

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: 9345
CALIBRATION DATE: 12-Mar-16

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

COEFFICIENTS:

g = -9.902141e-001
h = 1.274662e-001
i = -1.039547e-004
j = 2.430288e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = -2.6895e-007

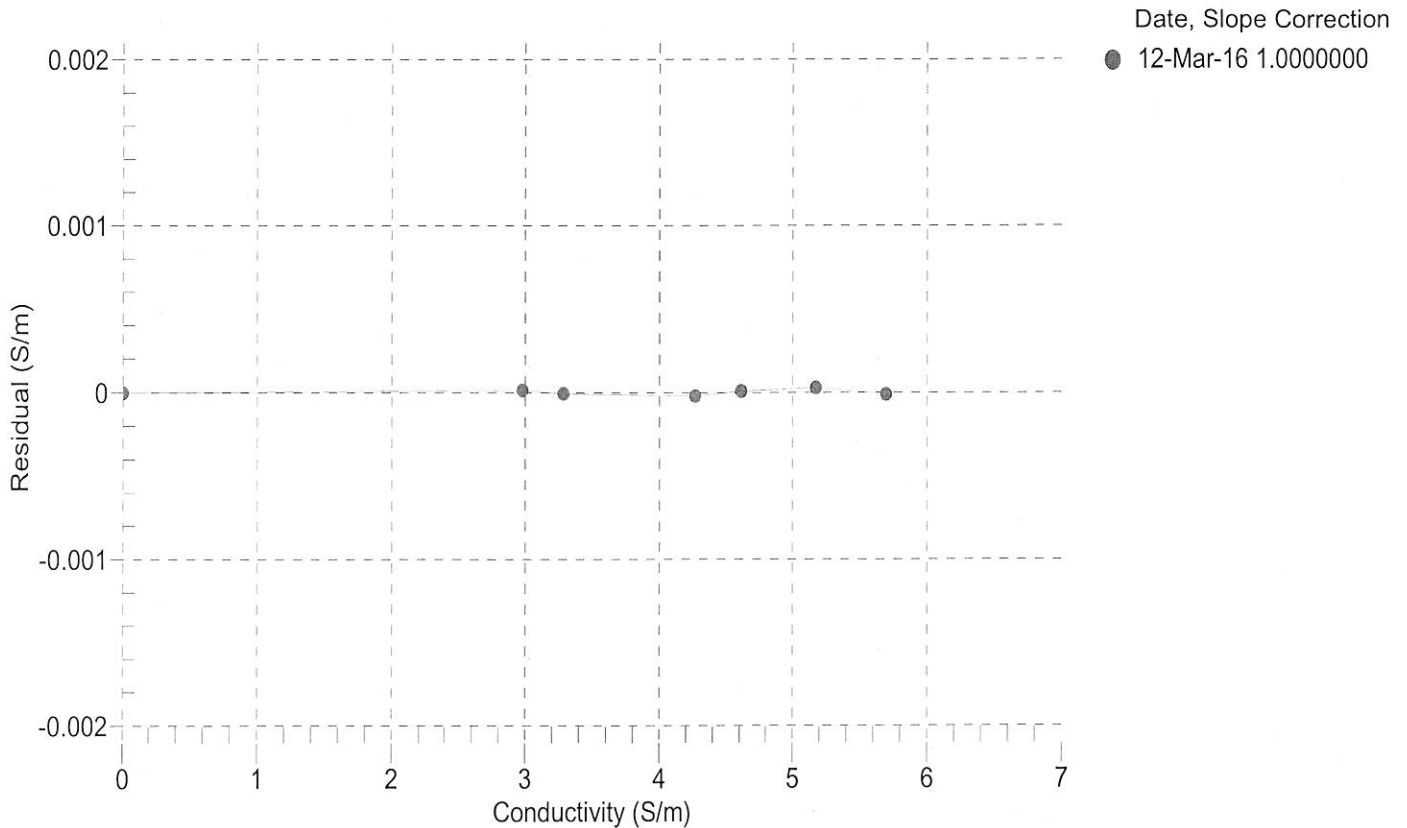
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2788.30	0.00000	0.00000
1.0000	34.8442	2.97812	5575.82	2.97813	0.00001
4.5000	34.8246	3.28543	5786.88	3.28542	-0.00001
15.0000	34.7825	4.26791	6414.45	4.26788	-0.00002
18.5000	34.7737	4.61333	6620.71	4.61333	0.00001
24.0000	34.7640	5.17171	6940.86	5.17173	0.00003
29.0000	34.7587	5.69395	7227.10	5.69393	-0.00001
32.5000	34.7557	6.06662	7423.15	6.06414	-0.00248

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

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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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

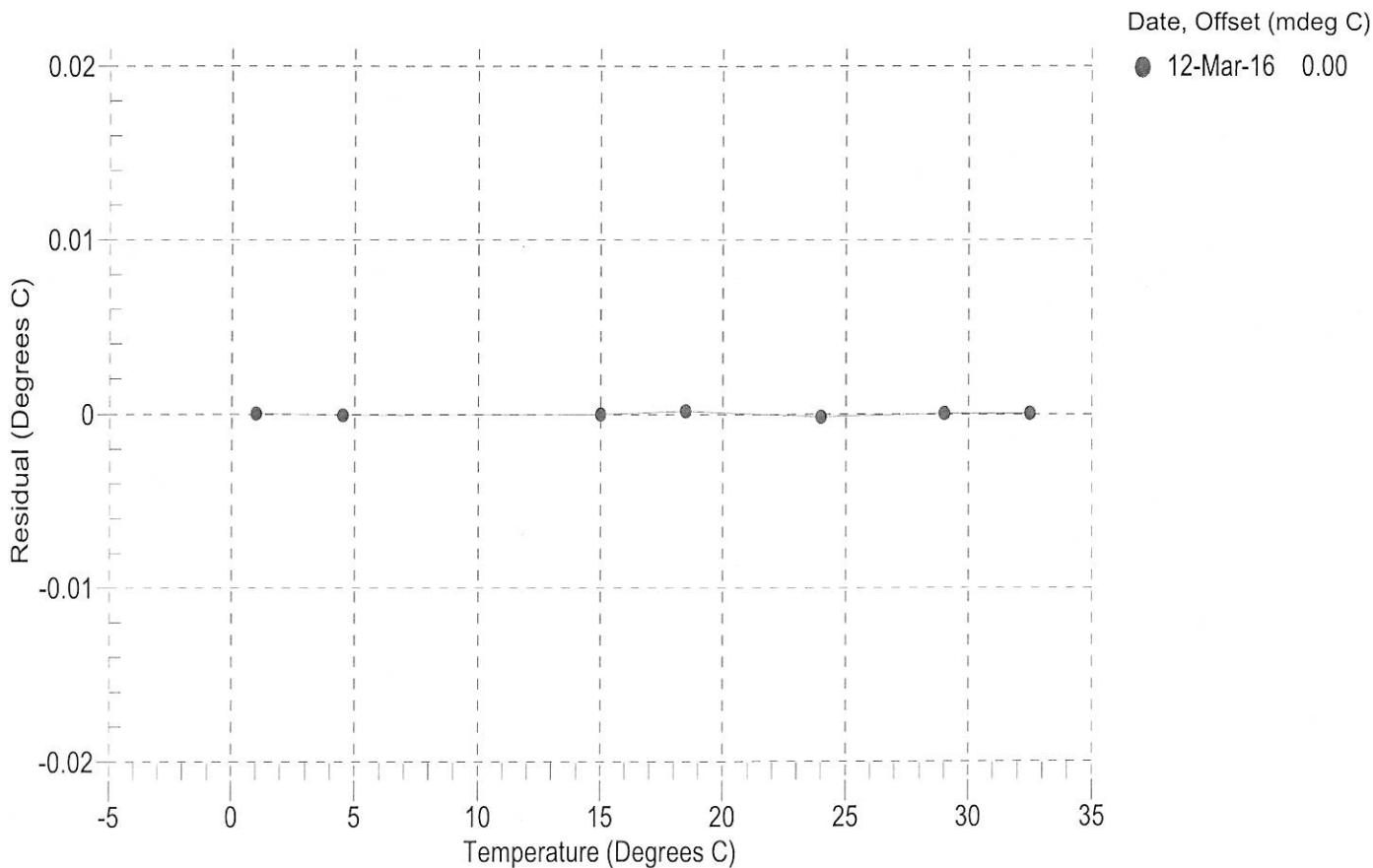
a0 = -1.185853e-004
a1 = 3.061815e-004
a2 = -4.222803e-006
a3 = 1.937359e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	568098.8	1.0000	0.0000
4.5000	486308.2	4.4999	-0.0001
15.0000	311093.6	15.0000	-0.0000
18.5000	269726.4	18.5002	0.0002
24.0000	216845.2	23.9998	-0.0002
29.0000	178909.4	29.0000	0.0000
32.5000	156899.0	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



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CALIBRATION DATE: 10-Mar-16

Slocum Payload CTD PRESSURE CALIBRATION DATA
1450 psia S/N 4417954

COEFFICIENTS:

PA0 =	2.602550e-001	PTCA0 =	5.243723e+005
PA1 =	4.586104e-003	PTCA1 =	7.247813e+000
PA2 =	-3.630097e-011	PTCA2 =	-2.106843e-001
PTEMPA0 =	1.399926e+002	PTCB0 =	2.526700e+001
PTEMPA1 =	-6.277180e-002	PTCB1 =	-4.000000e-004
PTEMPA2 =	1.628006e-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)
14.49	527550.0	1875.0	14.58	0.01	32.50	1720	527530.80
314.79	593014.0	1871.0	314.75	-0.00	29.00	1777	527541.40
614.91	658514.0	1870.0	614.77	-0.01	24.00	1857	527547.20
914.81	724079.0	1869.0	914.77	-0.00	18.50	1945	527555.40
1214.75	789704.0	1866.0	1214.75	-0.00	15.00	2002	527601.80
1464.71	844429.0	1866.0	1464.65	-0.00	4.50	2171	527533.20
1214.72	789714.0	1865.0	1214.79	0.01	1.00	2227	527515.40
914.73	724087.0	1868.0	914.81	0.01			
614.75	658521.0	1870.0	614.80	0.00			
314.73	593015.0	1872.0	314.75	0.00	TEMPERATURE (°C)	SPAN (mV)	
14.50	527516.0	1870.0	14.43	-0.00	-5.00	25.27	
					35.00	25.25	

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-Mar-16 -0.00

