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

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

SENSOR SERIAL NUMBER: 9309
CALIBRATION DATE: 19-Mar-22

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

COEFFICIENTS:

g = -9.770825e-001
h = 1.417013e-001
i = -2.215016e-004
j = 3.733068e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 5.7053e-007

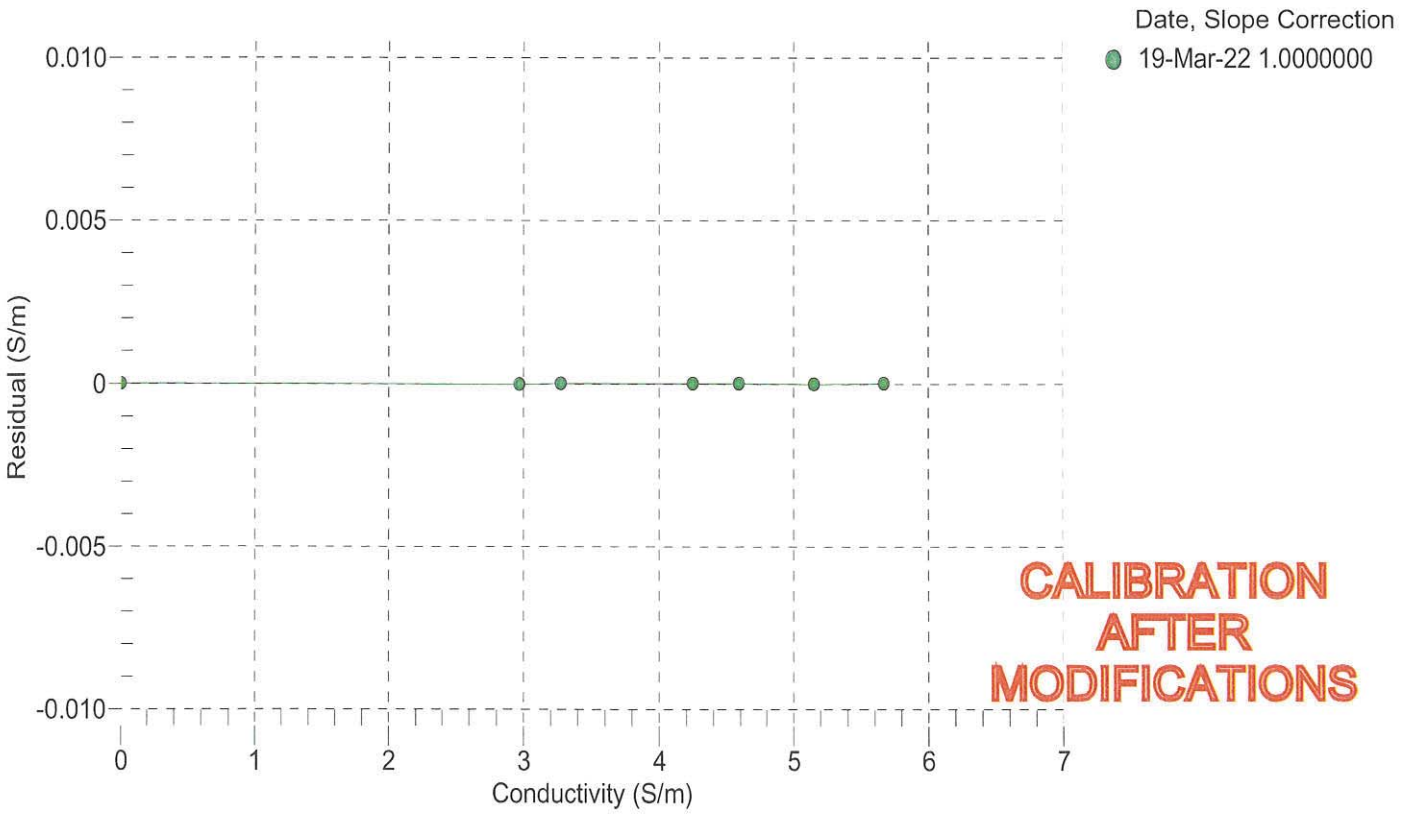
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2628.90	0.00000	0.00000
1.0000	34.6814	2.96553	5277.20	2.96552	-0.00001
4.5000	34.6621	3.27161	5477.54	3.27161	0.00001
15.0000	34.6206	4.25014	6073.05	4.25014	0.00000
18.5000	34.6119	4.59417	6268.71	4.59418	0.00001
24.0000	34.6022	5.15029	6572.35	5.15027	-0.00002
29.0000	34.5963	5.67033	6843.80	5.67034	0.00001
32.5000	34.5916	6.04122	7030.93	6.04150	0.00028

f = Instrument Output(Hz) * sqrt(1.0 + WBOTC * t) / 1000.0

t = temperature (°C); p = pressure (decibars); δ = CTcor; ε = CPcor;

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

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



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SENSOR SERIAL NUMBER: 9309
CALIBRATION DATE: 19-Mar-22

Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

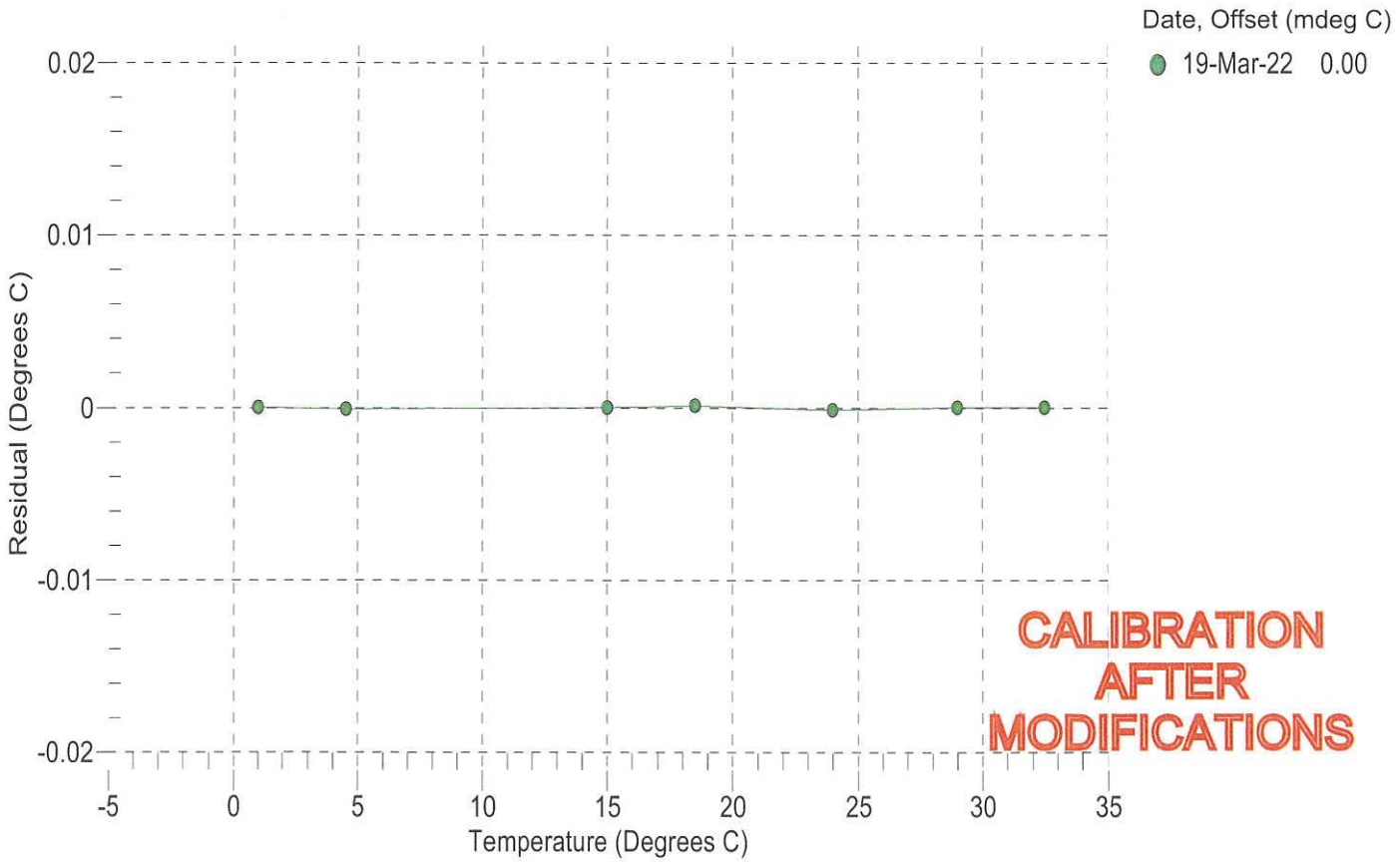
a0 = -1.000401e-004
a1 = 3.045231e-004
a2 = -4.255517e-006
a3 = 1.968585e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	571780.5	1.0000	0.0000
4.5000	489240.4	4.4999	-0.0001
15.0000	312533.6	15.0000	0.0000
18.5000	270846.3	18.5001	0.0001
24.0000	217580.1	23.9999	-0.0001
29.0000	179390.8	29.0000	0.0000
32.5000	157243.9	32.5000	0.0000

n = Instrument Output (counts)

Temperature ITS-90 (°C) = $1/\{a0 + a1[ln(n)] + a2[ln^2(n)] + a3[ln^3(n)]\} - 273.15$

Residual (°C) = instrument temperature - bath temperature



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SENSOR SERIAL NUMBER: 9309
CALIBRATION DATE: 16-Mar-22

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

COEFFICIENTS:

PA0 =	6.792636e-001	PTCA0 =	5.254094e+005
PA1 =	4.618943e-003	PTCA1 =	-5.983539e+000
PA2 =	-1.469401e-011	PTCA2 =	5.246470e-001
PTEMPA0 =	1.569842e+002	PTCB0 =	2.516213e+001
PTEMPA1 =	-6.652269e-002	PTCB1 =	-1.745636e-004
PTEMPA2 =	1.871659e-007	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)
14.68	528573.3	2019.9	14.62	-0.00
302.71	590958.4	2016.8	302.74	0.00
587.86	652708.4	2016.9	587.83	-0.00
874.72	714865.4	2014.8	874.68	-0.00
1161.75	777092.6	2012.8	1161.73	-0.00
1448.66	839327.9	2012.9	1448.73	0.00
1161.80	777095.0	2013.5	1161.75	-0.00
874.81	714885.1	2015.4	874.77	-0.00
587.86	652715.2	2017.0	587.86	0.00
300.88	590601.0	2016.9	301.09	0.01
14.68	528575.1	2018.8	14.62	-0.00

THERMAL CORRECTION

TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
32.50	1881	528770.90
29.00	1935	528679.90
24.00	2010	528570.40
18.50	2094	528489.60
15.00	2147	528440.50
4.50	2307	528379.20
1.00	2361	528419.30

TEMPERATURE (°C)	SPAN
-5.00	25.16
35.10	25.16

y = thermistor output (counts)

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

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

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

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

Residual (%FSR) = (computed pressure - true pressure) * 100 / Full Scale Range