



Sea-Bird Scientific
 13431 NE 20th Street
 Bellevue, WA 98005
 USA

+1 425-643-9866
 seabird@seabird.com
 www.seabird.com

SENSOR SERIAL NUMBER: 9409
 CALIBRATION DATE: 28-Sep-17

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

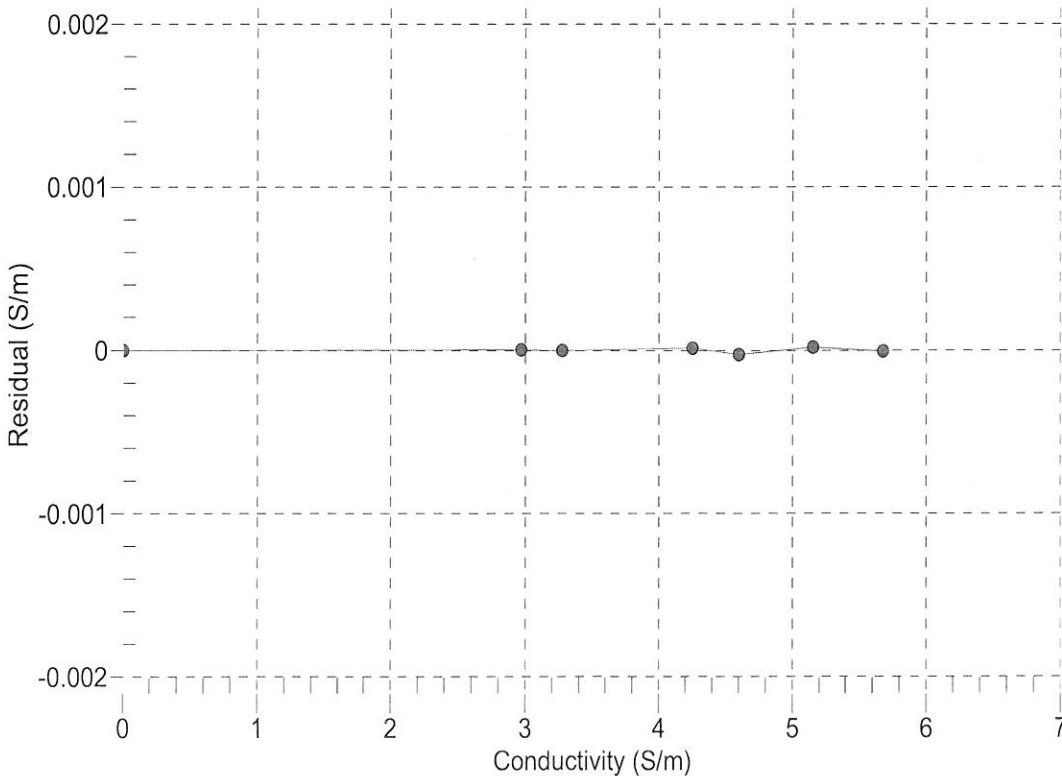
COEFFICIENTS:

g = -9.826426e-001 CPcor = -9.5700e-008
 h = 1.211650e-001 CTcor = 3.2500e-006
 i = -1.434792e-004 WBOTC = 2.3388e-007
 j = 2.571404e-005

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	2850.15	0.00000	0.00000
1.0000	34.7134	2.96801	5709.68	2.96801	0.00000
4.5000	34.6940	3.27432	5926.10	3.27432	-0.00000
15.0000	34.6533	4.25373	6569.55	4.25374	0.00001
18.4999	34.6454	4.59813	6780.98	4.59810	-0.00003
23.9999	34.6373	5.15492	7109.23	5.15494	0.00002
29.0000	34.6336	5.67575	7402.72	5.67575	-0.00001
32.4999	34.6311	6.04733	7604.85	6.04710	-0.00023

f = Instrument Output(Hz) * sqrt(1.0 + WBOTC * t) / 1000.0
 t = temperature (°C); p = pressure (decibars); δ = CTcor; ε = CPcor;
 Conductivity (S/m) = (g + h * f² + i * f³ + j * f⁴) / (1 + δ * t + ε * p)
 Residual (Siemens/meter) = instrument conductivity - bath conductivity

Date, Slope Correction
 ● 28-Sep-17 1.0000000





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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
 ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

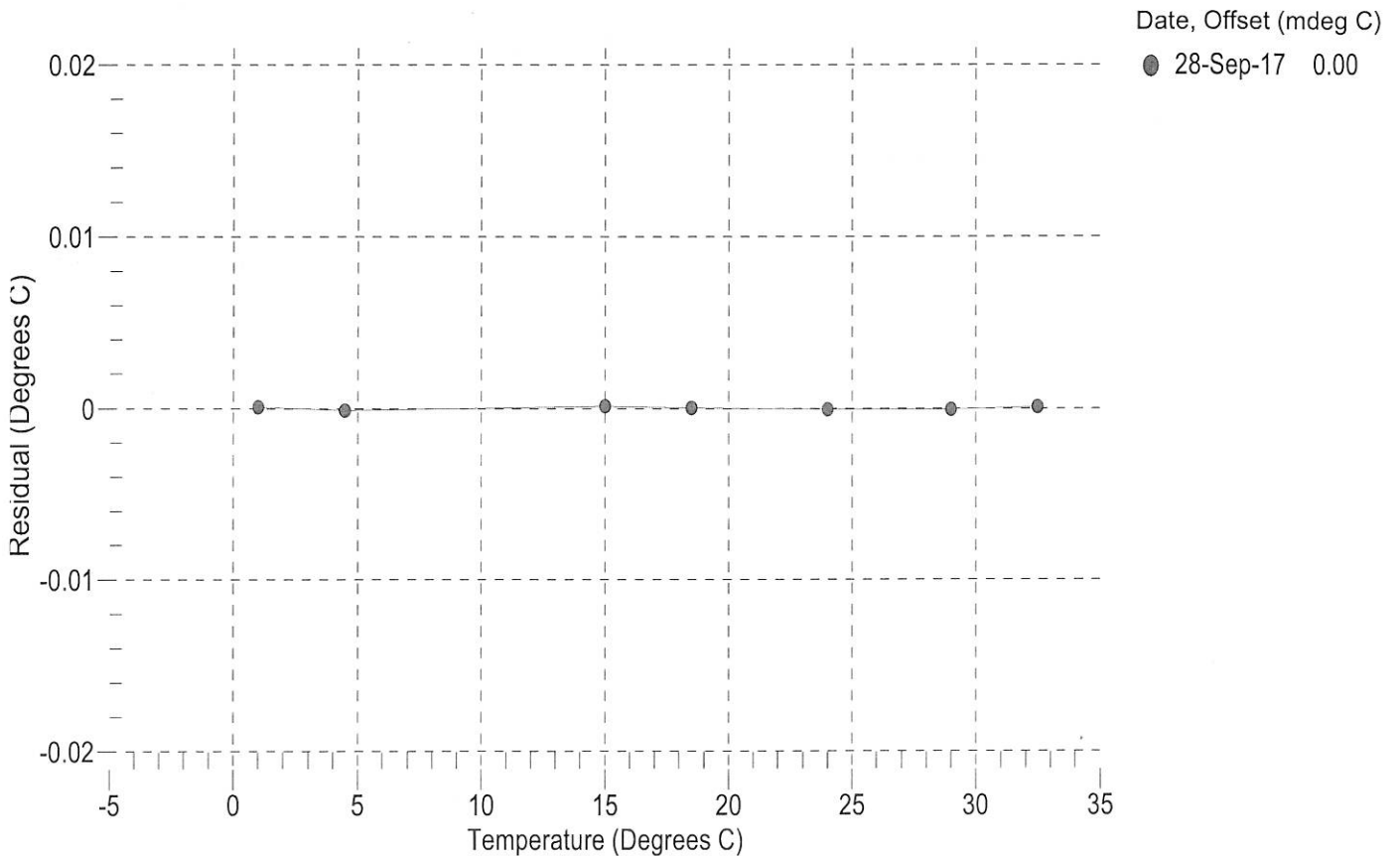
a0 = -1.150270e-004
 a1 = 3.040827e-004
 a2 = -4.039212e-006
 a3 = 1.895272e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	571570.0	1.0001	0.0001
4.5000	489433.0	4.4999	-0.0001
15.0000	313366.2	15.0001	0.0001
18.4999	271775.8	18.4999	0.0000
23.9999	218582.4	23.9998	-0.0001
29.0000	180409.0	28.9999	-0.0001
32.4999	158252.4	32.5000	0.0001

n = Instrument Output (counts)

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

Residual (°C) = instrument temperature - bath temperature





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SENSOR SERIAL NUMBER: 9409
 CALIBRATION DATE: 12-Sep-17

Slocum Payload CTD PRESSURE CALIBRATION DATA
 1450 psia S/N 10230819

COEFFICIENTS:

PA0 =	-1.115271e-001	PTCA0 =	5.243570e+005
PA1 =	4.564174e-003	PTCA1 =	-2.530003e+000
PA2 =	-1.517676e-011	PTCA2 =	6.525747e-002
PTEMPA0 =	-6.830802e+001	PTCB0 =	2.506801e+001
PTEMPA1 =	5.152508e-002	PTCB1 =	8.020050e-004
PTEMPA2 =	-3.664512e-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)
14.62	527569.0	1793.9	14.65	0.00	32.50	1984	527637.20
301.70	590509.6	1795.1	301.64	-0.00	29.00	1915	527628.40
588.87	653514.6	1795.7	588.81	-0.00	24.00	1815	527611.60
876.06	716553.7	1796.0	876.01	-0.00	18.50	1705	527647.80
1163.15	779606.7	1796.5	1163.15	0.00	15.00	1636	527594.80
1450.29	842673.2	1796.7	1450.24	-0.00	4.50	1427	527668.60
1163.25	779644.8	1796.3	1163.33	0.01	1.00	1358	527623.80
876.04	716575.6	1795.9	876.11	0.00			
588.85	653528.0	1796.0	588.87	0.00	TEMPERATURE (°C)	SPAN (mV)	
301.73	590534.0	1795.5	301.75	0.00	-5.00	25.06	
14.61	527562.5	1795.7	14.62	0.00	34.90	25.10	

y = thermistor output (counts)

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

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

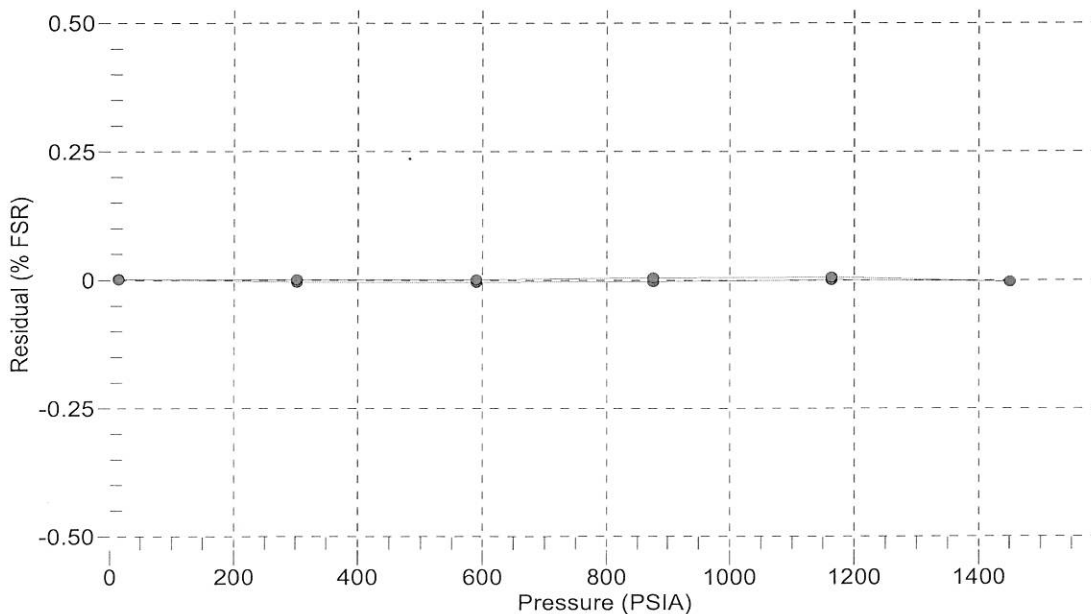
$$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$$

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

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

Date, Offset (%FSR)

● 12-Sep-17 -0.00





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Phone: (425) 643-9866
Fax: (425) 643-9954
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Pressure Test Certificate

Test Date: 2017-03-28

Description: Slocum CTD

Sensor Information:

Model Number: Slocum

Serial Number: 9409

Pressure Test Protocol:

Low Pressure Test: 40	PSI	Held For: 15	Minutes
High Pressure Test: 40	PSI	Held For: 15	Minutes

Passed Test: True

Tested By: dc

High pressure is generally equal to the maximum depth rating of the instrument

