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

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

SENSOR SERIAL NUMBER: 9714
CALIBRATION DATE: 30-Jul-21

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

COEFFICIENTS:

```
g = -1.002371e+000
h =  1.483679e-001
i = -4.109568e-004
j =  5.291201e-005

CPcor = -9.5700e-008
CTcor =  3.2500e-006
WBOTC =  1.9188e-007
```

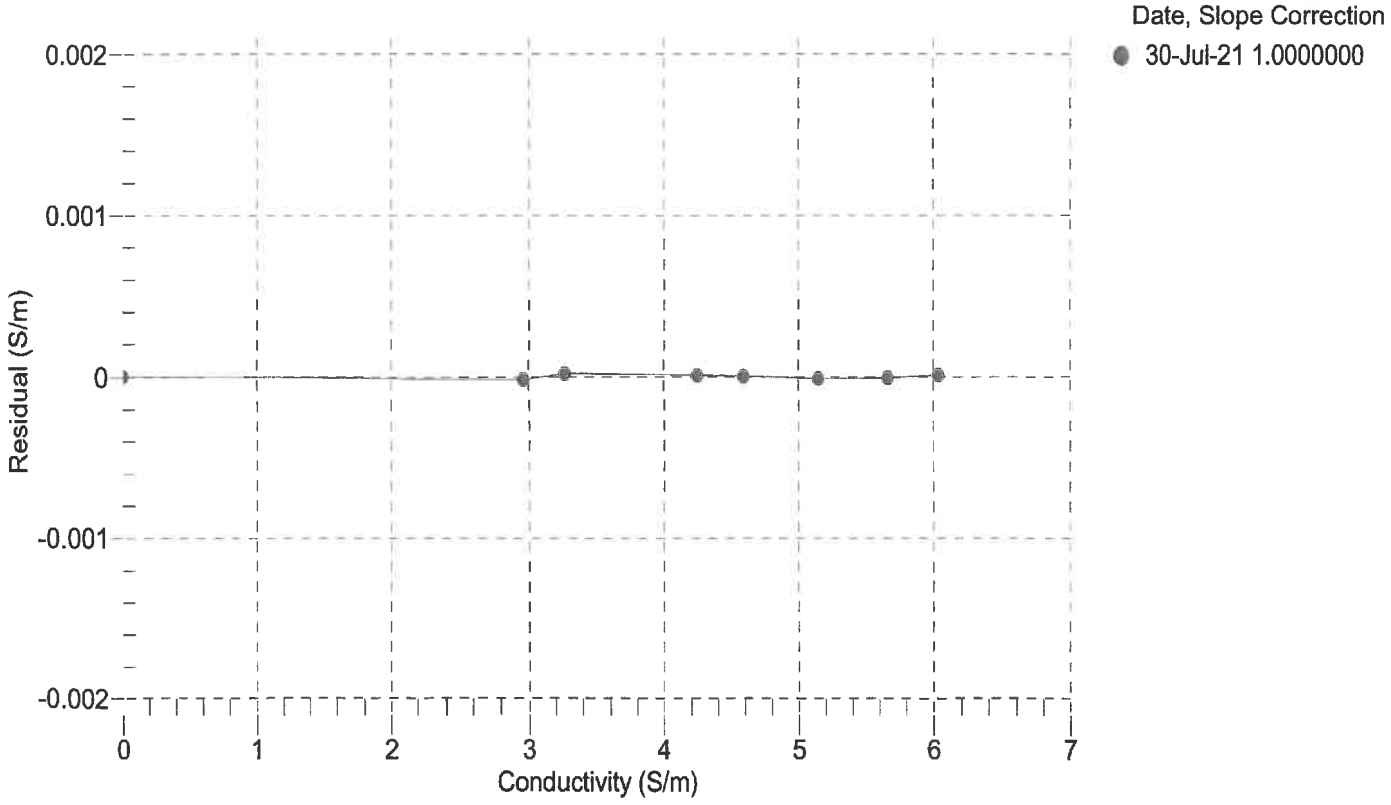
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2605.48	0.00000	0.00000
1.0000	34.6513	2.96320	5182.30	2.96318	-0.00002
4.5000	34.6316	3.26901	5377.92	3.26903	0.00002
14.9999	34.5905	4.24682	5959.64	4.24683	0.00001
18.5000	34.5820	4.59063	6150.83	4.59063	0.00000
24.0000	34.5732	5.14645	6447.60	5.14643	-0.00001
29.0000	34.5687	5.66631	6712.97	5.66630	-0.00001
32.5001	34.5662	6.03730	6895.89	6.03731	0.00001

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: 9714
CALIBRATION DATE: 30-Jul-21

Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

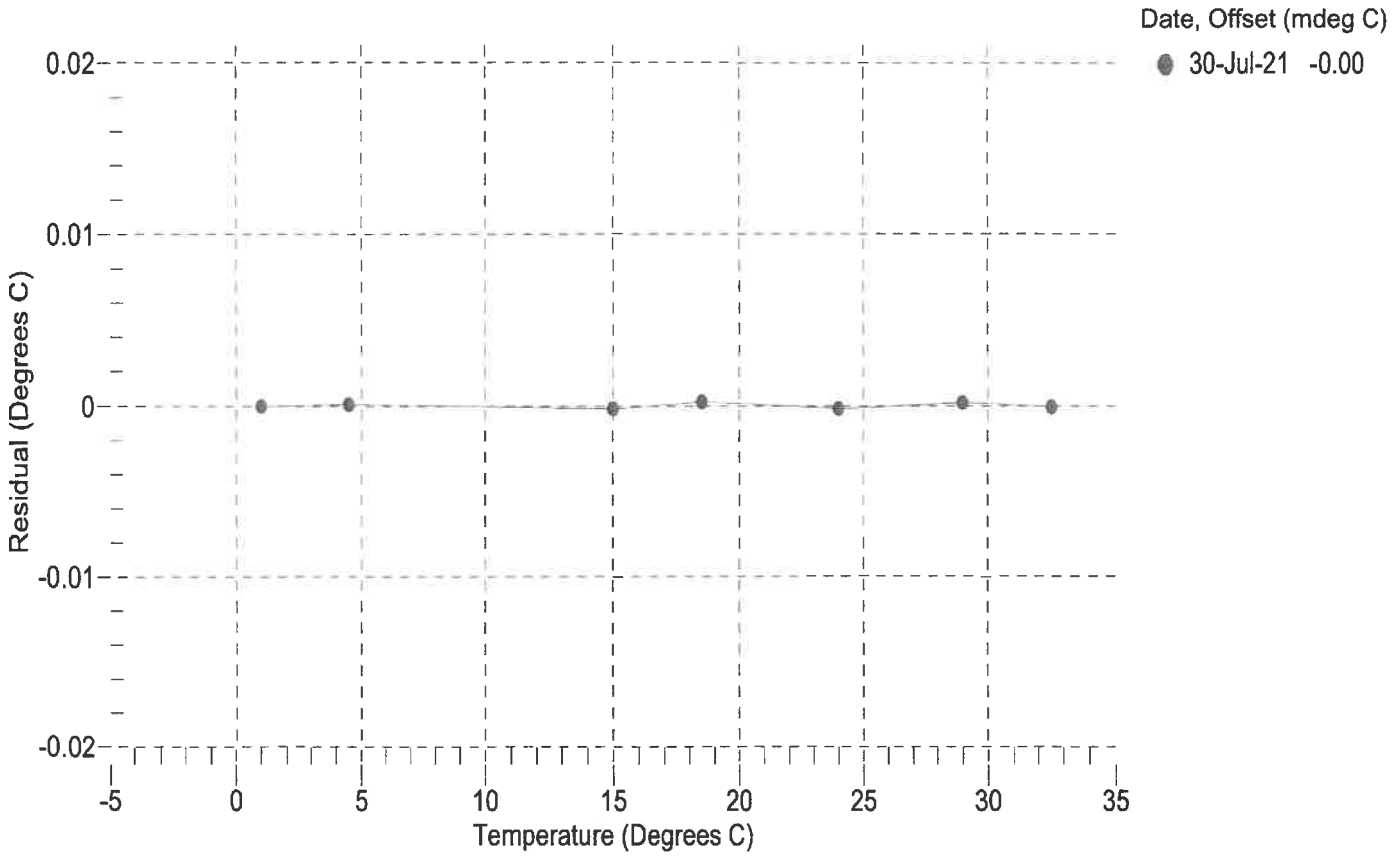
a0 = -3.477744e-005
a1 = 2.763890e-004
a2 = -1.526005e-006
a3 = 1.251298e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	562625.8	1.0000	-0.0000
4.5000	482983.4	4.5001	0.0001
14.9999	311523.8	14.9997	-0.0002
18.5000	270810.2	18.5002	0.0002
24.0000	218597.0	23.9998	-0.0002
29.0000	180993.4	29.0002	0.0002
32.5001	159109.2	32.5000	-0.0001

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: 9714
CALIBRATION DATE: 23-Jul-21

Slocum Payload CTD PRESSURE CALIBRATION DATA
1450 psia S/N 11705800

COEFFICIENTS:

PA0 =	3.192829e-001	PTCA0 =	5.244986e+005
PA1 =	4.435331e-003	PTCA1 =	4.813148e+000
PA2 =	-2.197379e-011	PTCA2 =	-7.612380e-002
PTEMPA0 =	-6.121736e+001	PTCB0 =	2.511992e+001
PTEMPA1 =	5.444997e-002	PTCB1 =	3.759398e-004
PTEMPA2 =	-8.067127e-007	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)
14.63	527797.1	1627.6	14.62	-0.00
301.62	592541.4	1628.9	301.57	-0.00
588.73	657389.1	1629.3	588.80	0.00
875.87	722271.8	1629.8	875.99	0.01
1163.41	787197.3	1631.2	1163.19	-0.02
1448.29	851746.2	1632.1	1448.54	0.02
1163.64	787218.4	1632.2	1163.28	-0.02
875.85	722277.7	1632.1	876.02	0.01
588.76	657397.7	1632.1	588.83	0.01
301.62	592549.0	1631.6	301.60	-0.00
14.63	527795.6	1632.6	14.61	-0.00

THERMAL CORRECTION

TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
32.50	1767	527878.60
29.00	1700	527878.80
24.00	1603	527861.40
18.50	1497	527855.40
15.00	1430	527864.80
4.50	1229	527830.00
1.00	1163	527795.60

TEMPERATURE (°C)	SPAN
-5.10	25.12
34.80	25.13

y = thermistor output (counts)

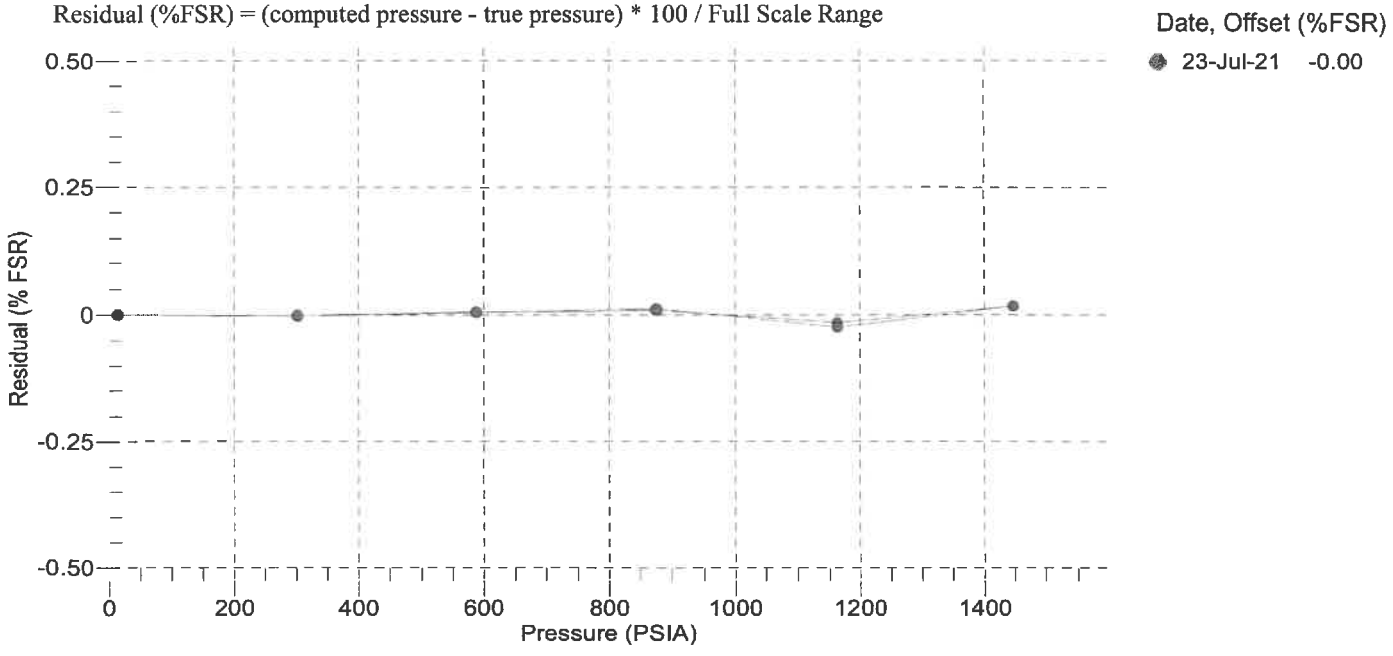
$t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2$

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

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

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

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



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Pressure Test Certificate

Test Date: **2021-07-22**

Description: **Slocum CTD**

Sensor Information:

Model Number: **Slocum**

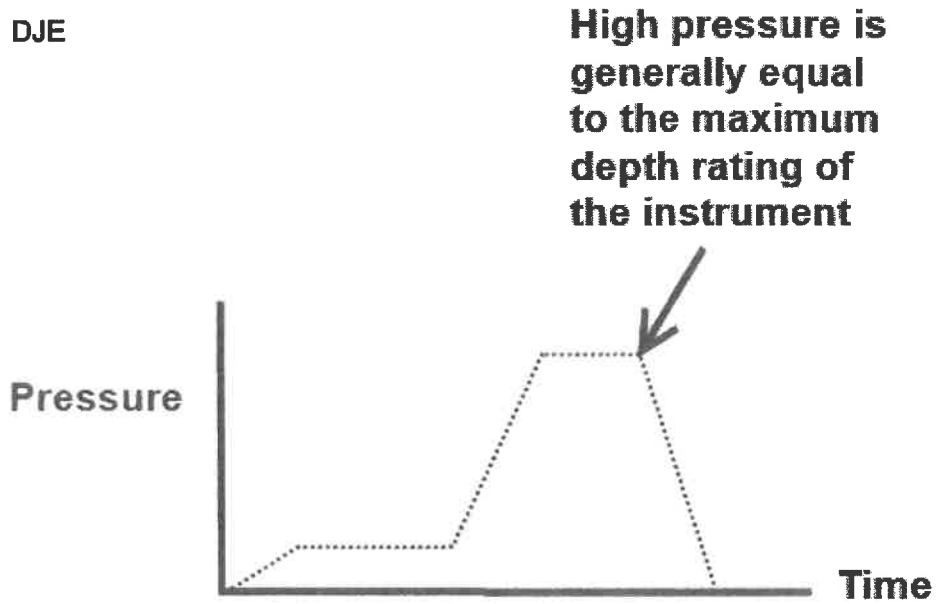
Serial Number: **9714**

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: **DJE**



Typical Test Profile