

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: 9258
CALIBRATION DATE: 24-Dec-14

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

COEFFICIENTS:

g = -9.675668e-001
h = 1.424005e-001
i = -1.111501e-004
j = 2.871950e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 3.1955e-008

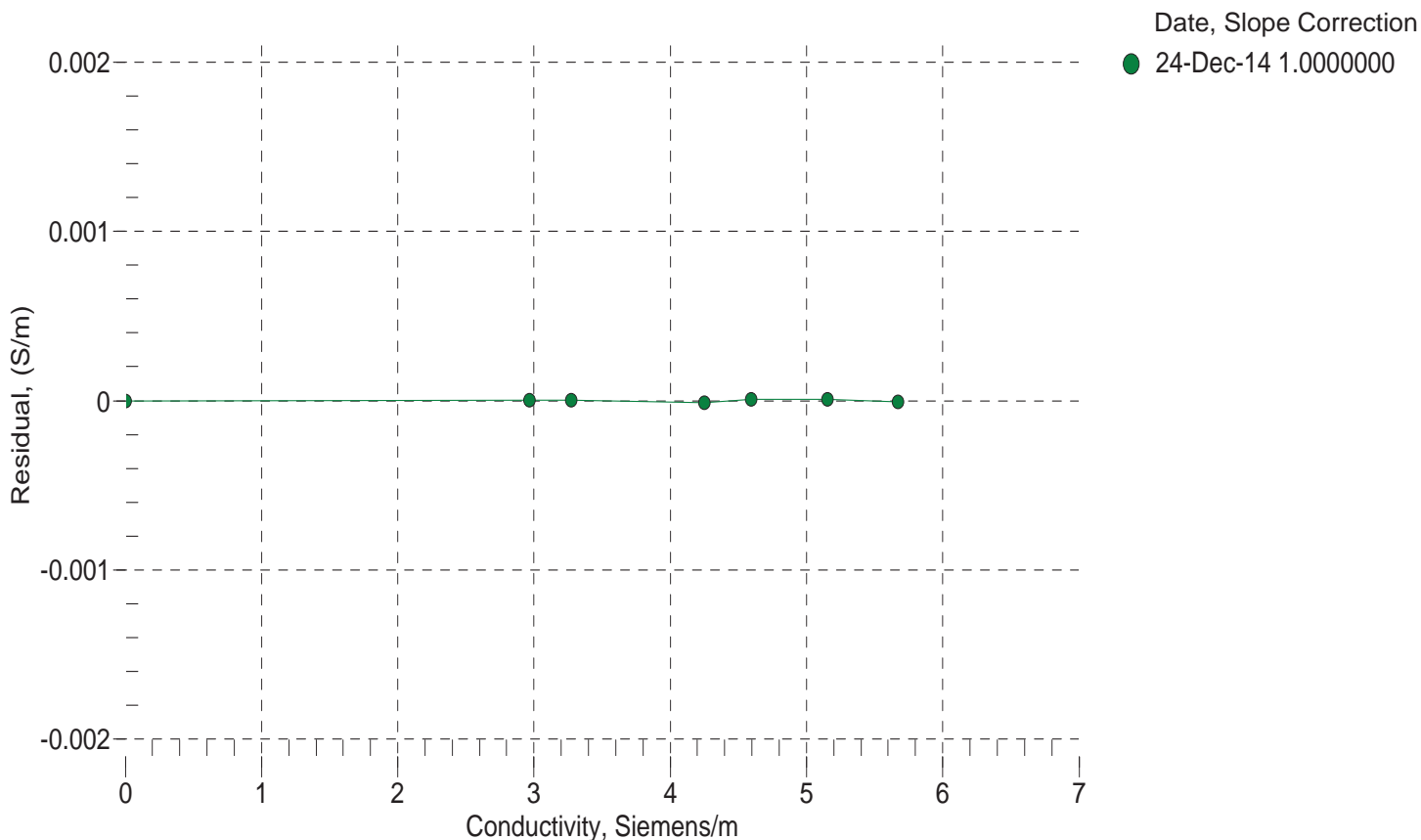
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2607.53	0.00000	0.00000
1.0000	34.6935	2.96647	5252.26	2.96647	0.00000
4.5000	34.6733	3.27256	5452.04	3.27256	0.00000
15.0000	34.6300	4.25117	6045.88	4.25116	-0.00001
18.5000	34.6203	4.59517	6240.97	4.59517	0.00001
24.0000	34.6098	5.15129	6543.79	5.15130	0.00001
29.0000	34.6040	5.67145	6814.53	5.67144	-0.00001
32.5001	34.6014	6.04275	7001.19	6.04267	-0.00008

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

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

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

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 9258
CALIBRATION DATE: 22-Dec-14

Slocum Payload CTD PRESSURE CALIBRATION DATA
FSR: 1450 psia S/N 4326841

COEFFICIENTS:

PA0 =	1.596282e-001	PTCA0 =	5.245434e+005
PA1 =	4.516520e-003	PTCA1 =	7.748305e-001
PA2 =	-3.756115e-011	PTCA2 =	3.632081e-002
PTEMPA0 =	1.477000e+002	PTCB0 =	2.499775e+001
PTEMPA1 =	-6.229515e-002	PTCB1 =	-5.000000e-005
PTEMPA2 =	-1.881104e-006	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.76	527821.0	1904.0	14.80	0.00
315.08	594335.0	1904.0	315.05	-0.00
615.14	660889.0	1902.0	615.14	-0.00
915.15	727504.0	1901.0	915.17	0.00
1215.13	794180.0	1898.0	1215.14	0.00
1465.13	849791.0	1898.0	1465.08	-0.00
1215.10	794181.0	1899.0	1215.14	0.00
915.15	727503.0	1901.0	915.16	0.00
615.14	660887.0	1901.0	615.13	-0.00
315.14	594349.0	1901.0	315.11	-0.00
14.77	527813.0	1902.0	14.77	0.00

THERMAL CORRECTION

TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
32.50	1756	527860.00
29.00	1807	527926.70
24.00	1879	527852.80
18.50	1958	527831.20
15.00	2009	527847.50
4.50	2158	527842.30
1.00	2208	527817.30

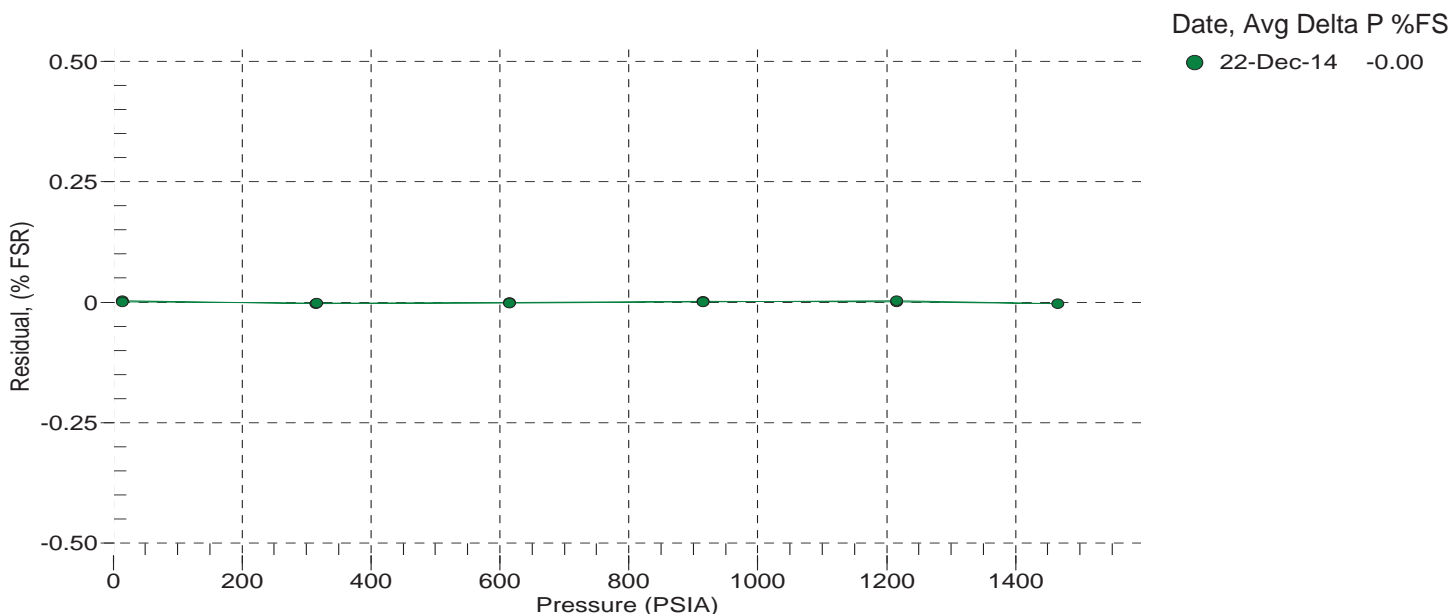
TEMP (ITS90)	SPAN (mV)
-5.00	25.00
35.00	25.00

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

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

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

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



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CALIBRATION DATE: 24-Dec-14

Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.308444e-004
a1 = 3.105018e-004
a2 = -4.693507e-006
a3 = 2.078453e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	577460.1	1.0000	0.0000
4.5000	494158.9	4.4999	-0.0001
15.0000	315786.7	15.0001	0.0001
18.5000	273701.5	18.4999	-0.0001
24.0000	219913.3	23.9999	-0.0001
29.0000	181344.9	29.0002	0.0002
32.5001	158977.6	32.5000	-0.0001

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

Residual = instrument temperature - bath temperature

n = instrument output

