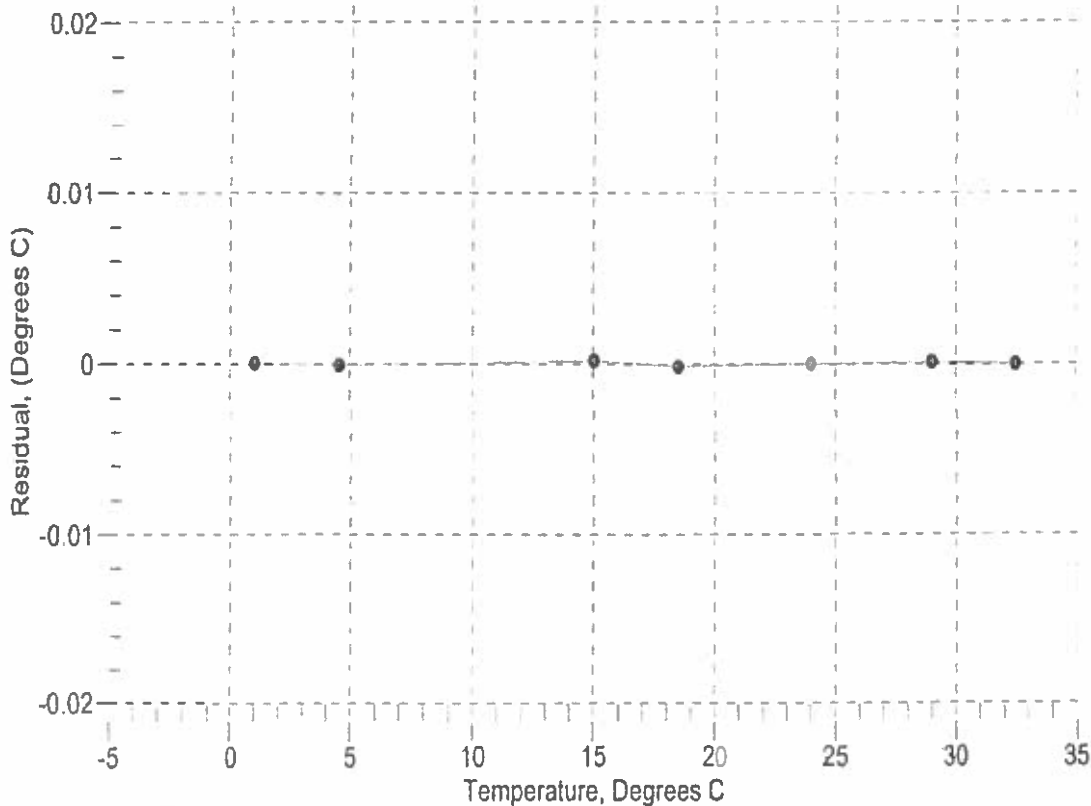
Temperature ITS-90 =  $1 / \{a_0 + a_1[\ln(n)] + a_2[\ln^2(n)] + a_3[\ln^3(n)]\} - 273.15$  (°C)

Residual = instrument temperature - bath temperature

n = instrument output

Date, Slope Correction

● 26-Feb-15 0.00



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SENSOR SERIAL NUMBER: 9286  
CALIBRATION DATE: 24-Feb-15

Slocum Payload CTD PRESSURE CALIBRATION DATA  
FSR: 1450 psia S/N 4333817

**COEFFICIENTS:**

PA0 =	3.900092e-001	PTCA0 =	5.244905e+005
PA1 =	4.633171e-003	PTCA1 =	-4.148914e+000
PA2 =	-2.622900e-011	PTCA2 =	3.676779e-001
PTEMPA0 =	1.739729e+002	PTCB0 =	2.491913e+001
PTEMPA1 =	-7.143068e-002	PTCB1 =	4.250000e-004
PTEMPA2 =	6.954073e-007	PTCB2 =	0.000000e+000

**PRESSURE SPAN CALIBRATION**

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.78	527692.0	2176.0	14.83	0.00
315.03	592529.0	2173.0	314.98	-0.00
615.01	657373.0	2173.0	614.96	-0.00
914.99	722281.0	2172.0	915.01	0.00
1214.92	787228.0	2170.0	1215.01	0.01
1464.89	841331.0	2168.0	1464.75	-0.01
1214.88	787228.0	2170.0	1215.01	0.01
915.04	722284.0	2171.0	915.02	-0.00
615.04	657387.0	2174.0	615.03	-0.00
315.08	592539.0	2174.0	315.03	-0.00
14.78	527691.0	2175.0	14.82	0.00

**THERMAL CORRECTION**

TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
32.50	2020	527911.50
29.00	2072	527846.00
23.99	2144	527773.75
18.50	2225	527709.75
15.00	2276	527680.50
4.50	2430	527636.00
1.00	2482	527663.25

TEMP (ITS90)	SPAN (mV)
-5.00	24.92
35.00	24.93

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

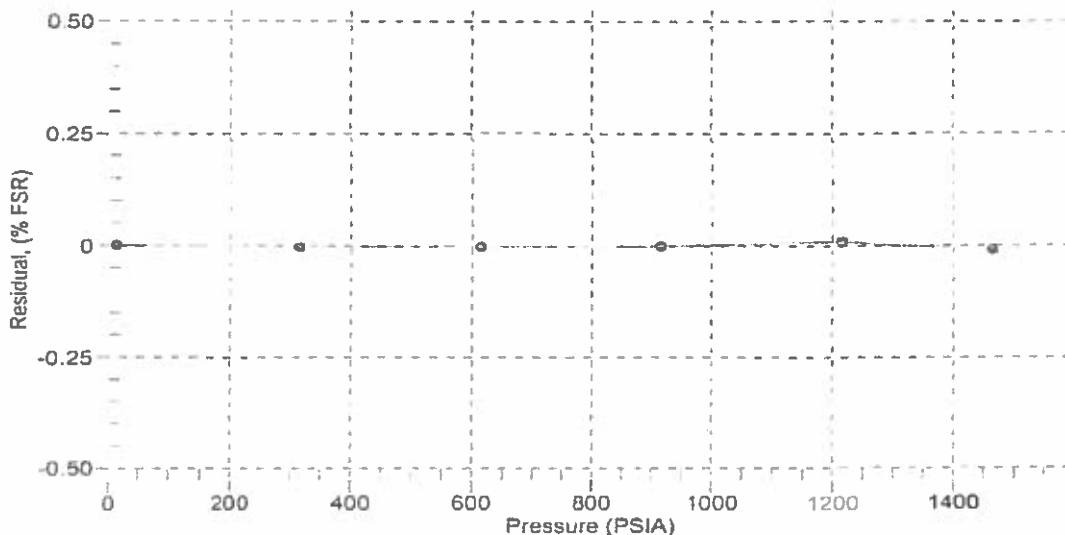
$$x = \text{pressure output} - PTCA0 - PTCA1 * t - PTCA2 * t^2$$

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

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

Date, Avg Delta P %FS

● 24-Feb-15 0.00





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www.seabird.com

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## Pressure Test Certificate

Test Date: 02/20/15

Description: Slocum CTD

### Sensor Information:

Model Number: Slocum

Serial Number: 9286

### Pressure Test Protocol:

Low Pressure Test: 40      PSI      Held For: 15      Minutes

High Pressure Test: 40      PSI      Held For: 15      Minutes

Passed Test: Yes

Tested By: ap

High pressure is generally equal to the maximum depth rating of the instrument

