

# 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: 9341  
 CALIBRATION DATE: 14-Feb-16

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

**COEFFICIENTS:**

g = -9.861798e-001  
 h = 1.362417e-001  
 i = -1.542623e-004  
 j = 2.919495e-005

CPcor = -9.5700e-008  
 CTcor = 3.2500e-006  
 WBOTC = 2.7853e-007

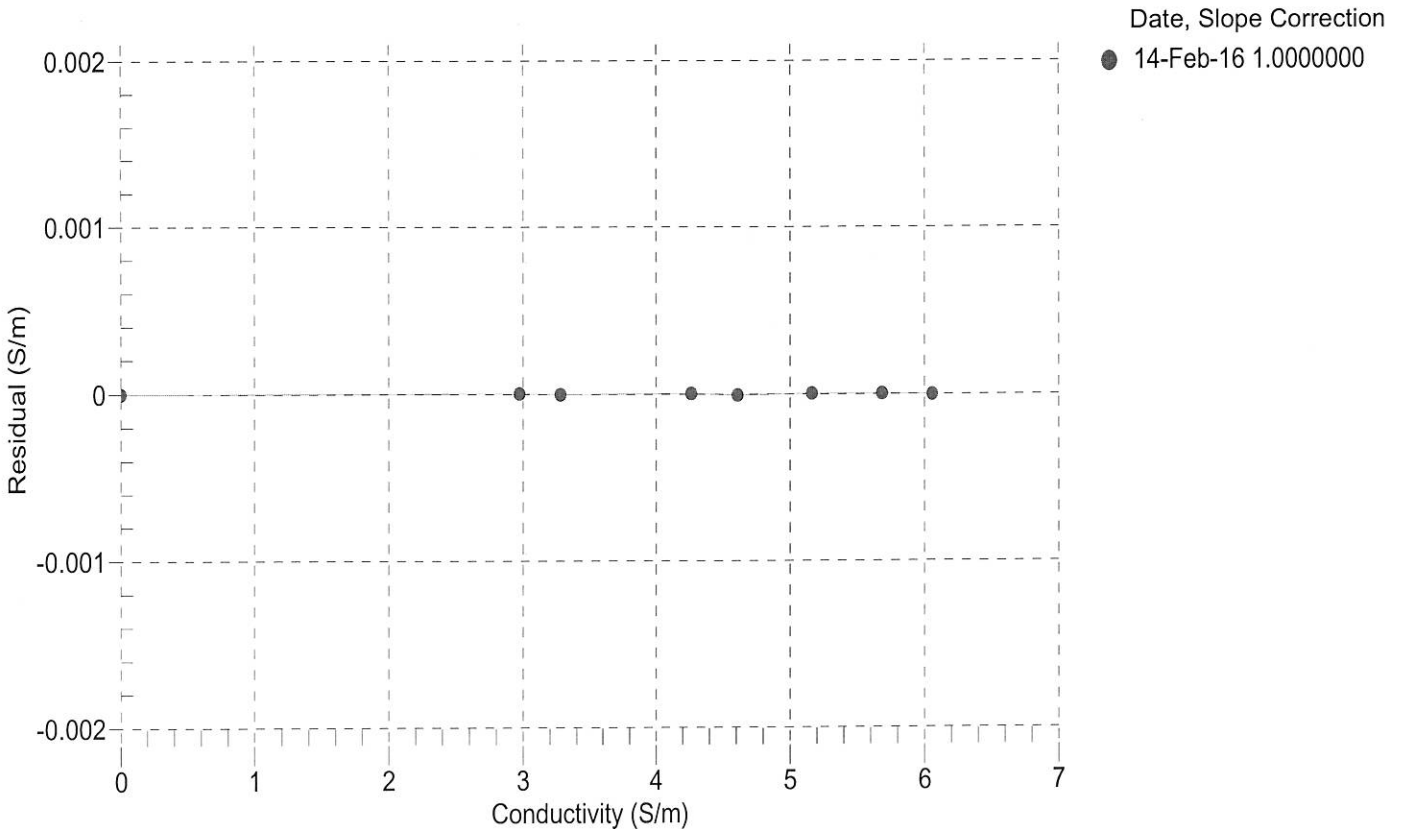
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2692.44	0.00000	0.00000
0.9998	34.7933	2.97417	5391.20	2.97417	0.00000
4.5000	34.7733	3.28107	5595.51	3.28106	-0.00000
15.0000	34.7303	4.26218	6202.97	4.26218	0.00000
18.4999	34.7213	4.60711	6402.58	4.60711	-0.00001
23.9999	34.7114	5.16473	6712.46	5.16474	0.00000
29.0000	34.7064	5.68634	6989.59	5.68635	0.00000
32.5000	34.7043	6.05867	7180.68	6.05866	-0.00000

$f = \text{Instrument Output(Hz)} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$

t = temperature (°C); p = pressure (decibars);  $\delta = \text{CTcor}$ ;  $\epsilon = \text{CPcor}$ ;

$\text{Conductivity (S/m)} = (g + h * f^2 + i * f^3 + j * f^4) / 10 (1 + \delta * t + \epsilon * p)$

Residual (Siemens/meter) = instrument conductivity - bath conductivity



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CALIBRATION DATE: 10-Feb-16

Slocum Payload CTD PRESSURE CALIBRATION DATA  
1450 psia S/N 4451245

**COEFFICIENTS:**

PA0 =	2.147145e-001	PTCA0 =	5.250638e+005
PA1 =	4.621422e-003	PTCA1 =	3.755452e+000
PA2 =	-3.177011e-011	PTCA2 =	-7.662651e-002
PTEMPA0 =	1.548063e+002	PTCB0 =	2.498898e+001
PTEMPA1 =	-6.198094e-002	PTCB1 =	-1.995012e-004
PTEMPA2 =	-8.301772e-007	PTCB2 =	0.000000e+000

**PRESSURE SPAN CALIBRATION**

**THERMAL CORRECTION**

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)	TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
14.66	528238.0	2087.0	14.68	0.00	32.50	1924	528275.20
314.85	593218.0	2083.0	314.88	0.00	29.00	1977	528283.00
614.96	658216.0	2079.0	614.90	-0.00	24.00	2054	528268.60
914.98	723279.0	2079.0	914.95	-0.00	18.50	2138	528280.80
1214.97	788385.0	2078.0	1214.94	-0.00	15.00	2191	528279.00
1464.92	842681.0	2075.0	1464.91	-0.00	4.50	2351	528243.20
1214.91	788390.0	2076.0	1214.96	0.00	1.00	2404	528240.60
914.96	723294.0	2079.0	915.02	0.00			
614.96	658226.0	2079.0	614.95	-0.00			
314.92	593225.0	2083.0	314.91	-0.00			
14.66	528230.0	2079.0	14.64	-0.00			

TEMPERATURE (°C)	SPAN (mV)
-5.10	24.99
35.00	24.98

y = thermistor output (counts)

$$t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2$$

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

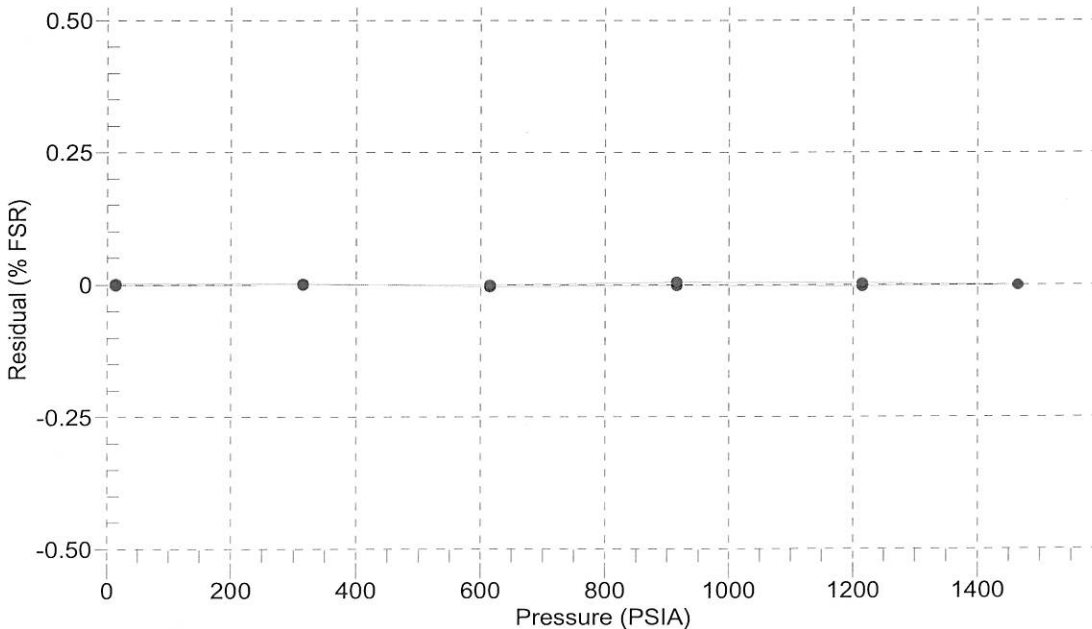
$$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$$

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

$$\text{Residual (\%FSR)} = (\text{computed pressure} - \text{true pressure}) * 100 / \text{Full Scale Range}$$

Date, Offset (%FSR)

● 10-Feb-16 0.00



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## COEFFICIENTS:

a0 = -8.042317e-005  
a1 = 3.054609e-004  
a2 = -4.528623e-006  
a3 = 2.008193e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
0.9998	585123.0	0.9998	0.0000
4.5000	499567.4	4.4999	-0.0001
15.0000	317151.4	15.0000	0.0000
18.4999	274307.0	18.4999	0.0000
23.9999	219692.2	24.0000	0.0001
29.0000	180656.0	28.9997	-0.0003
32.5000	158065.4	32.5001	0.0001

n = Instrument Output (counts)

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

Residual (°C) = instrument temperature - bath temperature

