

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: 9309
 CALIBRATION DATE: 25-Oct-15

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

COEFFICIENTS:

g = -9.773223e-001
 h = 1.418318e-001
 i = -2.641143e-004
 j = 3.967896e-005

CPcor = -9.5700e-008
 CTcor = 3.2500e-006
 WBOTC = 5.7053e-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	2628.90	0.00000	0.00000
1.0000	34.7335	2.96956	5280.59	2.96956	0.00000
4.4999	34.7140	3.27601	5481.15	3.27601	-0.00000
15.0000	34.6716	4.25574	6077.31	4.25574	0.00000
18.5000	34.6628	4.60020	6273.19	4.60019	-0.00000
24.0000	34.6532	5.15704	6577.20	5.15705	0.00001
29.0000	34.6484	5.67791	6849.01	5.67789	-0.00002
32.5000	34.6462	6.04967	7036.42	6.04968	0.00001

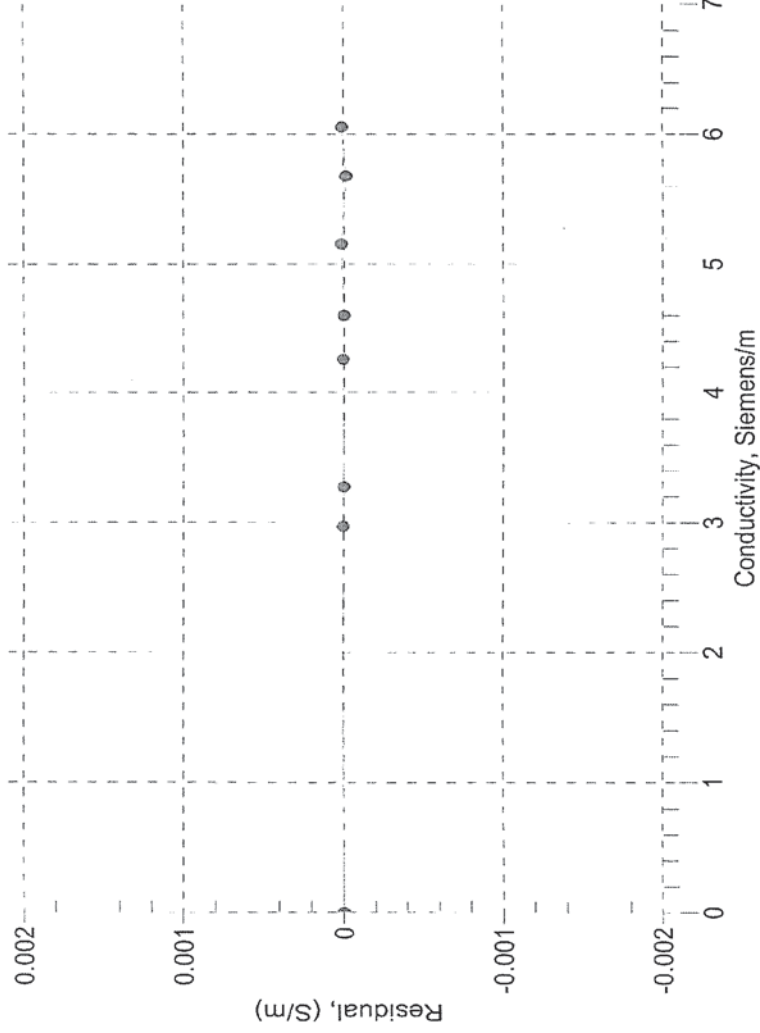
$$f = \text{INST FREQ} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$$

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

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

Residual = instrument conductivity - bath conductivity

Date, Slope Correction
 ● 25-Oct-15 1.0000000



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -7.998148e-005
a1 = 2.997775e-004
a2 = -3.881380e-006
a3 = 1.870365e-007

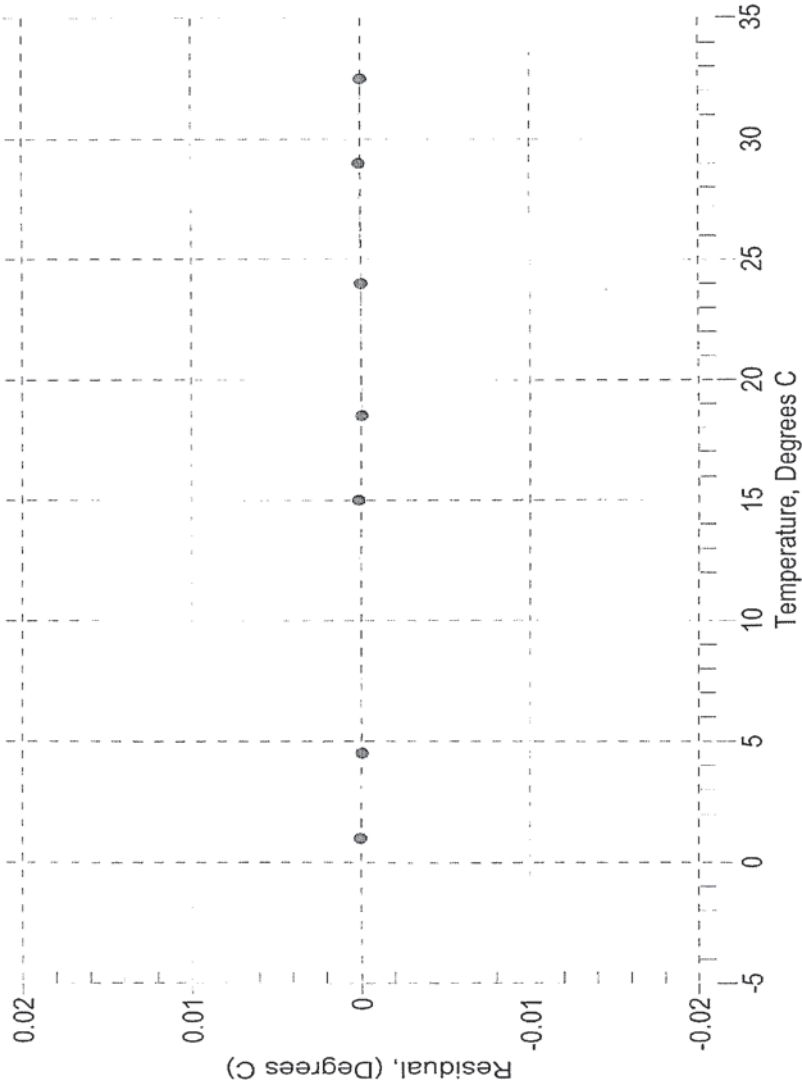
BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	571750.0	1.0000	0.0000
4.4999	489214.8	4.4998	-0.0001
15.0000	312516.4	15.0001	0.0001
18.5000	270835.6	18.4999	-0.0001
24.0000	217568.8	24.0000	-0.0000
29.0000	179381.8	29.0001	0.0001
32.5000	157235.8	32.5000	-0.0000

$$\text{Temperature ITS-90} = 1/\{a_0 + a_1[m(n)] + a_2[m^2(n)] + a_3[m^3(n)]\} - 273.15 \text{ (}^\circ\text{C)}$$

Residual = instrument temperature - bath temperature

n = instrument output

Date, Offset (mdeg C)
● 25-Oct-15 0.00



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SENSOR SERIAL NUMBER: 9309
 CALIBRATION DATE: 20-Oct-15

Slocum Payload CTD PRESSURE CALIBRATION DATA
 FSR: 1450 psia S/N 4386337

COEFFICIENTS:

PA0 = 7.377512e-001 PTCA0 = 5.252069e+005
 PA1 = 4.622658e-003 PTCA1 = -5.294574e+000
 PA2 = -1.960956e-011 PTCA2 = 5.385935e-001
 PTEMPA0 = 1.554407e+002 PTCB0 = 2.516213e+001
 PTEMPA1 = -6.501912e-002 PTCB1 = -1.745636e-004
 PTEMPA2 = -1.800650e-007 PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS	TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
14.74	528407.0	2029.0	14.80	0.00	32.50	1881	528640.60
314.86	593294.0	2023.0	314.67	-0.01	29.00	1934	528515.40
614.70	658222.0	2023.0	614.60	-0.01	24.00	2010	528420.40
914.99	723270.0	2022.0	914.92	-0.01	18.50	2094	528343.60
1215.00	788294.0	2020.0	1214.95	-0.00	15.00	2147	528274.40
1464.87	842464.0	2019.0	1464.78	-0.01	4.50	2307	528190.00
1214.75	788293.0	2018.0	1214.94	0.01	1.00	2360	528252.80
914.89	723278.0	2022.0	914.96	0.00			
614.82	658293.0	2023.0	614.93	0.01			
314.90	593354.0	2024.0	314.95	0.00			
14.74	528405.0	2023.0	14.75	0.00			

TEMP (ITS90) SPAN (mV)
 -5.00 25.16
 35.10 25.16

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

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

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

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

