

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: 9338
CALIBRATION DATE: 11-Mar-16

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

COEFFICIENTS:

g = -9.839633e-001
h = 1.301157e-001
i = -8.219610e-005
j = 2.337548e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 1.5148e-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	2750.47	0.00000	0.00000
1.0000	34.7105	2.96778	5505.59	2.96779	0.00001
4.5000	34.6907	3.27404	5714.14	3.27403	-0.00001
15.0000	34.6483	4.25318	6334.25	4.25317	-0.00000
18.5000	34.6394	4.59743	6538.04	4.59743	0.00001
24.0000	34.6296	5.15391	6854.36	5.15392	0.00000
29.0000	34.6245	5.67443	7137.24	5.67442	-0.00001
32.5000	34.6222	6.04596	7332.30	6.04596	0.00000

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

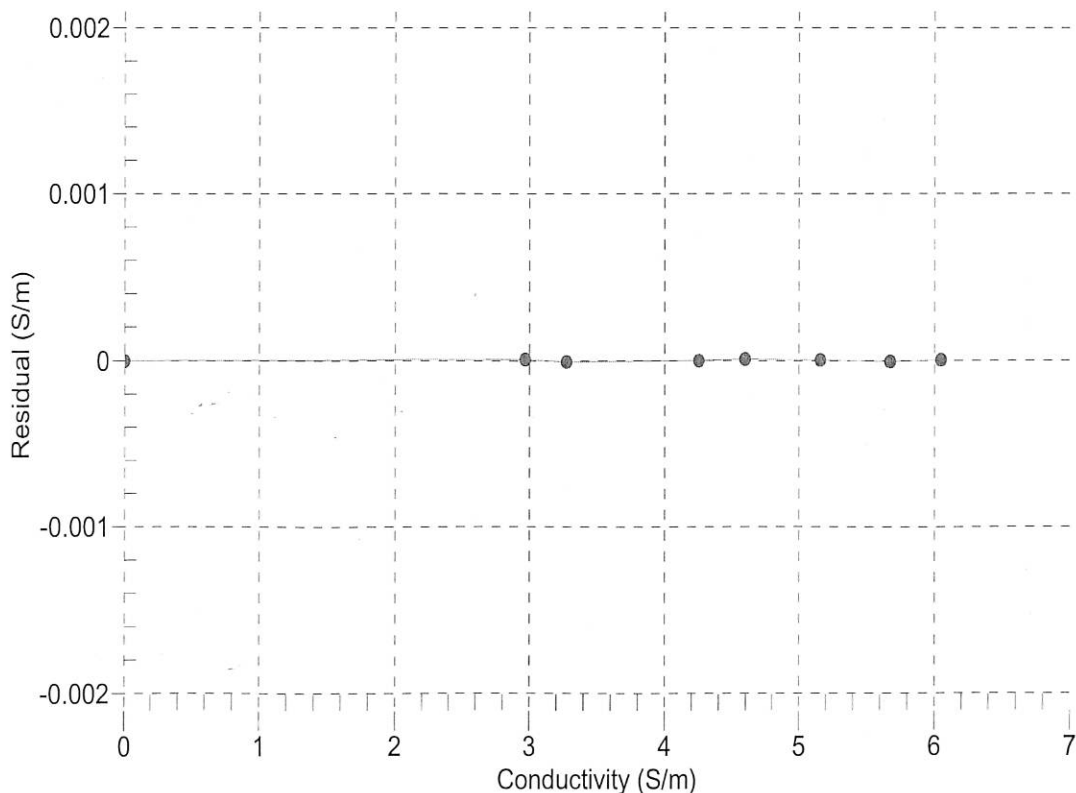
t = temperature (°C); p = pressure (decibars); $\delta = \text{CTcor}$; $\epsilon = \text{CPcor}$;

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

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

Date, Slope Correction

● 11-Mar-16 1.0000000



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Slocum Payload CTD PRESSURE CALIBRATION DATA
1450 psia S/N 4451236

COEFFICIENTS:

PA0 =	6.174894e-001	PTCA0 =	5.244906e+005
PA1 =	4.560307e-003	PTCA1 =	1.480364e+001
PA2 =	-2.399805e-011	PTCA2 =	-3.917013e-001
PTEMPA0 =	1.480417e+002	PTCB0 =	2.508438e+001
PTEMPA1 =	-6.360837e-002	PTCB1 =	-1.250000e-004
PTEMPA2 =	-6.387654e-008	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	527713.0	1973.0	14.70	0.00	32.50	1813	527678.50
314.85	593559.0	1970.0	314.90	0.00	29.00	1868	527720.50
614.96	659414.0	1970.0	614.93	-0.00	24.00	1946	527741.00
914.98	725319.0	1970.0	914.98	-0.00	18.50	2033	527763.75
1214.97	791254.0	1968.0	1214.96	-0.00	15.00	2087	527733.50
1464.92	846225.0	1966.0	1464.90	-0.00	4.50	2251	527686.75
1214.91	791253.0	1967.0	1214.95	0.00	1.00	2307	527621.00
914.96	725323.0	1969.0	915.00	0.00			
614.96	659414.0	1970.0	614.93	-0.00			
314.92	593557.0	1972.0	314.89	-0.00			
14.66	527697.0	1973.0	14.62	-0.00			

TEMPERATURE (°C)	SPAN (mV)
-5.00	25.09
35.00	25.08

y = thermistor output (counts)

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

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

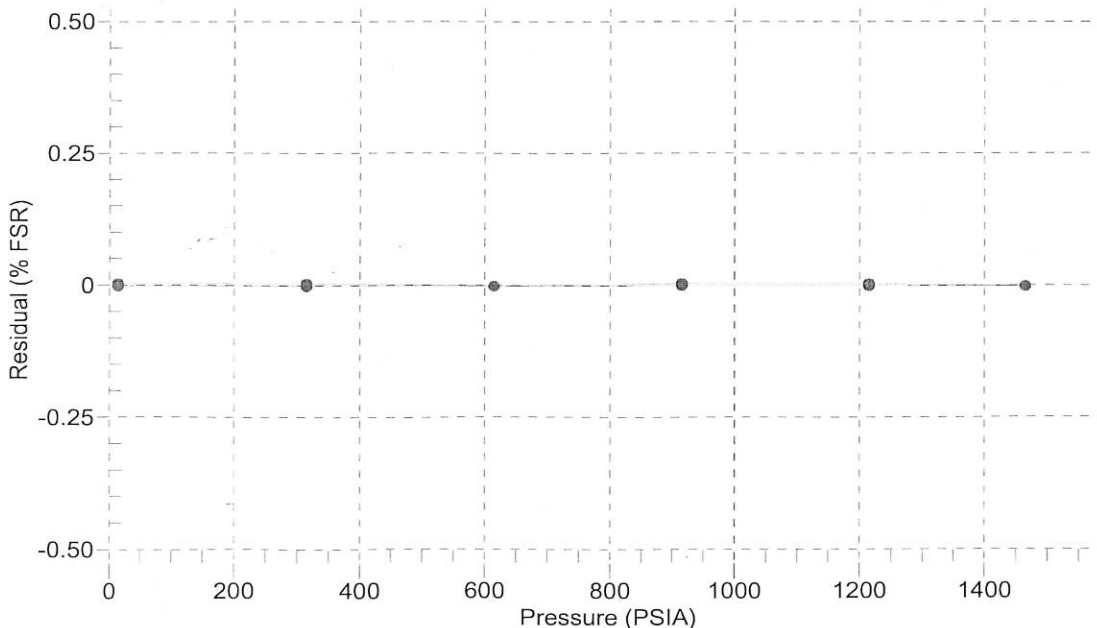
$$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$$

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

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

Date, Offset (%FSR)

● 10-Feb-16 -0.00



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -2.314446e-004
a1 = 3.329280e-004
a2 = -6.320233e-006
a3 = 2.496961e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	561487.5	1.0000	-0.0000
4.5000	480779.8	4.5001	0.0001
15.0000	307790.0	15.0000	0.0000
18.5000	266927.3	18.4999	-0.0001
24.0000	214669.3	24.0000	-0.0000
29.0000	177173.3	29.0002	0.0002
32.5000	155415.0	32.4999	-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

