

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: 9268
CALIBRATION DATE: 12-Jan-15

Slocum Payload CTD PRESSURE CALIBRATION DATA
FSR: 1450 psia S/N 4314734

COEFFICIENTS:

PA0 =	3.961550e-001	PTCA0 =	5.242623e+005
PA1 =	4.647581e-003	PTCA1 =	5.727472e+000
PA2 =	-2.746782e-011	PTCA2 =	-9.011243e-002
PTEMPA0 =	1.775072e+002	PTCB0 =	2.531112e+001
PTEMPA1 =	-7.889946e-002	PTCB1 =	-3.750000e-004
PTEMPA2 =	2.942045e-006	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

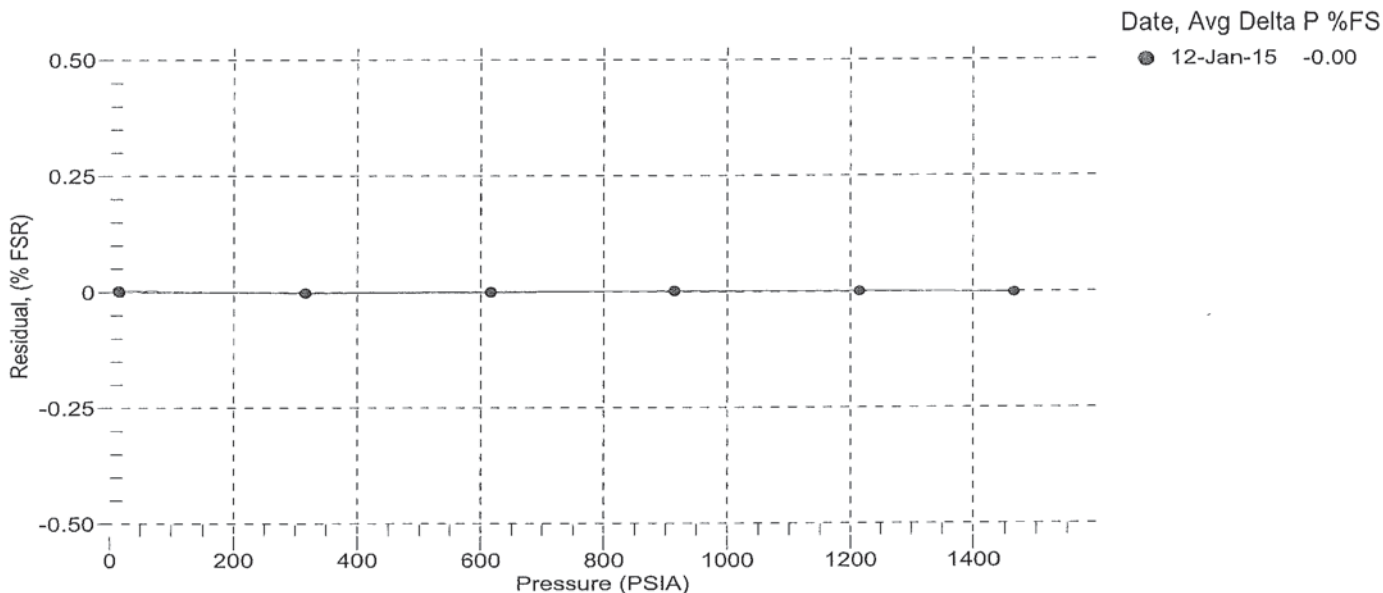
PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.78	527449.0	2137.0	14.83	0.00
315.11	592062.0	2133.0	315.09	-0.00
615.07	656663.0	2131.0	615.08	0.00
915.04	721311.0	2128.0	915.05	0.00
1215.01	786008.0	2128.0	1215.02	0.00
1464.99	839950.0	2123.0	1464.96	-0.00
1215.01	786008.0	2125.0	1215.02	0.00
915.06	721318.0	2129.0	915.08	0.00
615.10	656663.0	2130.0	615.08	-0.00
315.13	592059.0	2129.0	315.08	-0.00
14.78	527438.0	2129.0	14.77	-0.00

THERMAL CORRECTION

TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
32.50	1985	527456.00
29.00	2036	527427.80
23.99	2112	527465.60
18.50	2194	527419.20
15.00	2249	527421.00
4.50	2410	527393.20
1.00	2463	527355.20

TEMP (ITS90)	SPAN (mV)
-5.00	25.31
35.00	25.30

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



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: 9268
CALIBRATION DATE: 18-Jan-15

Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.631918e-004

a1 = 3.119118e-004

a2 = -4.613899e-006

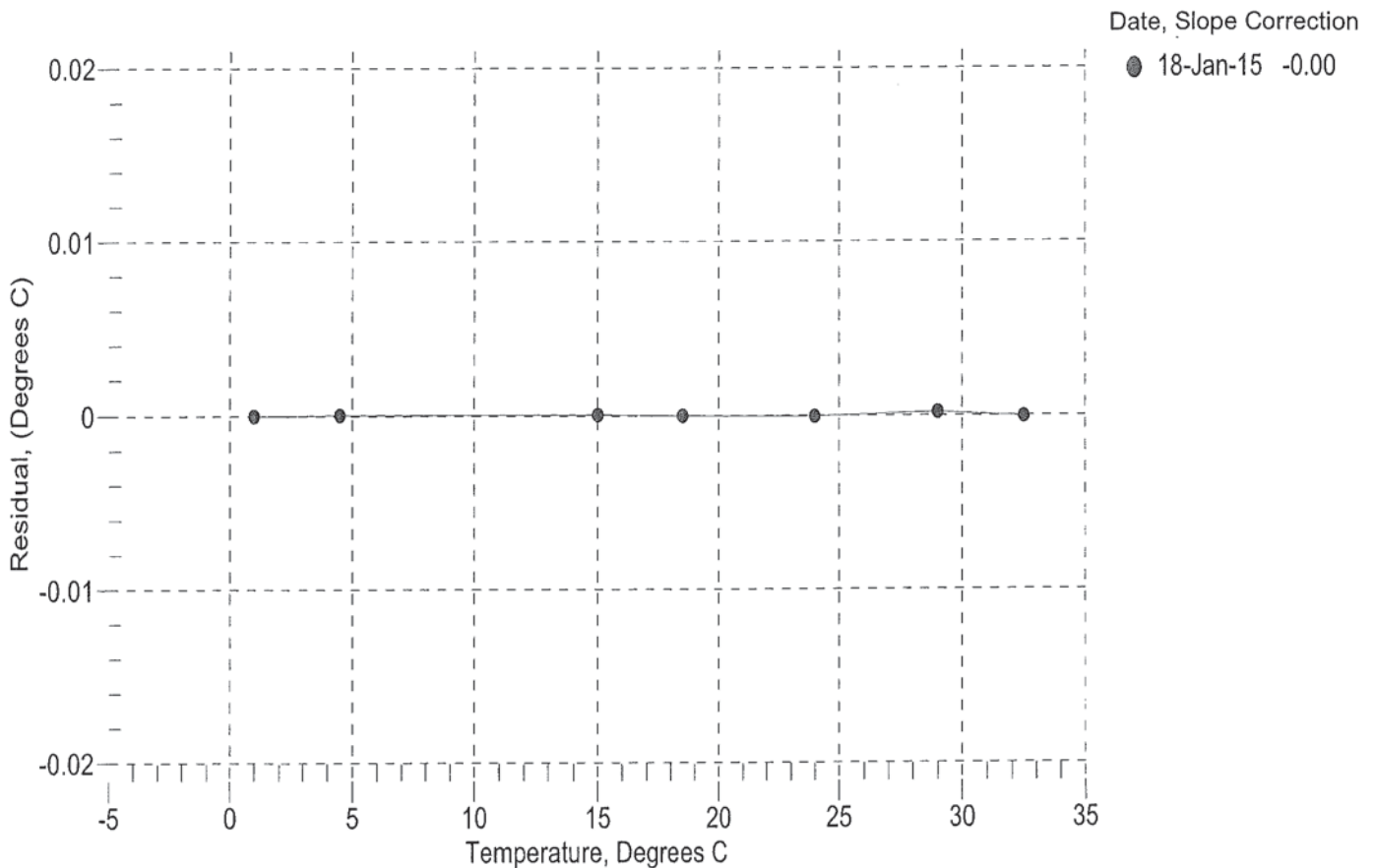
a3 = 2.087794e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	572567.6	1.0000	-0.0000
4.5000	490976.8	4.5000	0.0000
15.0000	315607.4	15.0000	0.0000
18.5000	274056.8	18.5000	-0.0000
23.9940	220879.6	23.9939	-0.0001
29.0000	182557.0	29.0002	0.0002
32.5000	160313.8	32.4999	-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



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: 9268
 CALIBRATION DATE: 18-Jan-15

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

COEFFICIENTS:

g = -9.978129e-001
 h = 1.423073e-001
 i = -1.974252e-004
 j = 3.503436e-005

CPcor = -9.5700e-008
 CTcor = 3.2500e-006
 WBOTC = 3.7725e-007

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	2650.53	0.00000	0.00000
1.0000	34.9138	2.98350	5290.51	2.98350	0.00000
4.5000	34.8941	3.29134	5490.56	3.29134	-0.00000
15.0000	34.8482	4.27511	6085.17	4.27511	-0.00000
18.5000	34.8392	4.62108	6280.65	4.62108	0.00000
23.9940	34.8293	5.17972	6583.74	5.17972	-0.00001
29.0000	34.8234	5.70335	6855.36	5.70336	0.00001
32.5000	34.8195	6.07648	7042.32	6.07648	-0.00001

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

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

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

Residual = instrument conductivity - bath conductivity

