



SEA-BIRD
SCIENTIFIC

SBE Sea-Bird
Electronics

Sea-Bird Electronics
13431 NE 20th Street
Bellevue, Washington
98005 USA

Tel: +1 425-643-9866
seabird@seabird.com
www.seabird.com

SBE41-CP ALACE

Instrument Configuration

Instrument Serial Number: 41-7724
Instrument Firmware Version: V 7.2.5
Zero Conductivity Frequency: 2541.90
Communications Format: RS232
Communications Settings: 9600 baud, 8 Data Bits, No Parity

Installed Devices/Sensors

<i>Data Format</i>	<i>Measurement</i>	<i>Sensor Type</i>	<i>Serial Number</i>	<i>Rating</i>
Count	Temperature	Internal	N/A	N/A
Frequency	Conductivity	Internal	N/A	N/A
Count	Pressure	Kistler	4750379	4000m(7000 dBar)

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SENSOR SERIAL NUMBER: 7724
CALIBRATION DATE: 27-Oct-15

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

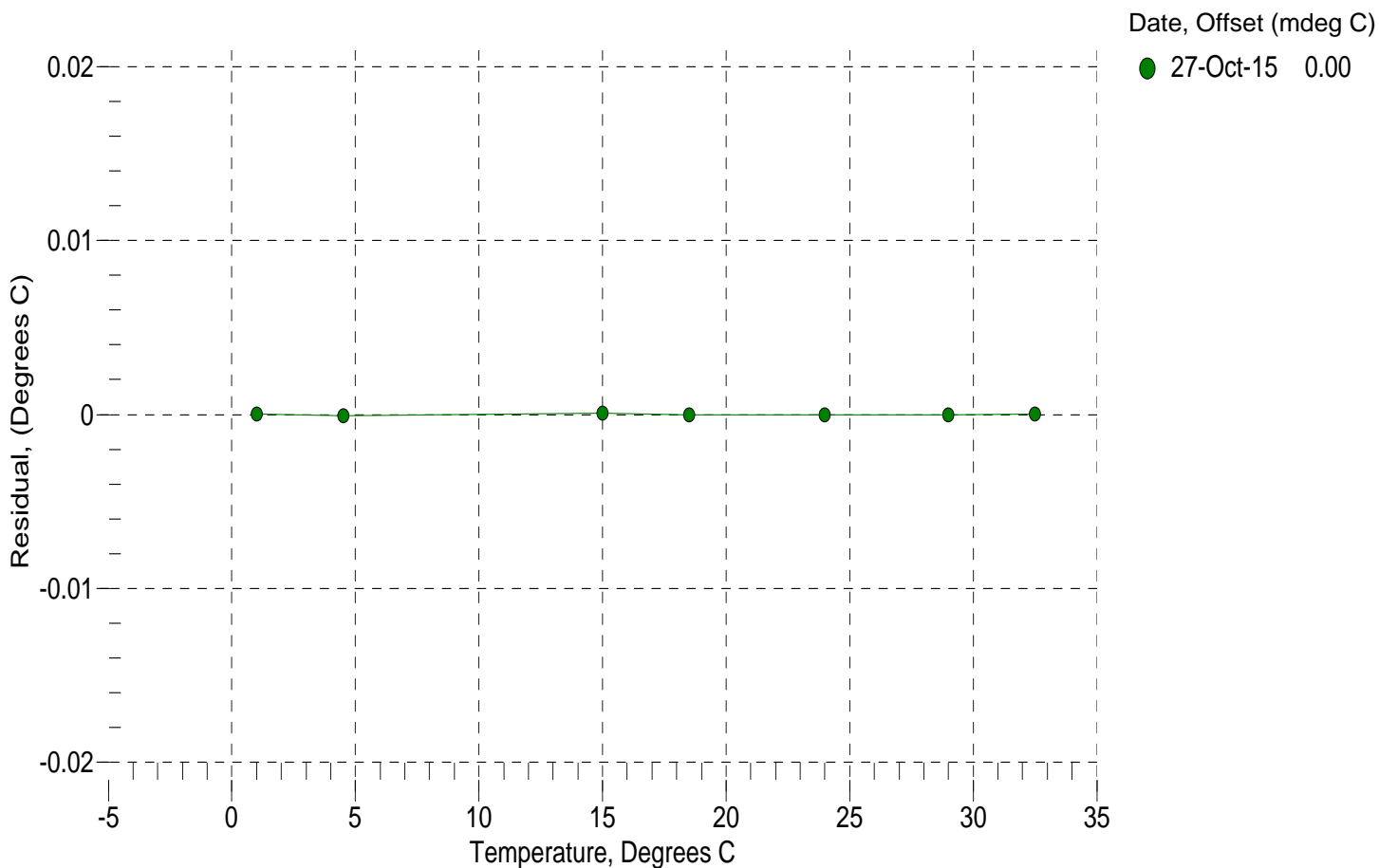
a0 = -7.966832e-004
a1 = 2.825396e-004
a2 = -3.170802e-006
a3 = 1.355893e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0001	16627108.9	1.0001	0.0000
4.5000	14181336.7	4.4999	-0.0001
15.0000	8974263.7	15.0001	0.0001
18.5000	7753338.4	18.5000	-0.0000
23.9940	6200108.7	23.9940	-0.0000
29.0000	5088624.5	29.0000	-0.0000
32.5000	4447002.2	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



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SBE 41 CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

COEFFICIENTS:

g = -9.839762e-001
h = 1.529789e-001
i = -4.102271e-004
j = 5.464894e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = -1.6390e-007

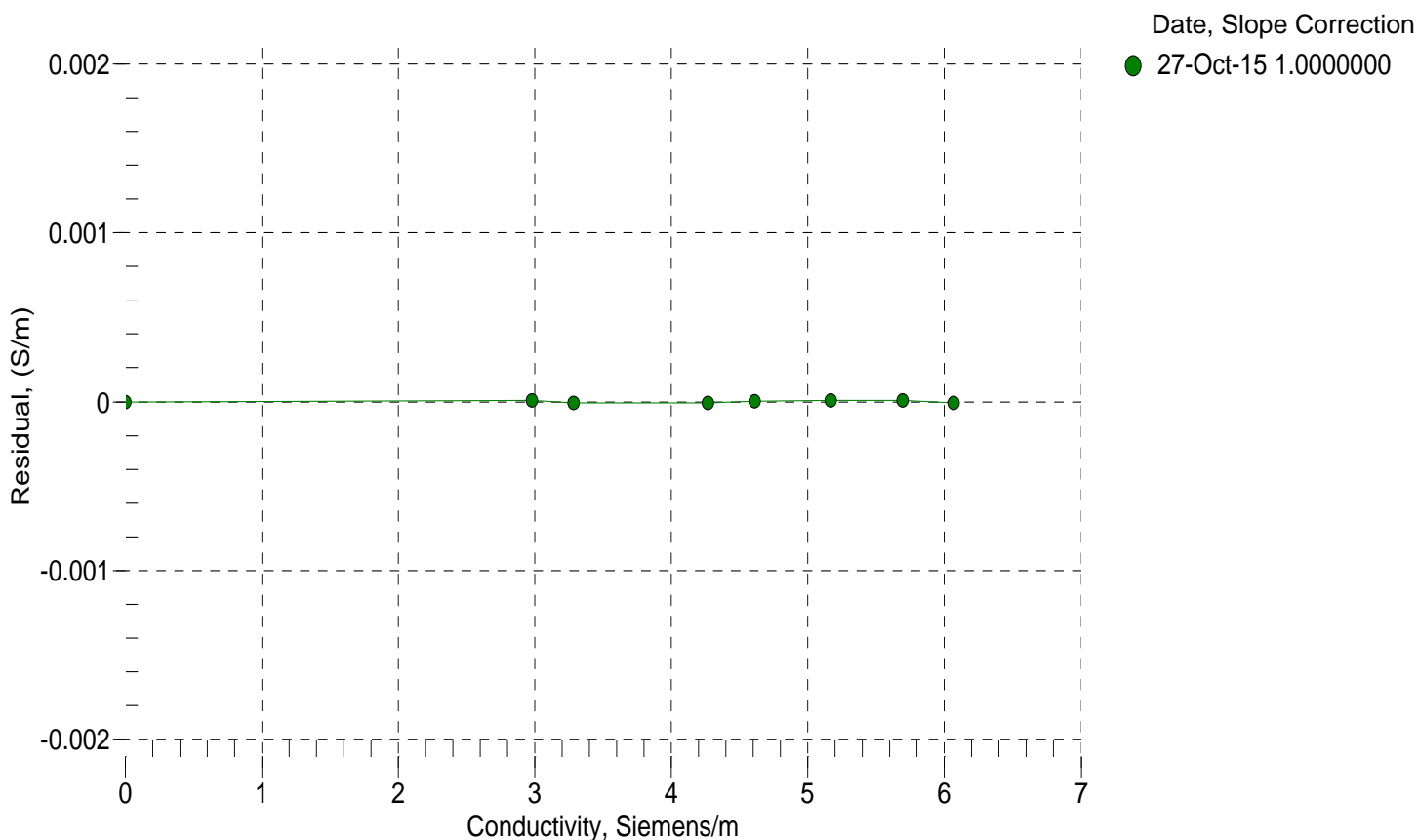
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2541.90	0.00000	0.00000
1.0001	34.8288	2.97694	5099.61	2.97695	0.00001
4.5000	34.8095	3.28415	5293.17	3.28414	-0.00001
15.0000	34.7672	4.26623	5868.51	4.26622	-0.00001
18.5000	34.7579	4.61146	6057.52	4.61146	0.00000
23.9940	34.7477	5.16893	6350.53	5.16893	0.00001
29.0000	34.7421	5.69153	6613.08	5.69154	0.00001
32.5000	34.7389	6.06402	6793.81	6.06401	-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



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SENSOR SERIAL NUMBER: 7724
CALIBRATION DATE: 20-Oct-15

SBE 41 PRESSURE CALIBRATION DATA
10153 psia S/N 4750379

COEFFICIENTS:

PA0 =	1.072617e+000	PTCA0 =	1.816384e+003
PA1 =	1.368386e-003	PTCA1 =	2.625571e+001
PA2 =	4.583882e-012	PTCA2 =	3.759869e-001
PTHA0 =	3.122886e+002	PTCB0 =	9.876934e+001
PTHA1 =	-8.744328e-005	PTCB1 =	-2.603494e-003
PTHA2 =	2.576380e-012	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.74	12910.83721458.6		15.19	0.00
2001.44	1455014.13719730.4		1999.40	-0.02
3988.35	2885874.43718507.2		3987.01	-0.01
5975.39	4304037.03717473.4		5975.54	0.00
7962.36	5708615.63716603.2		7963.22	0.01
9949.85	7098603.73715735.0		9948.09	-0.02
7962.33	5709075.93716638.0		7963.88	0.02
5975.34	4304750.93717168.8		5976.55	0.01
3988.26	2886870.53717497.4		3988.41	0.00
2001.43	1456084.43717807.8		2000.88	-0.01
14.75	13558.93717303.4		16.06	0.01

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	576596.20	13516.40
29.00	627279.20	13335.09
23.99	700325.20	13088.82
18.50	780990.60	12880.95
15.00	832685.80	12741.25
4.50	988375.00	12391.23
1.00	1041159.60	12279.13
TEMP(ITS90)		SPAN(mV)
-5.25	98.78	
35.05	98.68	

$$y = \text{thermistor output}; t = \text{PTHA0} + \text{PTHA1} * y + \text{PTHA2} * y^2$$

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

$$n = x * \text{PTCB0} / (\text{PTCB0} + \text{PTCB1} * t + \text{PTCB2} * t^2)$$

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

