



SEA-BIRD
SCIENTIFIC

SBE Sea-Bird
Electronics

Sea-Bird Electronics
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SBE41-CP ALACE

Instrument Configuration

Instrument Serial Number: 41-7297
 Instrument Firmware Version: ALACE-CP V 3.0C
 Zero Conductivity Frequency: 2661.99
 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	4669457	2000m(2000 dBar)

CAUTION - This instrument is not intended for underwater use

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SENSOR SERIAL NUMBER: 7297
CALIBRATION DATE: 09-Jun-15

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

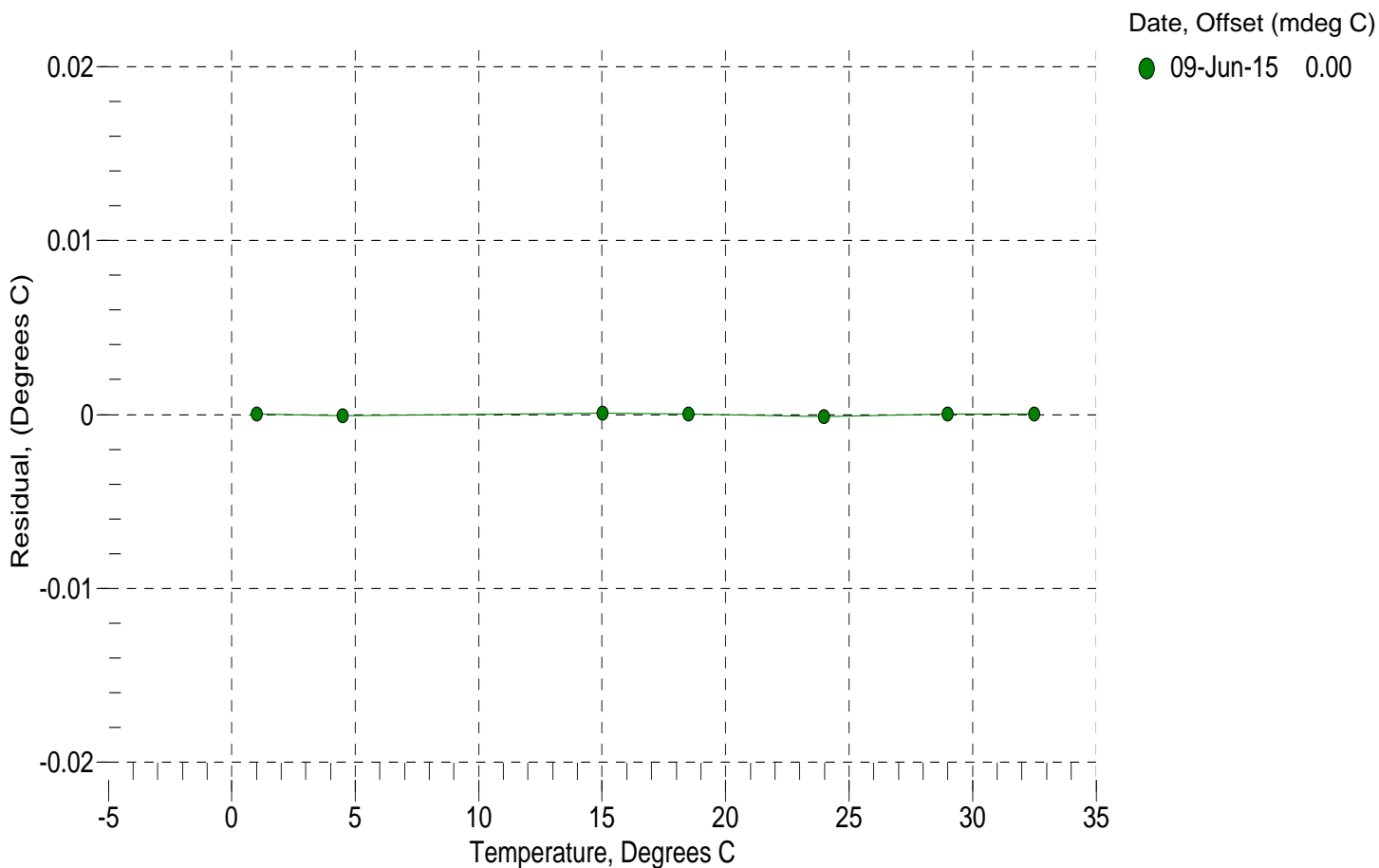
a0 = 8.380251e-005
a1 = 2.701600e-004
a2 = -2.143801e-006
a3 = 1.444874e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
0.9999	618151.6	0.9999	0.0000
4.5000	527367.3	4.4999	-0.0001
15.0000	333988.1	15.0001	0.0001
18.4999	288620.2	18.4999	0.0000
23.9940	230885.6	23.9939	-0.0001
29.0000	189555.3	29.0000	0.0000
32.5000	165690.7	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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SENSOR SERIAL NUMBER: 7297
CALIBRATION DATE: 09-Jun-15

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

COEFFICIENTS:

g = -9.934481e-001
h = 1.406615e-001
i = -2.799304e-004
j = 3.948961e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = -3.4431e-007

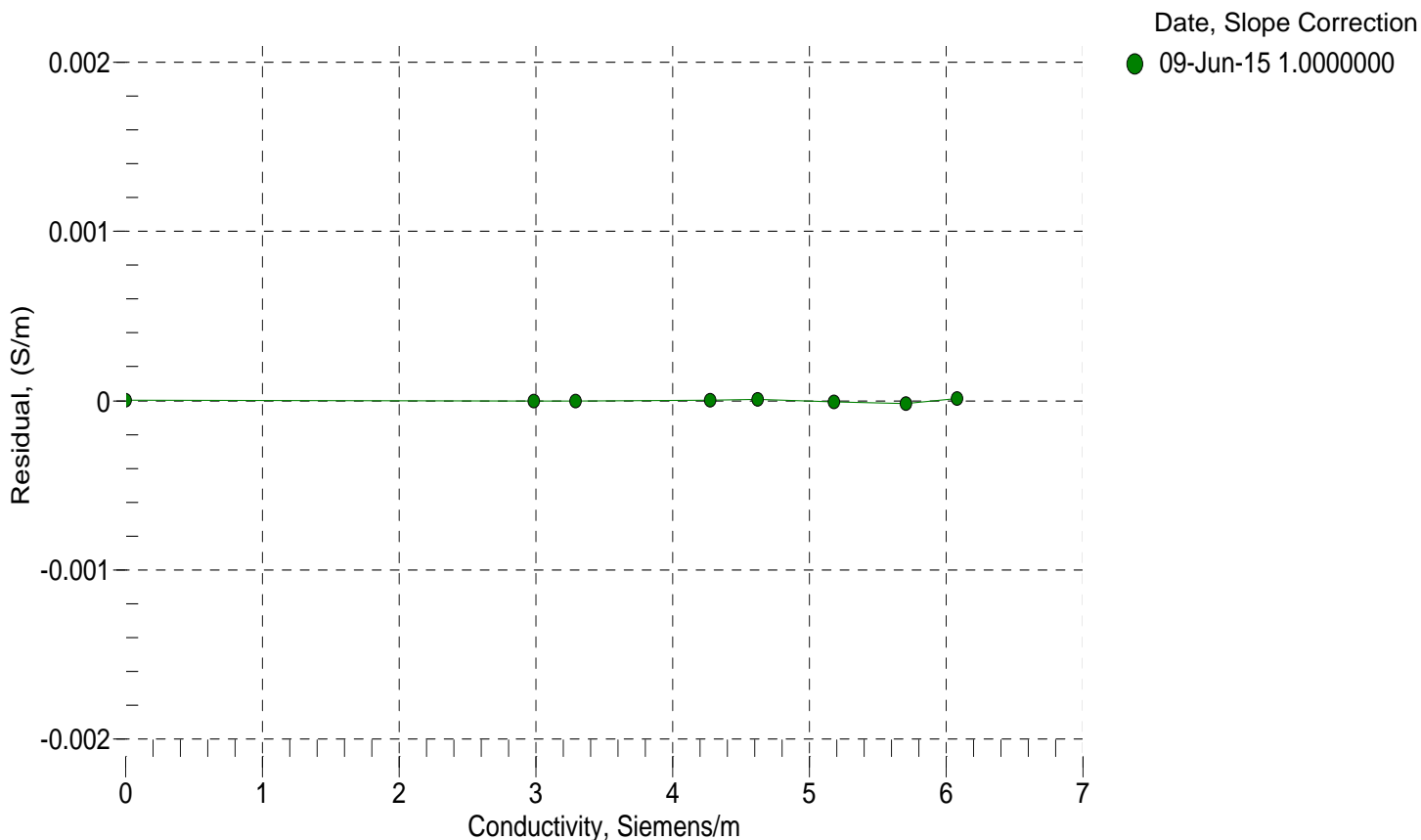
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2661.99	0.00000	0.00000
0.9999	34.9427	2.98573	5325.77	2.98572	-0.00000
4.5000	34.9229	3.29379	5527.52	3.29379	-0.00000
15.0000	34.8807	4.27868	6127.38	4.27868	0.00000
18.4999	34.8716	4.62490	6324.47	4.62491	0.00001
23.9940	34.8616	5.18400	6630.07	5.18399	-0.00001
29.0000	34.8561	5.70810	6903.94	5.70809	-0.00002
32.5000	34.8528	6.08163	7092.49	6.08165	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: 7297
CALIBRATION DATE: 02-Jun-15

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 4669457

COEFFICIENTS:

PA0 = -4.655098e-001	PTCA0 = 1.177046e+002
PA1 = 1.410630e-001	PTCA1 = -6.199660e-001
PA2 = 1.054934e-008	PTCA2 = 2.038770e-002
PTHA0 = -9.635815e+001	PTCB0 = 1.036241e+002
PTHA1 = 4.004499e-002	PTCB1 = -3.635582e-003
PTHA2 = 1.159112e-006	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.61	221.8	2771.6	14.70	0.00
592.79	4315.0	2774.7	592.75	-0.00
1170.47	8403.8	2776.3	1170.55	0.00
1748.31	12491.0	2777.5	1748.48	0.01
2326.06	16574.4	2779.0	2326.22	0.01
2903.84	20653.4	2780.0	2903.70	-0.00
2326.03	16573.1	2780.2	2326.04	0.00
1748.18	12488.6	2780.3	1748.14	-0.00
1170.57	8403.2	2780.9	1170.46	-0.00
592.84	4313.5	2781.5	592.53	-0.01
14.61	222.1	2782.8	14.71	0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2963.60	230.70
29.00	2888.90	228.50
23.99	2781.40	226.13
18.50	2663.00	224.87
15.00	2587.20	224.59
4.50	2357.50	226.93
1.00	2280.80	228.72

TEMP(ITS90)	SPAN(mV)
-4.38	103.64
37.48	103.49

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

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

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

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

