



SEA-BIRD
SCIENTIFIC

SBE Sea-Bird
Electronics

Sea-Bird Electronics
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SBE41-CP ALACE

Instrument Configuration

Instrument Serial Number: 41-7278
Instrument Firmware Version: ALACE-CP V 3.0C
Zero Conductivity Frequency: 2616.94
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	4669455	2000m(2000 dBar)

CAUTION - This instrument is not intended for underwater use

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SENSOR SERIAL NUMBER: 7278
CALIBRATION DATE: 10-Jun-15

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

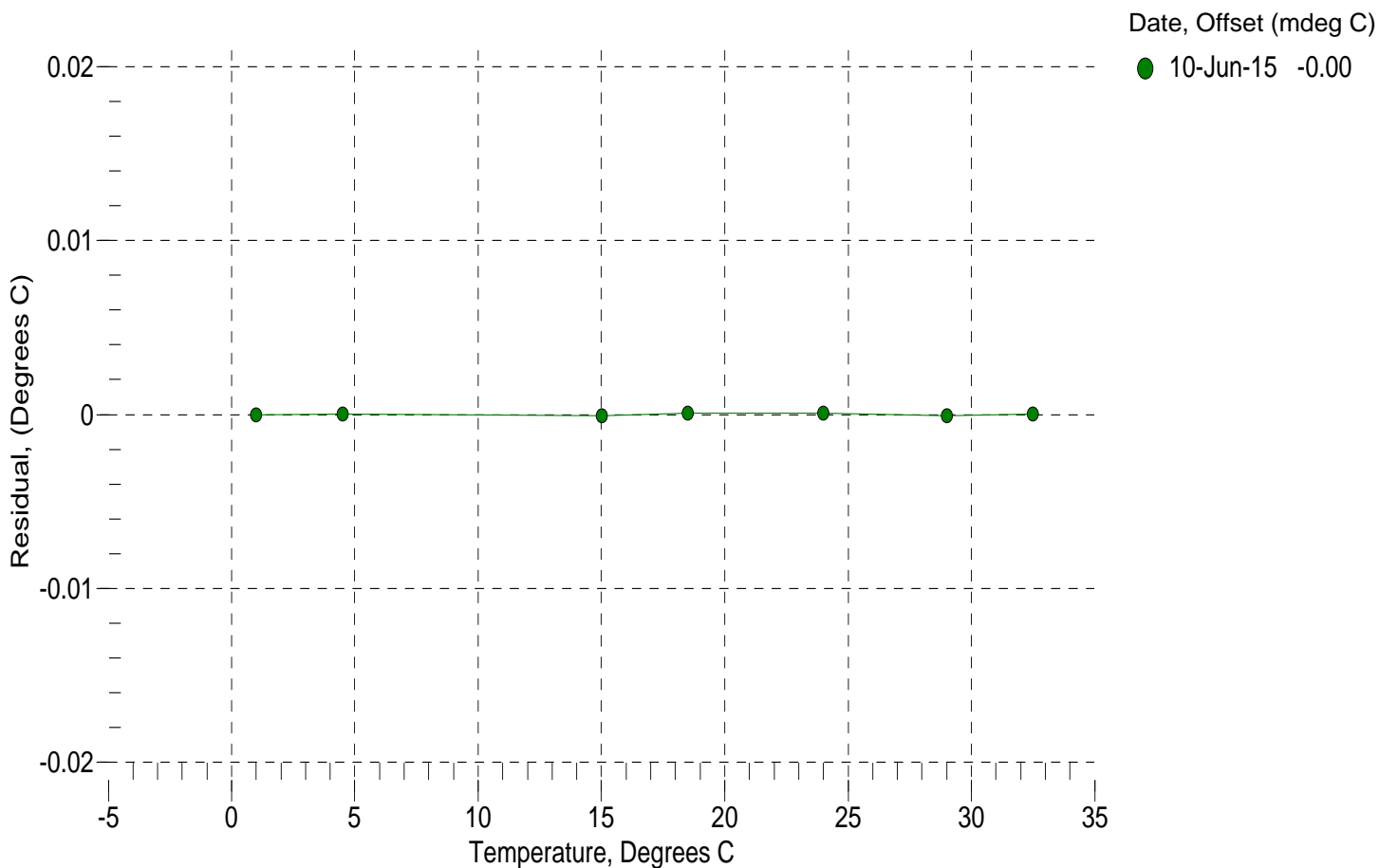
a0 = 3.398307e-005
a1 = 2.789473e-004
a2 = -2.815126e-006
a3 = 1.621549e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	640069.5	1.0000	-0.0000
4.5000	546231.1	4.5000	0.0000
15.0000	346234.2	14.9999	-0.0001
18.5000	299280.2	18.5001	0.0001
23.9940	239511.2	23.9941	0.0001
29.0000	196710.9	28.9999	-0.0001
32.5000	171988.2	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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SENSOR SERIAL NUMBER: 7278
CALIBRATION DATE: 10-Jun-15

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

COEFFICIENTS:

g = -9.872879e-001
h = 1.448817e-001
i = -4.090004e-004
j = 5.115202e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 1.9104e-007

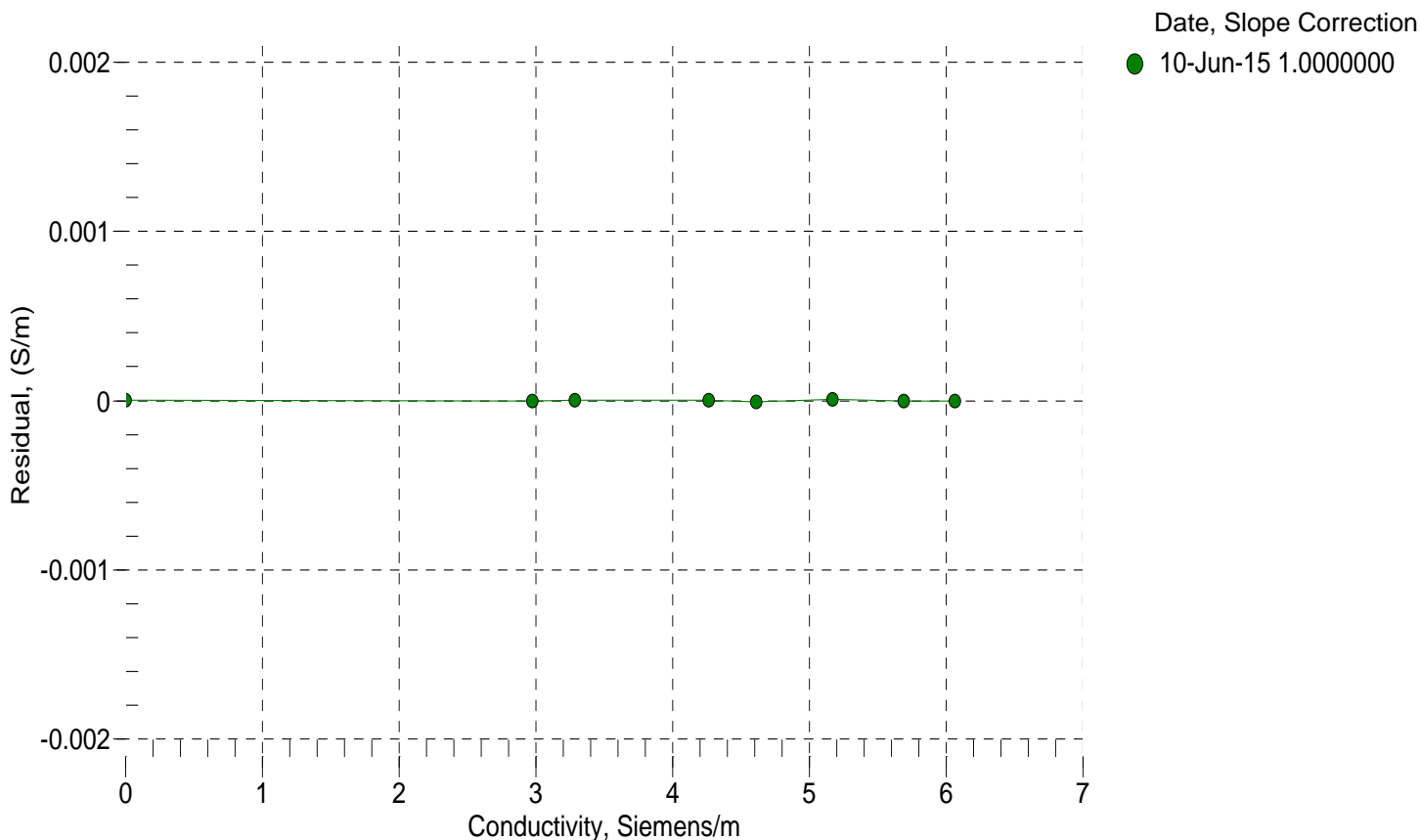
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2616.95	0.00000	0.00000
1.0000	34.8379	2.97764	5244.69	2.97763	-0.00000
4.5000	34.8177	3.28484	5443.59	3.28485	0.00000
15.0000	34.7753	4.26712	6034.93	4.26712	0.00000
18.5000	34.7665	4.61248	6229.21	4.61247	-0.00001
23.9940	34.7570	5.17016	6530.43	5.17017	0.00001
29.0000	34.7520	5.69297	6800.33	5.69297	-0.00000
32.5000	34.7496	6.06567	6986.16	6.06567	-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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SENSOR SERIAL NUMBER: 7278
CALIBRATION DATE: 21-May-15

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 4669455

COEFFICIENTS:

PA0 = -1.319979e+000	PTCA0 = 1.494743e+002
PA1 = 1.392462e-001	PTCA1 = -8.967459e-001
PA2 = 1.005455e-008	PTCA2 = 2.119289e-002
PTHA0 = -9.662359e+001	PTCB0 = 1.051496e+002
PTHA1 = 4.040789e-002	PTCB1 = -7.641410e-003
PTHA2 = 1.108277e-006	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.54	254.4	2733.1	14.63	0.00
592.33	4395.6	2739.1	592.40	0.00
1169.91	8533.0	2740.5	1169.99	0.00
1747.37	12667.2	2741.8	1747.48	0.00
2324.83	16798.8	2743.5	2324.96	0.00
2902.26	20926.0	2744.1	2902.17	-0.00
2324.78	16797.3	2744.4	2324.76	-0.00
1747.25	12665.4	2744.7	1747.25	-0.00
1169.94	8531.5	2744.8	1169.80	-0.00
592.26	4392.7	2745.3	592.01	-0.01
14.53	253.8	2745.4	14.55	0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2955.90	263.09
29.00	2881.30	261.84
23.99	2773.60	260.66
18.50	2655.80	260.55
15.00	2580.00	261.23
4.50	2350.80	266.29
1.00	2274.20	269.09

TEMP(ITS90)	SPAN(mV)
-4.38	105.18
37.48	104.86

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

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

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

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

