

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: 9302
CALIBRATION DATE: 09-Apr-15

Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

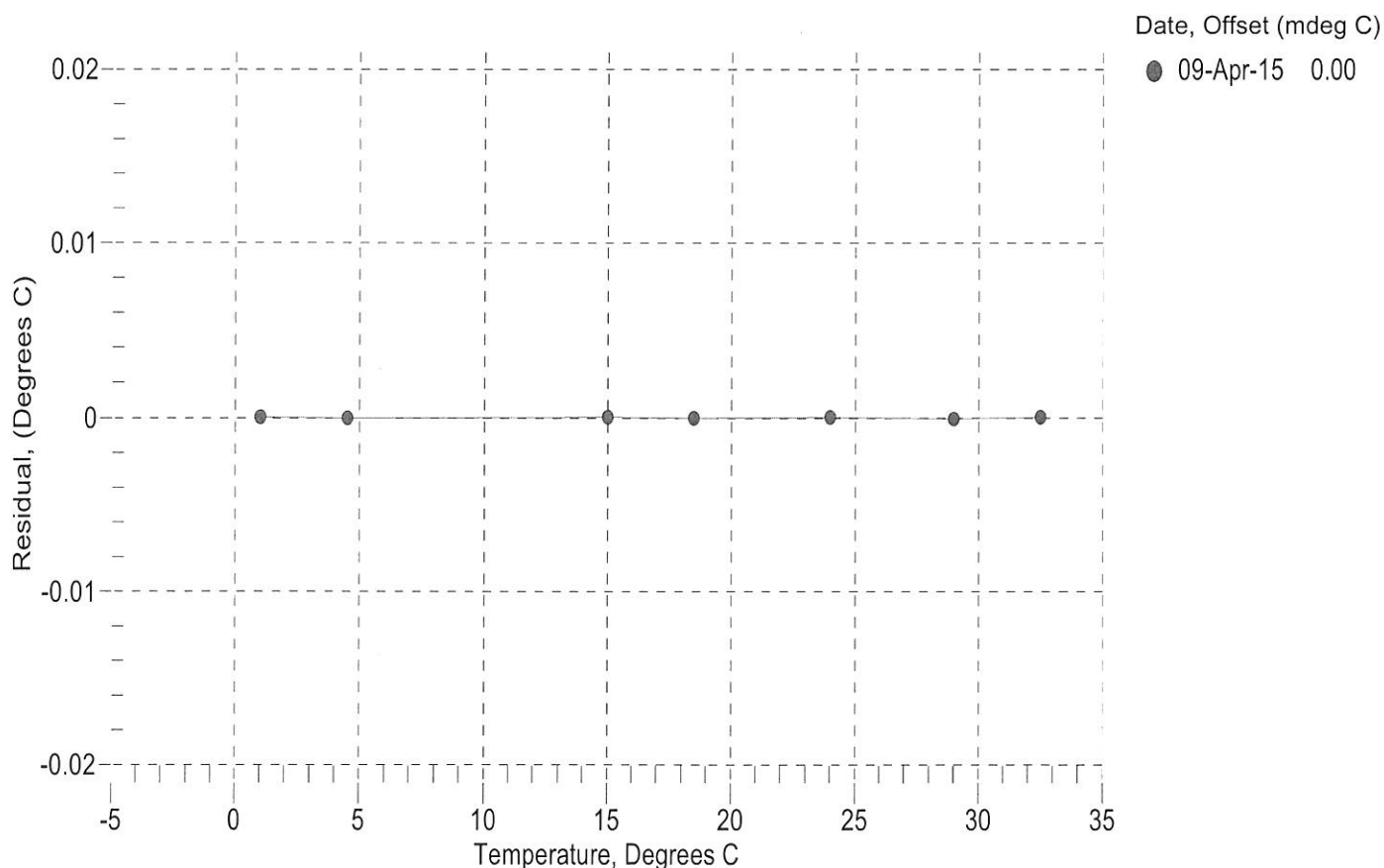
a0 = -1.204403e-004
a1 = 3.111315e-004
a2 = -4.806317e-006
a3 = 2.095846e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	571671.6	1.0000	0.0000
4.5000	488812.6	4.5000	-0.0000
15.0000	311658.0	15.0000	0.0000
18.5000	269925.3	18.5000	-0.0000
23.9940	216690.7	23.9940	0.0000
29.0000	178476.3	28.9999	-0.0001
32.5000	156359.1	32.5000	0.0000

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



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: 9302
CALIBRATION DATE: 07-Apr-15

Slocum Payload CTD PRESSURE CALIBRATION DATA
FSR: 1450 psia S/N 4344586

COEFFICIENTS:

PA0 =	6.165661e-003	PTCA0 =	5.247685e+005
PA1 =	4.700605e-003	PTCA1 =	4.331328e-001
PA2 =	-2.919404e-011	PTCA2 =	-1.609076e-002
PTEMPA0 =	1.419343e+002	PTCB0 =	2.495837e+001
PTEMPA1 =	-6.722527e-002	PTCB1 =	7.500000e-005
PTEMPA2 =	2.803108e-007	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

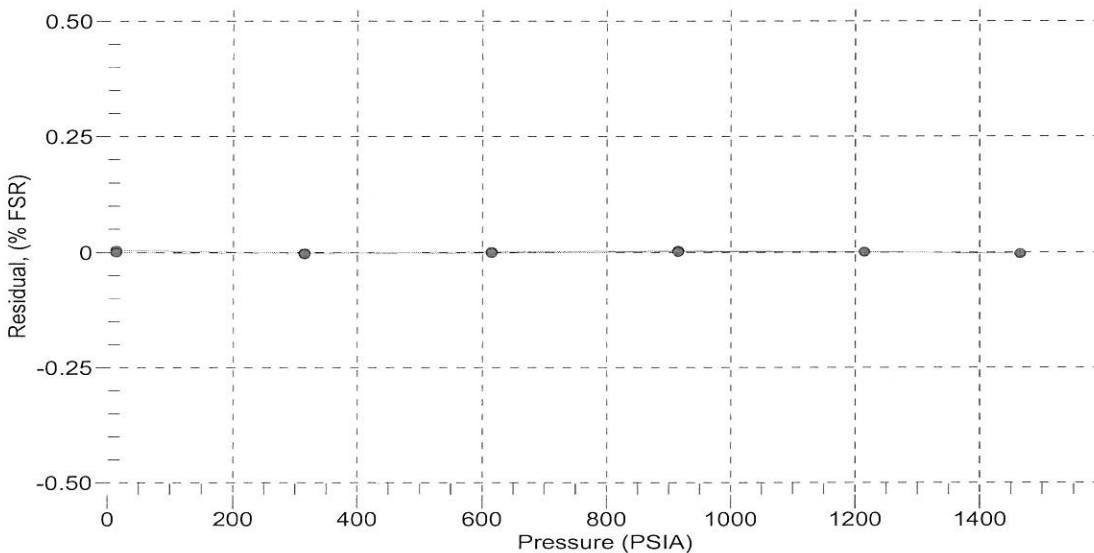
THERMAL CORRECTION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS	TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
14.52	527871.0	1789.0	14.58	0.00	32.50	1639	527950.30
314.82	591771.0	1785.0	314.80	-0.00	29.00	1691	527947.70
614.85	655687.0	1783.0	614.85	0.00	23.99	1768	527947.80
914.84	719650.0	1781.0	914.89	0.00	18.50	1851	527952.60
1214.84	783649.0	1781.0	1214.85	0.00	15.00	1903	527956.40
1464.81	837009.0	1778.0	1464.77	-0.00	4.50	2062	527954.20
1214.80	783639.0	1779.0	1214.81	0.00	1.00	2115	527948.50
914.82	719638.0	1780.0	914.83	0.00			
614.82	655676.0	1784.0	614.80	-0.00			
314.90	591779.0	1783.0	314.84	-0.00			
14.52	527855.0	1784.0	14.51	-0.00			

TEMP (ITS90)	SPAN (mV)
-5.00	24.96
35.00	24.96

$y = \text{thermistor output}; t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2$
 $x = \text{pressure output} - PTCA0 - PTCA1 * t - PTCA2 * t^2$
 $n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$
 $\text{pressure (psia)} = PA0 + PA1 * n + PA2 * n^2$

Date, Avg Delta P %FS
● 07-Apr-15 -0.00



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: 9302
 CALIBRATION DATE: 09-Apr-15

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

COEFFICIENTS:

g = -1.006558e+000	CPcor = -9.5700e-008
h = 1.568564e-001	CTcor = 3.2500e-006
i = -1.719298e-004	WBOTC = 2.9586e-007
j = 3.701599e-005	

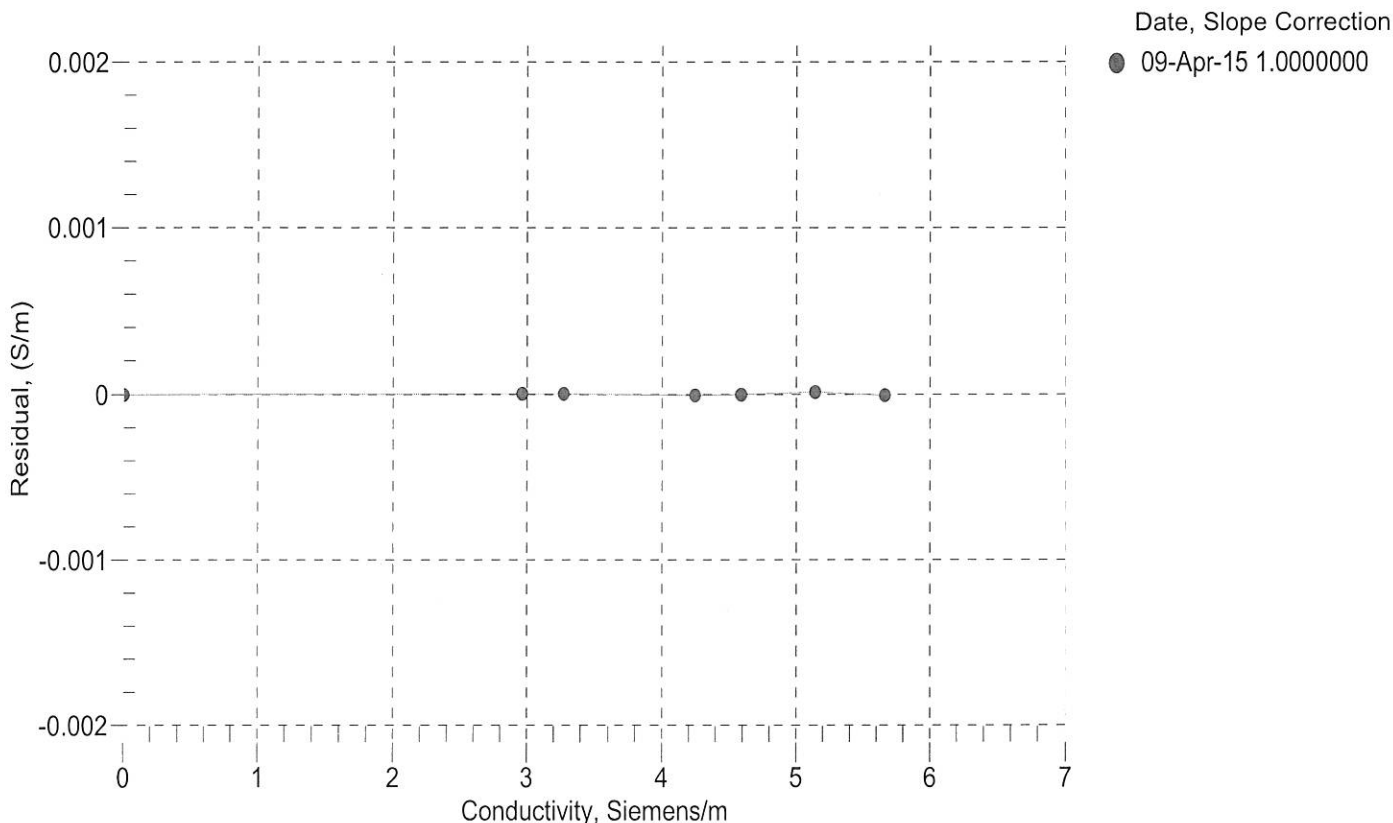
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2534.78	0.00000	0.00000
1.0000	34.6544	2.96344	5029.74	2.96344	0.00000
4.5000	34.6342	3.26923	5219.22	3.26923	0.00000
15.0000	34.5894	4.24671	5782.75	4.24671	-0.00001
18.5000	34.5784	4.59020	5967.91	4.59020	-0.00000
23.9940	34.5639	5.14460	6254.96	5.14461	0.00001
29.0000	34.5564	5.66452	6512.38	5.66451	-0.00001
32.5000	34.5522	6.03512	6689.62	6.03501	-0.00011

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

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

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

Residual = instrument conductivity - bath conductivity





Sea-Bird Electronics, Inc.

13431 NE 20th St. Bellevue, Washington 98005 USA
www.seabird.com

Phone: (425) 643-9866
Fax: (425) 643-9954
Email: seabird@seabird.com

Pressure Test Certificate

Test Date: 04/06/15

Description: Slocum CTD

Sensor Information:

Model Number: Slocum

Serial Number: 9302

Pressure Test Protocol:

Low Pressure Test: 40 PSI Held For: 15 Minutes

High Pressure Test: 40 PSI Held For: 15 Minutes

Passed Test: Yes

Tested By: ap

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

