

# 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: 9283  
CALIBRATION DATE: 01-Feb-15

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

**COEFFICIENTS:**

g = -9.867650e-001  
h = 1.571704e-001  
i = -2.502163e-004  
j = 4.287643e-005

CPcor = -9.5700e-008  
CTcor = 3.2500e-006  
WBOTC = 1.9930e-007

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	2508.51	0.00000	0.00000
1.0000	34.7243	2.96885	5019.56	2.96886	0.00001
4.5000	34.7043	3.27520	5209.72	3.27519	-0.00001
15.0000	34.6608	4.25455	5775.15	4.25455	-0.00000
18.5000	34.6517	4.59888	5960.97	4.59889	0.00000
23.9940	34.6419	5.15493	6249.12	5.15493	0.00001
29.0000	34.6370	5.67625	6507.39	5.67624	-0.00001
32.5000	34.6339	6.04777	6685.20	6.04777	0.00000

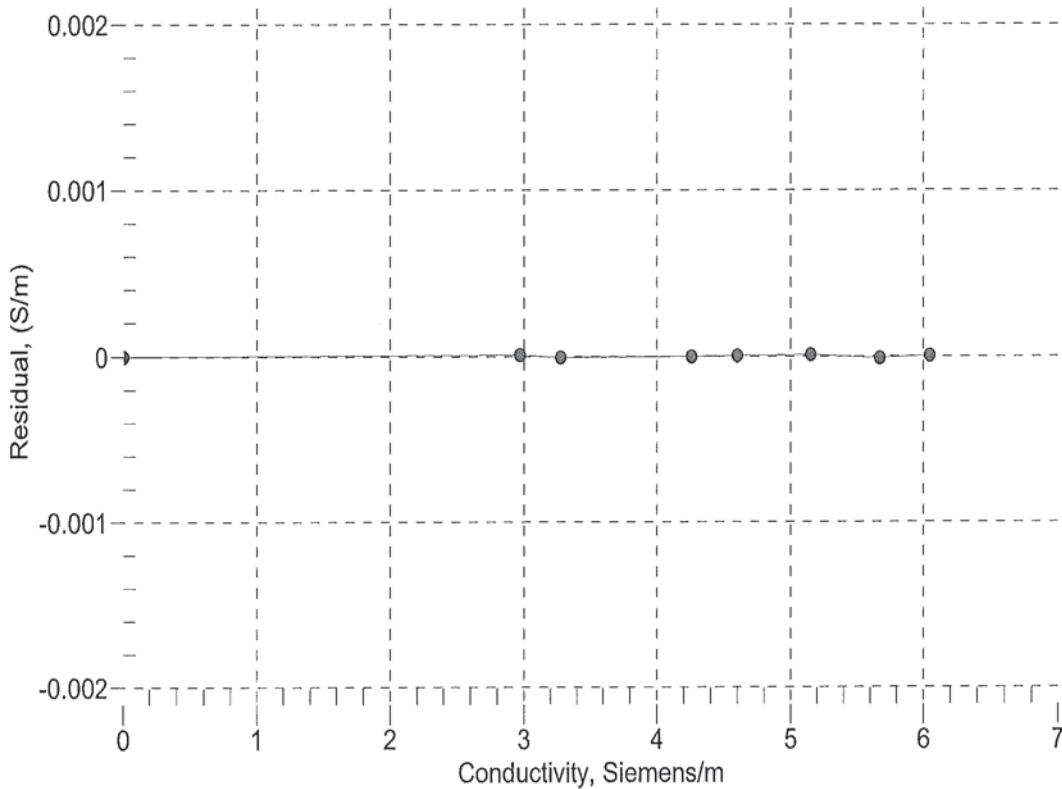
$$f = \text{INST FREQ} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$$

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

t = temperatur e[°C]; p = pressure[decibars];  $\delta$  = CTcor;  $\epsilon$  = CPcor;

Residual = instrument conductivity - bath conductivity

Date, Slope Correction  
● 01-Feb-15 1.0000000



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CALIBRATION DATE: 01-Feb-15

Slocum Payload CTD TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## COEFFICIENTS:

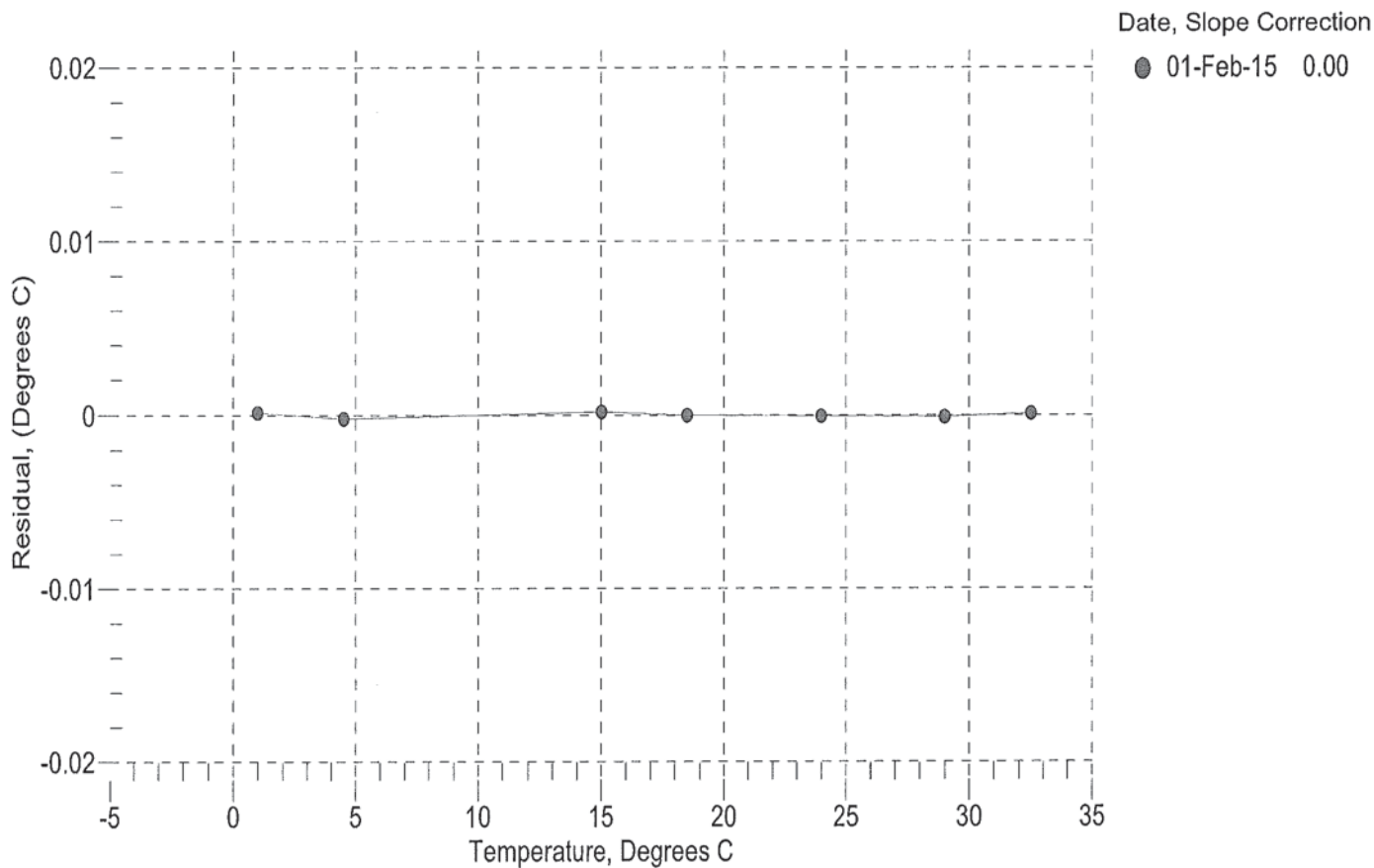
a0 = -4.459330e-005  
a1 = 2.903617e-004  
a2 = -3.030964e-006  
a3 = 1.635898e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	561430.8	1.0001	0.0001
4.5000	480555.0	4.4998	-0.0002
15.0000	307314.4	15.0002	0.0002
18.5000	266424.6	18.5000	-0.0000
23.9940	214199.4	23.9939	-0.0001
29.0000	176654.2	28.9999	-0.0001
32.5000	154898.4	32.5001	0.0001

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



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SENSOR SERIAL NUMBER: 9283  
CALIBRATION DATE: 30-Jan-15

Slocum Payload CTD PRESSURE CALIBRATION DATA  
FSR: 1450 psia S/N 4314747

**COEFFICIENTS:**

PA0 =	6.029651e-002	PTCA0 =	5.239966e+005
PA1 =	4.627087e-003	PTCA1 =	2.240818e+000
PA2 =	-3.067053e-011	PTCA2 =	-7.790105e-002
PTEMPA0 =	1.359678e+002	PTCB0 =	2.517600e+001
PTEMPA1 =	-6.768577e-002	PTCB1 =	2.000000e-004
PTEMPA2 =	1.188249e-007	PTCB2 =	0.000000e+000

**PRESSURE SPAN CALIBRATION**

**THERMAL CORRECTION**

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS	TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
14.74	527192.0	1726.0	14.78	0.00	32.50	1533	527195.40
315.06	592125.0	1724.0	315.04	-0.00	29.00	1585	527200.40
615.06	657054.0	1721.0	615.03	-0.00	23.99	1659	527214.40
915.04	722049.0	1720.0	915.06	0.00	18.50	1741	527216.20
1215.04	787094.0	1718.0	1215.06	0.00	15.00	1793	527221.40
1465.00	841323.0	1716.0	1464.97	-0.00	4.50	1948	527211.60
1215.04	787094.0	1716.0	1215.06	0.00	1.00	2002	527205.80
915.03	722052.0	1717.0	915.07	0.00			
615.04	657055.0	1717.0	615.03	-0.00	TEMP (ITS90)	SPAN (mV)	
315.03	592118.0	1719.0	315.01	-0.00	-5.00	25.18	
14.74	527182.0	1718.0	14.73	-0.00	35.00	25.18	

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

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

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

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

