



SEA-BIRD
SCIENTIFIC

SBE Sea-Bird
Electronics

Sea-Bird Electronics
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SBE41-CP ALACE

Instrument Configuration

Instrument Serial Number: 41-7299
Instrument Firmware Version: ALACE-CP V 3.0C
Zero Conductivity Frequency: 2688.36
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	4645051	2000m(2000 dBar)

CAUTION - This instrument is not intended for underwater use

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SENSOR SERIAL NUMBER: 7299
CALIBRATION DATE: 06-Jun-15

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

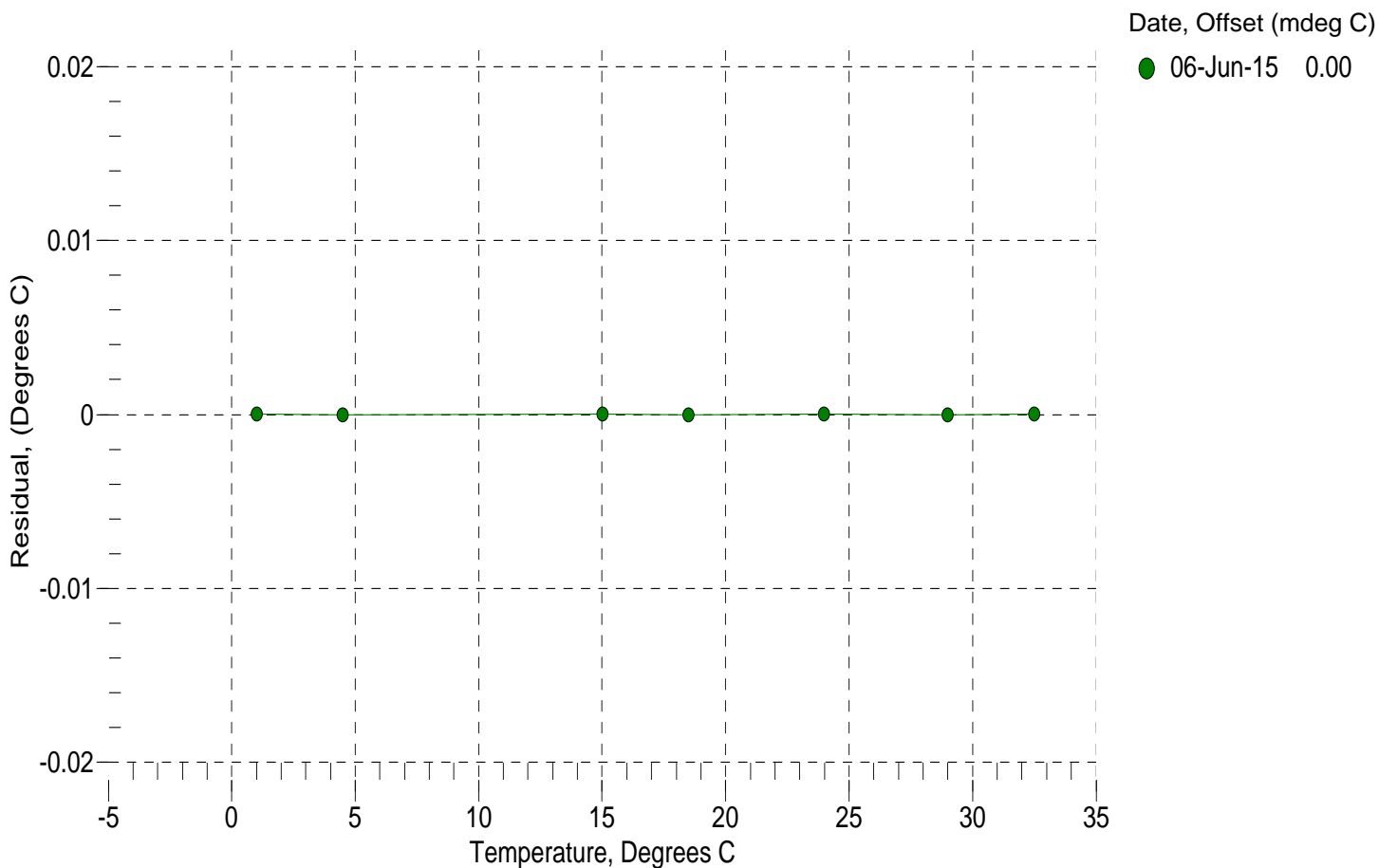
a0 = 5.845262e-005
a1 = 2.664807e-004
a2 = -1.937419e-006
a3 = 1.371808e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
0.9999	747995.2	0.9999	0.0000
4.4999	637894.1	4.4999	-0.0000
15.0000	403530.3	15.0000	0.0000
18.4999	348588.4	18.4999	-0.0000
23.9940	278697.3	23.9940	0.0000
29.0000	228692.8	29.0000	-0.0000
32.5000	199829.8	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: 7299
CALIBRATION DATE: 06-Jun-15

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

COEFFICIENTS:

g = -9.984875e-001
h = 1.386164e-001
i = -2.749098e-004
j = 3.841247e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 2.7895e-007

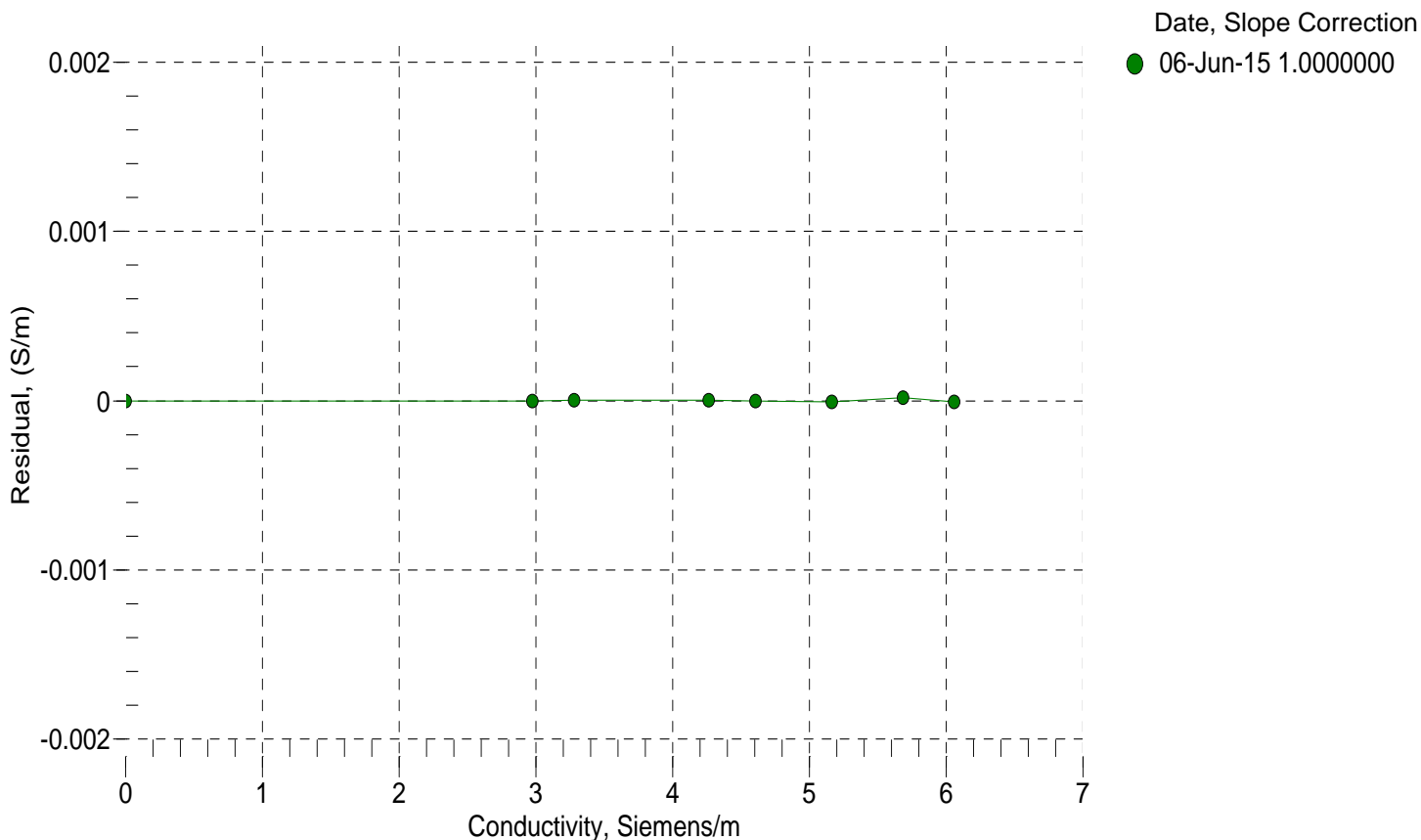
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2688.36	0.00000	0.00000
0.9999	34.8104	2.97550	5361.50	2.97550	-0.00000
4.4999	34.7908	3.28255	5564.21	3.28255	0.00000
15.0000	34.7489	4.26422	6166.98	4.26422	0.00000
18.4999	34.7399	4.60932	6365.05	4.60931	-0.00000
23.9940	34.7298	5.16656	6672.19	5.16655	-0.00001
29.0000	34.7240	5.68890	6947.44	5.68892	0.00002
32.5000	34.7206	6.06119	7136.92	6.06118	-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: 7299
CALIBRATION DATE: 02-Jun-15

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 4645051

COEFFICIENTS:

PA0 =	4.279744e-001	PTCA0 =	3.116718e+002
PA1 =	1.407244e-001	PTCA1 =	-3.935443e-001
PA2 =	9.931221e-009	PTCA2 =	2.256639e-002
PTHA0 =	-9.637775e+001	PTCB0 =	1.048888e+002
PTHA1 =	3.958170e-002	PTCB1 =	-8.602334e-003
PTHA2 =	1.196379e-006	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.61	416.3	2786.8	14.75	0.00
592.34	4511.5	2793.1	592.31	-0.00
1169.84	8604.7	2794.1	1169.95	0.00
1747.18	12694.0	2795.0	1747.37	0.01
2324.55	16780.4	2795.6	2324.72	0.01
2901.95	20862.7	2796.3	2901.82	-0.00
2324.51	16778.8	2796.2	2324.49	-0.00
1747.03	12691.2	2796.6	1746.98	-0.00
1169.82	8602.9	2796.1	1169.69	-0.00
592.26	4509.2	2796.0	591.98	-0.01
14.61	415.9	2797.3	14.65	0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2986.30	428.91
29.00	2911.60	425.47
23.99	2803.40	421.43
18.50	2684.60	418.33
15.00	2608.10	417.06
4.50	2377.80	416.53
1.00	2300.20	417.54

TEMP(ITS90)	SPAN(mV)
-5.05	104.93
35.99	104.58

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

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

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

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

