

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: 9362

CALIBRATION DATE: 06-Apr-16

Slocum Payload CTD CONDUCTIVITY CALIBRATION DATA

PSS 1978; C(35,15,0) = 4.2914 Siemens/meter

COEFFICIENTS:

g = -9.893800e-001

h = 1.473638e-001

i = -1.940798e-004

j = 3.518310e-005

CPcor = -9.5700e-008

CTcor = 3.2500e-006

WBOTC = 4.4980e-007

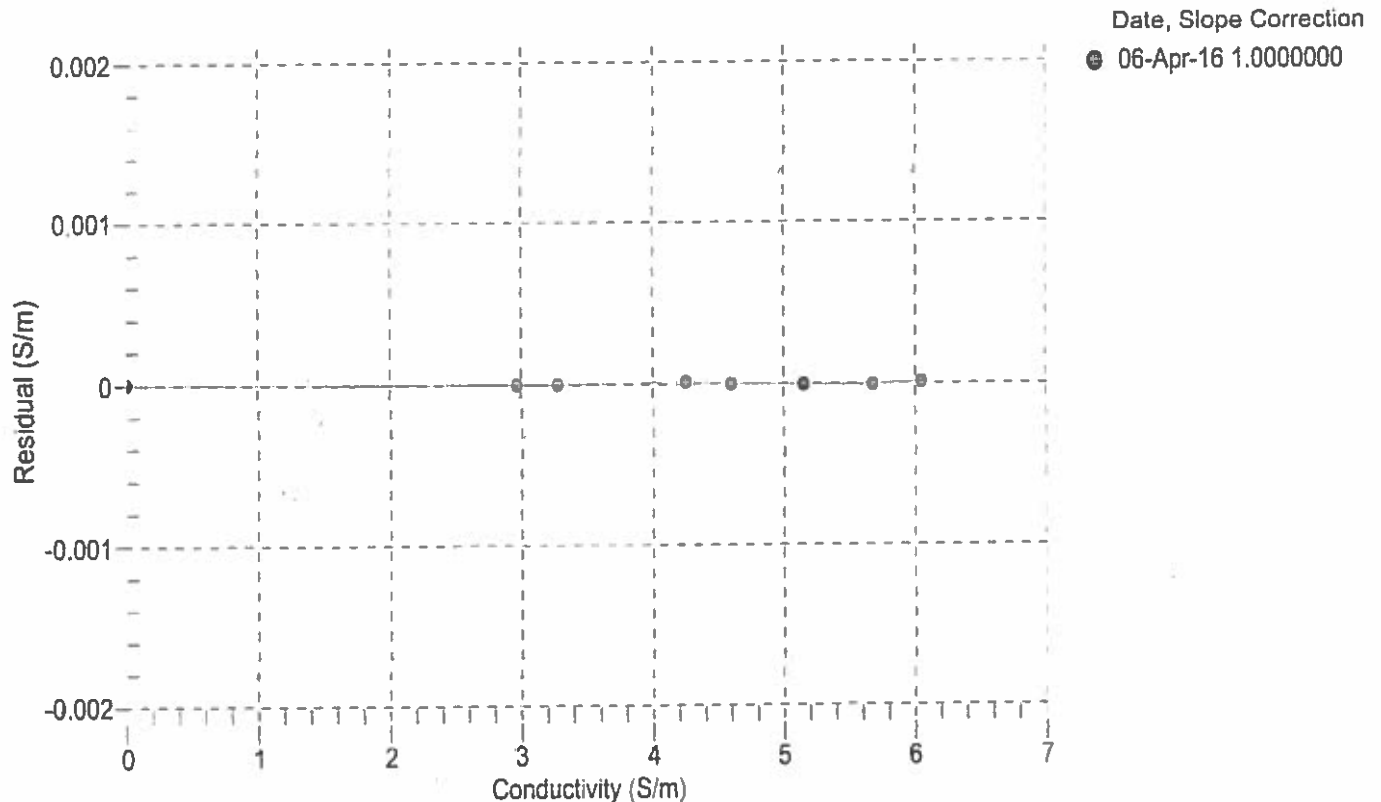
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2593.45	0.00000	0.00000
1.0000	34.7269	2.96905	5183.89	2.96905	-0.00000
4.5000	34.7073	3.27545	5380.16	3.27545	-0.00000
15.0000	34.6650	4.25501	5963.78	4.25503	0.00001
18.5000	34.6561	4.59941	6155.57	4.59940	-0.00000
24.0000	34.6462	5.15611	6453.29	5.15610	-0.00001
29.0000	34.6410	5.67683	6719.54	5.67682	-0.00001
32.5000	34.6384	6.04847	6903.12	6.04847	0.00001

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

t = temperature (°C); p = pressure (decibars); δ = CTcor; ε = 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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SENSOR SERIAL NUMBER: 9362
CALIBRATION DATE: 01-Apr-16

Slocum Payload CTD PRESSURE CALIBRATION DATA
1450 psia S/N 10087783

COEFFICIENTS:

PA0 =	3.836911e-002	PTCA0 =	5.257427e+005
PA1 =	4.518264e-003	PTCA1 =	3.444050e+000
PA2 =	-2.325405e-011	PTCA2 =	-1.339107e-001
PTEMPA0 =	1.320497e+002	PTCB0 =	2.510788e+001
PTEMPA1 =	-7.234153e-002	PTCB1 =	-2.500000e-005
PTEMPA2 =	1.348280e-007	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)	TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
14.70	529016.0	1512.0	14.79	0.01	32.50	1380	529056.40
314.94	595413.0	1510.0	314.69	-0.02	29.00	1428	529072.80
615.00	661945.0	1506.0	614.99	-0.00	24.00	1498	529085.20
914.94	728446.0	1506.0	914.94	0.00	18.50	1574	529103.00
1214.76	794941.0	1506.0	1214.66	-0.01	15.00	1623	529106.20
1465.01	850504.0	1501.0	1464.95	-0.00	4.50	1769	529103.80
1214.90	795022.0	1505.0	1215.02	0.01	1.00	1817	529082.80
914.88	728463.0	1506.0	915.02	0.01			
614.95	661944.0	1507.0	614.98	0.00	TEMPERATURE (°C)	SPAN (mV)	
313.95	595455.0	1511.0	314.87	0.06	-5.00	25.11	
14.70	529004.0	1509.0	14.74	0.00	35.00	25.11	

THERMAL CORRECTION

y = thermistor output (counts)

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

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

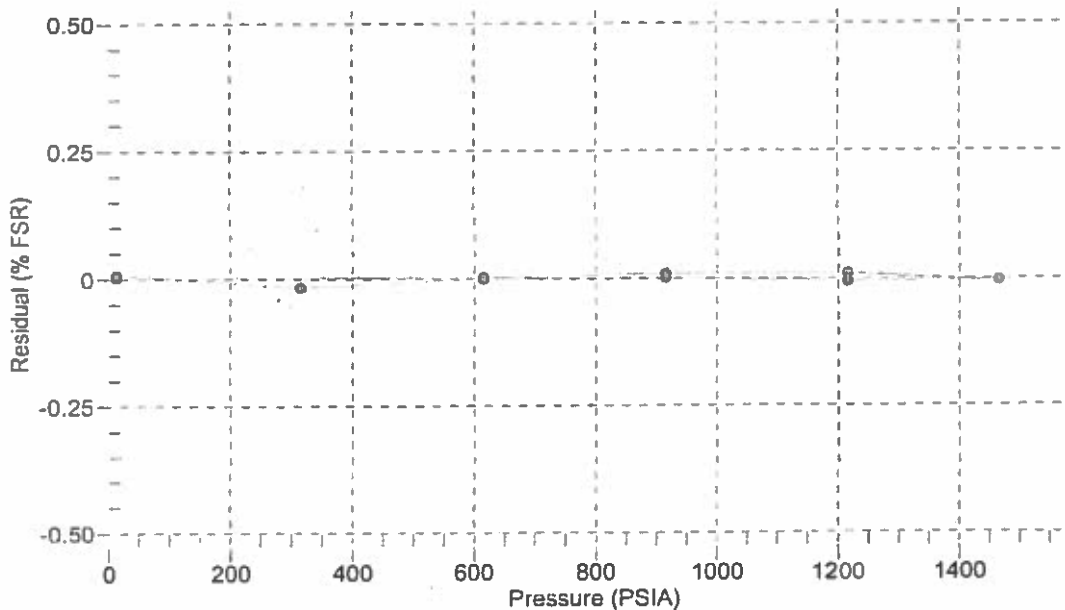
$$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$$

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

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

Date, Offset (%FSR)

● 01-Apr-16 -0.00



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA

ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.622094e-004

a1 = 3.136735e-004

a2 = -4.701050e-006

a3 = 2.076251e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	560547.8	1.0001	0.0001
4.5000	480355.8	4.4999	-0.0001
15.0000	308219.4	15.0001	0.0001
18.5000	267495.0	18.5001	0.0001
24.0000	215371.4	23.9997	-0.0003
29.0000	177925.6	29.0001	0.0001
32.5000	156176.8	32.5000	0.0000

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

Date, Offset (mdeg C)

● 06-Apr-16 0.00

