

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: 9236
CALIBRATION DATE: 23-Sep-14

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

COEFFICIENTS:

g = -9.966644e-001
h = 1.523734e-001
i = -2.105189e-004
j = 3.791751e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 4.2433e-007

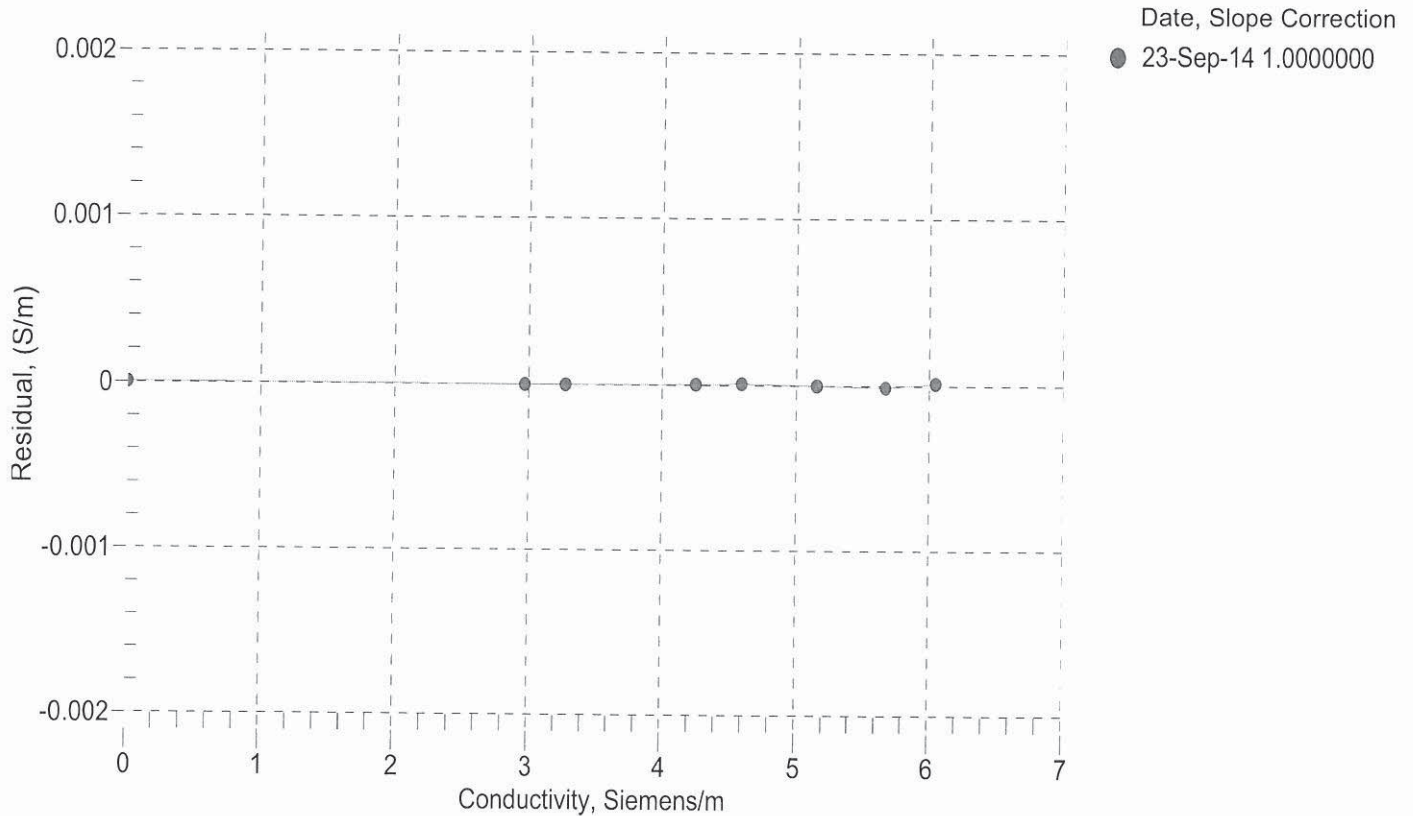
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2559.95	0.00000	0.00000
1.0000	34.7066	2.96748	5102.05	2.96748	-0.00000
4.5000	34.6868	3.27371	5294.85	3.27371	-0.00000
15.0000	34.6444	4.25275	5868.24	4.25276	0.00000
18.5000	34.6349	4.59689	6056.67	4.59690	0.00001
23.9999	34.6243	5.15320	6349.17	5.15320	-0.00000
29.0000	34.6183	5.67353	6610.75	5.67351	-0.00001
32.5000	34.6139	6.04467	6791.03	6.04469	0.00001

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

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

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

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 9236
CALIBRATION DATE: 17-Sep-14

Slocum Payload CTD PRESSURE CALIBRATION DATA
FSR: 1450 psia S/N 4233473

COEFFICIENTS:

PA0 =	1.243944e-001	PTCA0 =	5.243713e+005
PA1 =	4.584412e-003	PTCA1 =	3.665046e-001
PA2 =	-1.336672e-011	PTCA2 =	4.074352e-002
PTEMPA0 =	-6.683963e+001	PTCB0 =	2.537950e+001
PTEMPA1 =	5.246679e-002	PTCB1 =	7.000000e-004
PTEMPA2 =	-7.223437e-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
14.50	527549.0	1754.0	14.55	0.00	32.50	1946	527636.00
314.79	593083.0	1759.0	314.72	-0.00	29.00	1875	527628.00
614.74	658604.0	1759.0	614.73	-0.00	24.00	1775	527615.25
914.80	724169.0	1761.0	914.82	0.00	18.50	1665	527601.00
1214.74	789720.0	1760.0	1214.73	-0.00	15.00	1595	527595.00
1464.73	844369.0	1761.0	1464.68	-0.00	4.50	1386	527588.75
1214.73	789733.0	1760.0	1214.79	0.00	1.00	1317	527579.50
914.74	724161.0	1759.0	914.78	0.00			
614.80	658618.0	1759.0	614.79	-0.00			
314.82	593094.0	1760.0	314.77	-0.00			
14.50	527543.0	1761.0	14.51	0.00			

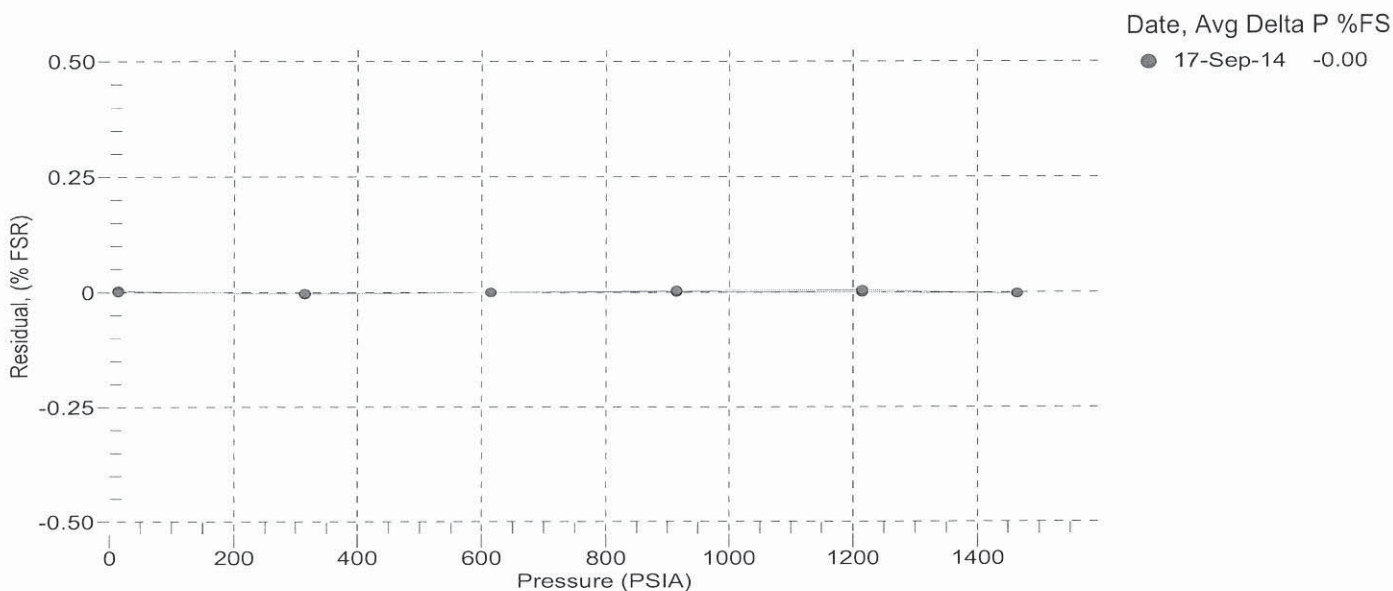
TEMP (ITS90)	SPAN (mV)
-5.00	25.38
35.00	25.40

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

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

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

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



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.494338e-004
a1 = 3.158376e-004
a2 = -5.095506e-006
a3 = 2.183443e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	565942.5	1.0000	0.0000
4.5000	484319.5	4.5000	-0.0000
15.0000	309533.5	15.0001	0.0001
18.5000	268292.8	18.4999	-0.0001
23.9999	215581.3	23.9999	-0.0000
29.0000	177785.3	29.0001	0.0001
32.5000	155864.8	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

