

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: 9287
CALIBRATION DATE: 24-Feb-15

Slocum Payload CTD PRESSURE CALIBRATION DATA
FSR: 1450 psia S/N 4333818

COEFFICIENTS:

PA0 = 7.355500e-002
PA1 = 4.457199e-003
PA2 = -2.379310e-011
PTEMPA0 = 1.343777e+002
PTEMPA1 = -6.766155e-002
PTEMPA2 = 6.135517e-007

PTCA0 = 5.244813e+005
PTCA1 = 2.070634e+000
PTCA2 = -6.004862e-002
PTCB0 = 2.505300e+001
PTCB1 = -0.000000e+000
PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.78	527814.0	1687.0	14.85	0.01
315.03	595176.0	1687.0	314.98	-0.00
615.01	662552.0	1687.0	614.95	-0.00
914.99	729989.0	1685.0	914.98	-0.00
1214.92	797479.0	1682.0	1215.03	0.01
1464.89	853681.0	1682.0	1464.73	-0.01
1214.88	797479.0	1684.0	1215.03	0.01
915.04	730001.0	1683.0	915.04	-0.00
615.04	662569.0	1683.0	615.03	-0.00
315.08	595183.0	1686.0	315.01	-0.00
14.78	527802.0	1686.0	14.80	0.00

THERMAL CORRECTION

TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
32.50	1527	527842.25
29.00	1580	527846.75
23.99	1656	527845.50
18.50	1740	527852.75
15.00	1794	527857.25
4.50	1954	527850.00
1.00	2008	527833.50

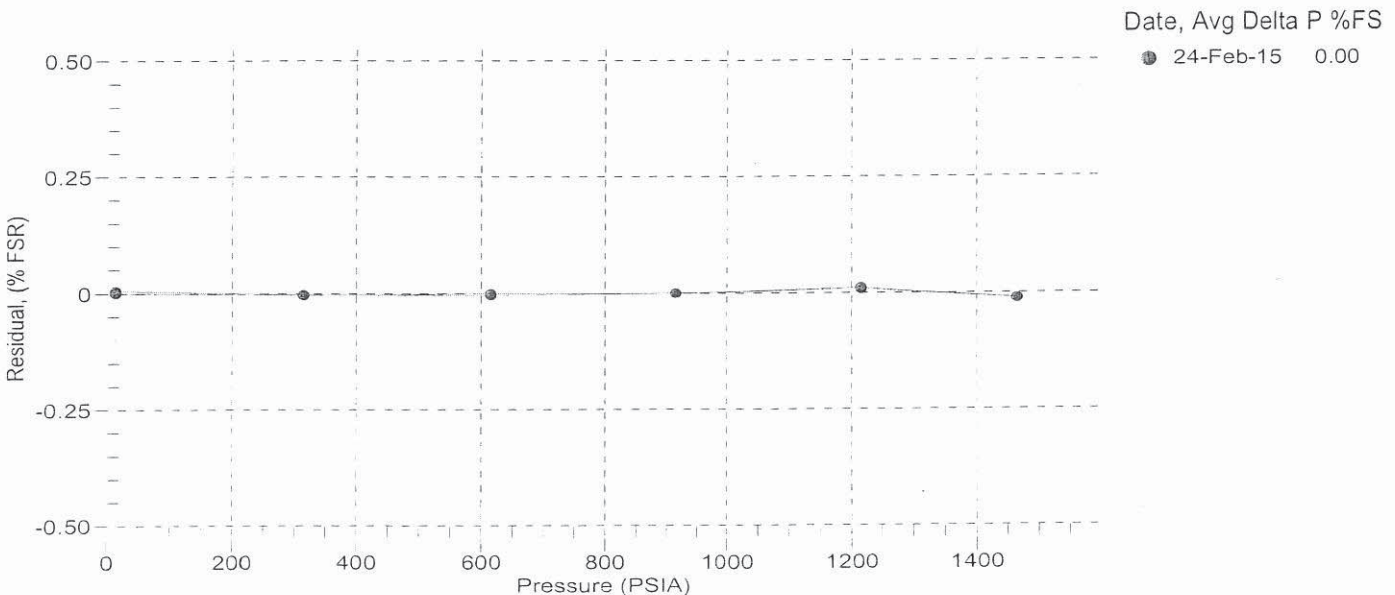
TEMP (ITS90)	SPAN (mV)
-5.00	25.05
35.00	25.05

$$y = \text{thermistor output}; t = P\text{TEMPA}0 + P\text{TEMPA}1 * y + P\text{TEMPA}2 * y^2$$

$$x = \text{pressure output} - P\text{TCA}0 - P\text{TCA}1 * t - P\text{TCA}2 * t^2$$

$$n = x * P\text{TCB}0 / (P\text{TCB}0 + P\text{TCB}1 * t + P\text{TCB}2 * t^2)$$

$$\text{pressure (psia)} = P\text{A}0 + P\text{A}1 * n + P\text{A}2 * n^2$$



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CALIBRATION DATE: 26-Feb-15

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

COEFFICIENTS:

g = -9.863115e-001	CPcor = -9.5700e-008
h = 1.511861e-001	CTcor = 3.2500e-006
i = -1.241900e-004	WBOTC = 1.3044e-007
j = 3.166295e-005	

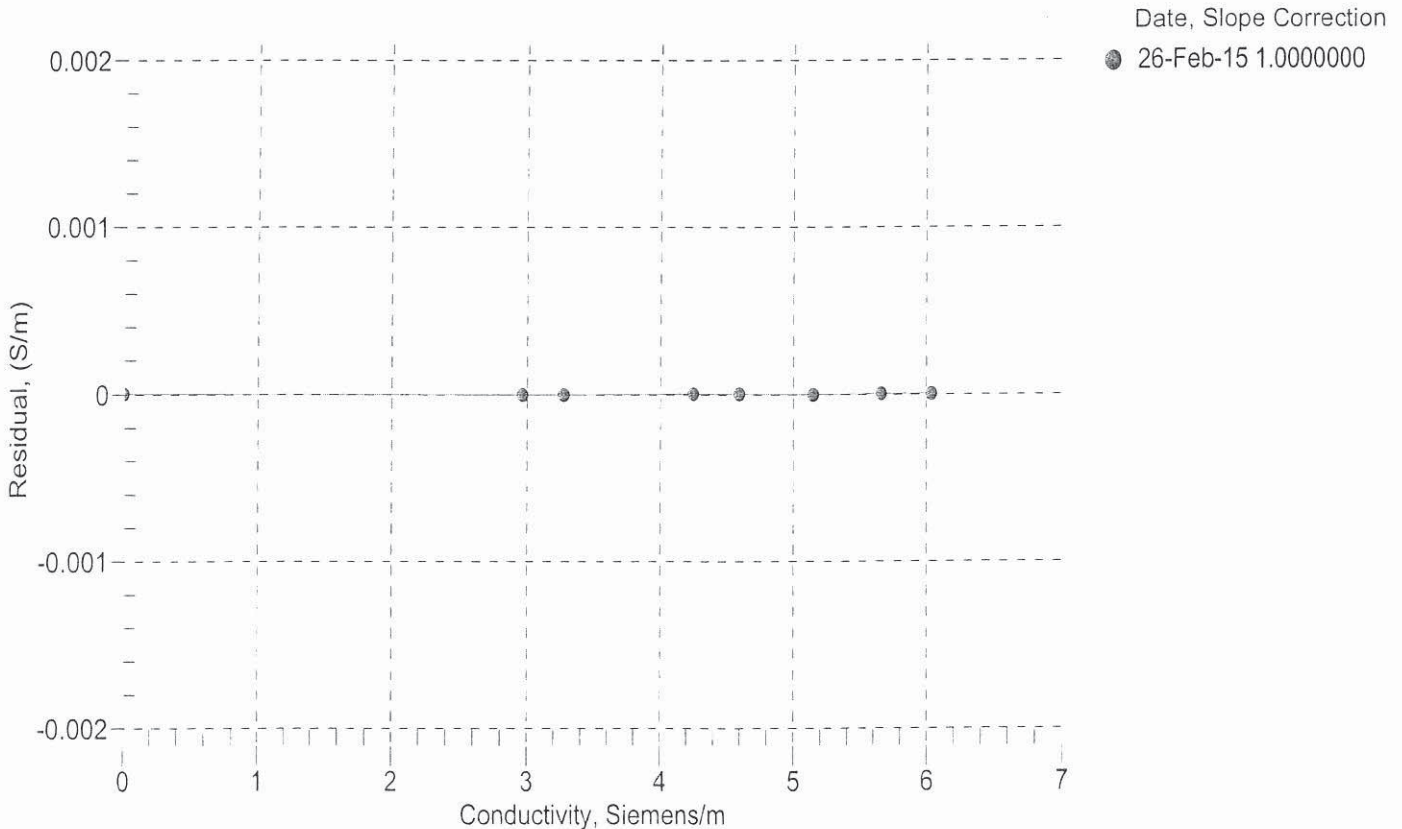
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2555.11	0.00000	0.00000
1.0000	34.6602	2.96389	5108.33	2.96389	-0.00000
4.5000	34.6404	3.26976	5301.74	3.26976	-0.00000
15.0000	34.5971	4.24756	5876.81	4.24756	0.00000
18.5000	34.5868	4.59120	6065.74	4.59120	0.00000
23.9940	34.5717	5.14563	6358.48	5.14563	-0.00000
29.0000	34.5650	5.66577	6621.07	5.66577	0.00000
32.5000	34.5600	6.03633	6801.81	6.03633	0.00000

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

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

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

Residual = instrument conductivity - bath conductivity



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
 ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.617225e-004
 a1 = 3.181442e-004
 a2 = -5.276363e-006
 a3 = 2.224468e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	573527.8	1.0000	0.0000
4.5000	490750.8	4.5000	-0.0000
15.0000	313537.8	15.0001	0.0001
18.5000	271734.5	18.4998	-0.0002
23.9940	218359.8	23.9943	0.0003
29.0000	180015.3	28.9998	-0.0002
32.5000	157802.8	32.5001	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

