

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: 9363
 CALIBRATION DATE: 06-Apr-16

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

COEFFICIENTS:

g = -9.814546e-001
 h = 1.282103e-001
 i = -1.133832e-004
 j = 2.503897e-005

CPcor = -9.5700e-008
 CTcor = 3.2500e-006
 WBOTC = 4.2143e-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	2768.08	0.00000	0.00000
1.0000	34.7269	2.96905	5547.87	2.96906	0.00001
4.5000	34.7073	3.27545	5758.21	3.27545	-0.00000
15.0000	34.6650	4.25501	6383.56	4.25500	-0.00001
18.5000	34.6561	4.59941	6589.05	4.59940	-0.00001
24.0000	34.6462	5.15611	6908.01	5.15612	0.00001
29.0000	34.6410	5.67683	7193.23	5.67685	0.00002
32.5000	34.6384	6.04847	7389.84	6.04845	-0.00002

$$f = \text{Instrument Output(Hz)} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$$

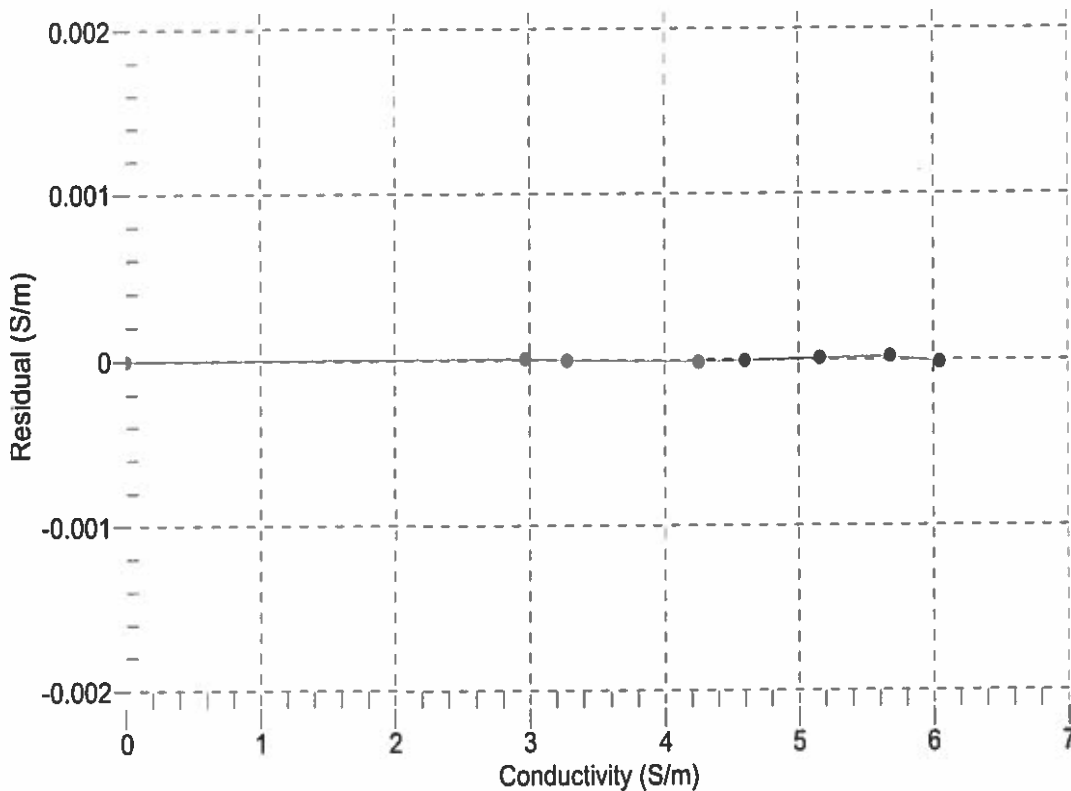
t = temperature (°C); p = pressure (decibars); δ = CTcor; ϵ = CPcor;

$$\text{Conductivity (S/m)} = (g + h * f^2 + i * f^3 + j * f^4) / 10 (1 + \delta * t + \epsilon * p)$$

Residual (Siemens/meter) = instrument conductivity - bath conductivity

Date, Slope Correction

● 06-Apr-16 1.0000000



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SENSOR SERIAL NUMBER: 9363
CALIBRATION DATE: 04-Apr-16

Slocum Payload CTD PRESSURE CALIBRATION DATA
1450 psia S/N 10087785

COEFFICIENTS:

PA0 = 3.668122e-001	PTCA0 = 5.243047e+005
PA1 = 4.544965e-003	PTCA1 = 9.918480e+000
PA2 = -2.339295e-011	PTCA2 = -2.814420e-001
PTEMPA0 = 1.379339e+002	PTCB0 = 2.505087e+001
PTEMPA1 = -6.568795e-002	PTCB1 = -2.500000e-005
PTEMPA2 = -1.108541e-006	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

THERMAL CORRECTION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)	TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
14.70	527548.0	1707.0	14.74	0.00	32.50	1564	527589.00
315.07	593643.0	1700.0	315.04	-0.00	29.00	1614	527588.60
615.05	659700.0	1697.0	614.96	-0.01	24.00	1687	527605.60
915.16	725840.0	1700.0	915.05	-0.01	18.50	1765	527622.40
1215.05	791999.0	1696.0	1215.03	-0.00	15.00	1816	527665.40
1465.04	847159.0	1693.0	1464.97	-0.00	4.50	1966	527587.00
1215.00	792022.0	1698.0	1215.13	0.01	1.00	2016	527552.00
915.03	725857.0	1696.0	915.13	0.01			
614.99	659735.0	1698.0	615.12	0.01			
315.15	593643.0	1697.0	315.05	-0.01	TEMPERATURE (°C)	SPAN (mV)	
14.71	527544.0	1696.0	14.73	0.00	-5.00	25.05	
					35.00	25.05	

y = thermistor output (counts)

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

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

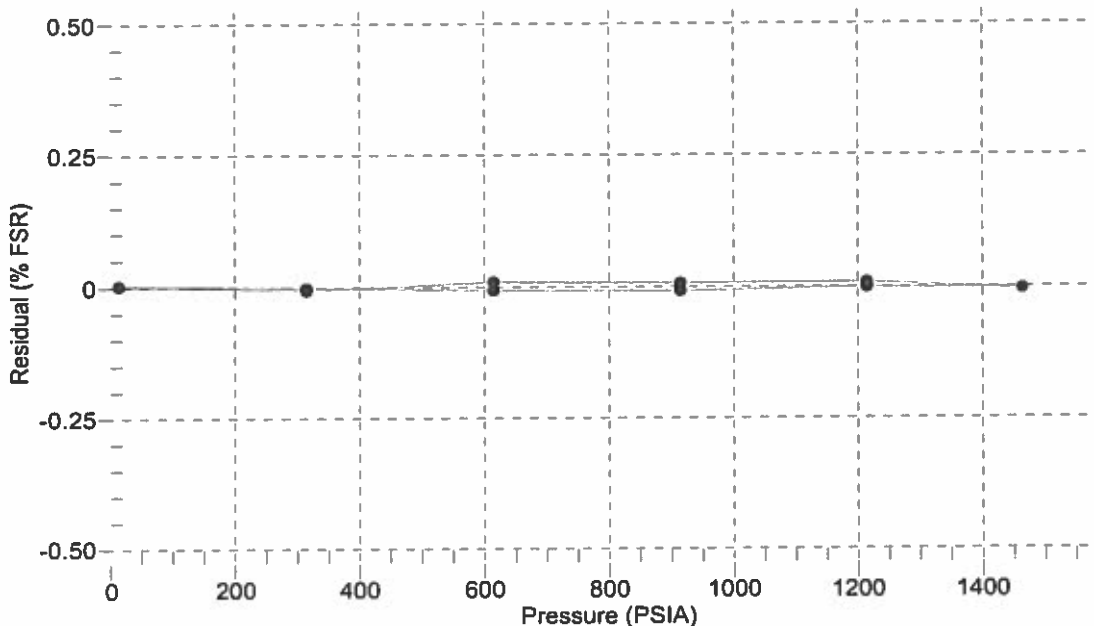
$$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$$

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

$$\text{Residual (\%FSR)} = (\text{computed pressure} - \text{true pressure}) * 100 / \text{Full Scale Range}$$

Date, Offset (%FSR)

● 04-Apr-16 -0.00



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.237421e-004

a1 = 3.068351e-004

a2 = -4.305214e-006

a3 = 1.962608e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	577948.2	1.0001	0.0001
4.5000	494720.0	4.4998	-0.0002
15.0000	316423.0	15.0002	0.0002
18.5000	274335.6	18.5000	-0.0000
24.0000	220526.8	24.0000	0.0000
29.0000	181933.4	28.9998	-0.0002
32.5000	159539.2	32.5001	0.0001

n = Instrument Output (counts)

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

Residual (°C) = instrument temperature - bath temperature

