



SEA-BIRD
SCIENTIFIC

SBE Sea-Bird
Electronics

Sea-Bird Electronics
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SBE41-CP ALACE

Instrument Configuration

Instrument Serial Number: 41-7723
Instrument Firmware Version: V 7.2.5
Zero Conductivity Frequency: 2554.41
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	4750378	4000m(7000 dBar)

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SENSOR SERIAL NUMBER: 7723
CALIBRATION DATE: 27-Oct-15

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

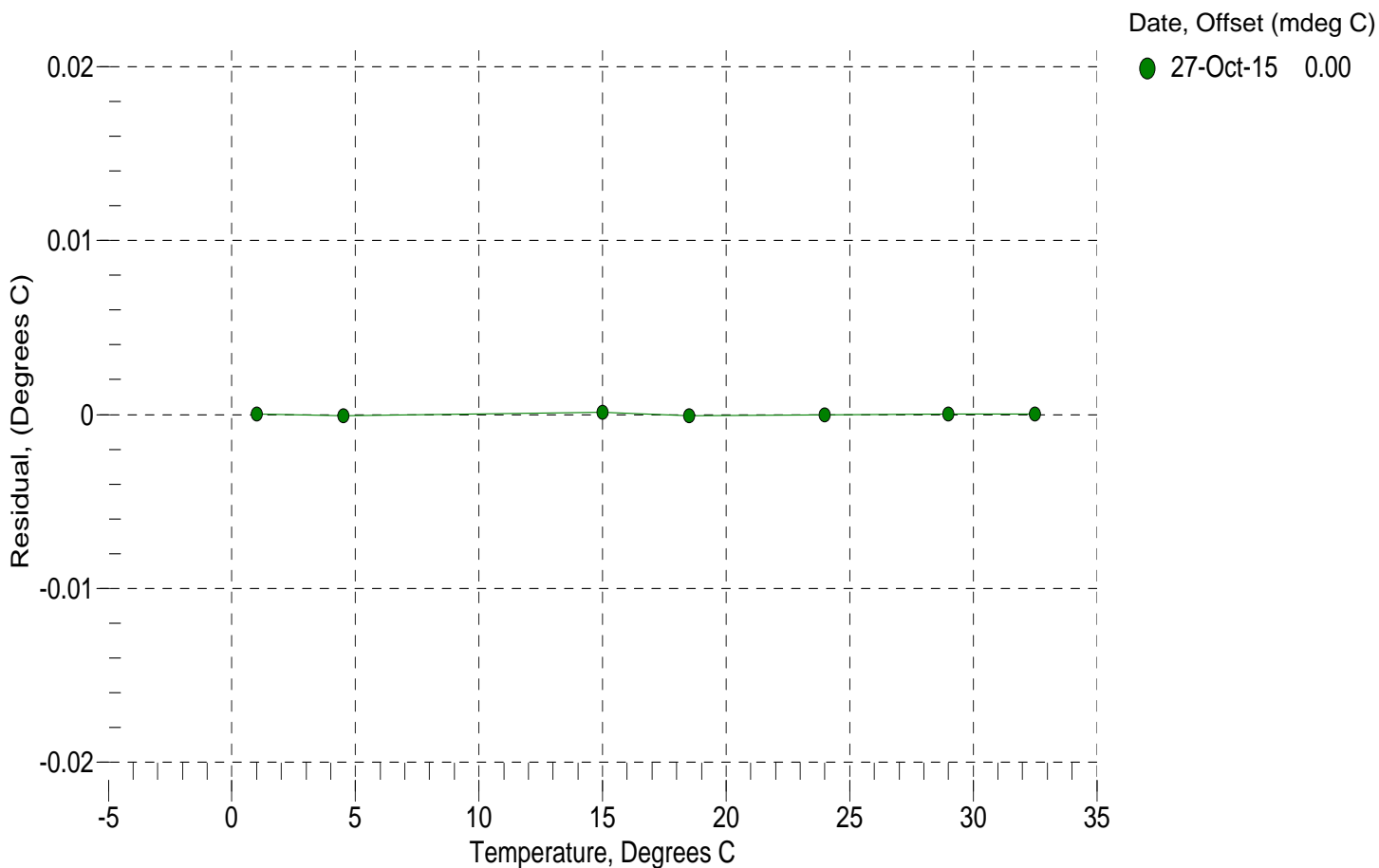
a0 = -8.107013e-004
a1 = 2.876144e-004
a2 = -3.453365e-006
a3 = 1.430092e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0001	15187900.6	1.0001	0.0000
4.5000	12962110.3	4.4999	-0.0001
15.0000	8217644.2	15.0001	0.0001
18.5000	7103789.0	18.4999	-0.0001
23.9940	5685689.9	23.9940	-0.0000
29.0000	4670057.9	29.0000	0.0000
32.5000	4083387.3	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 = -9.926276e-001

CPcor = -9.5700e-008

h = 1.528742e-001

CTcor = 3.2500e-006

i = -4.346620e-004

WBOTC = 2.9358e-007

j = 5.551048e-005

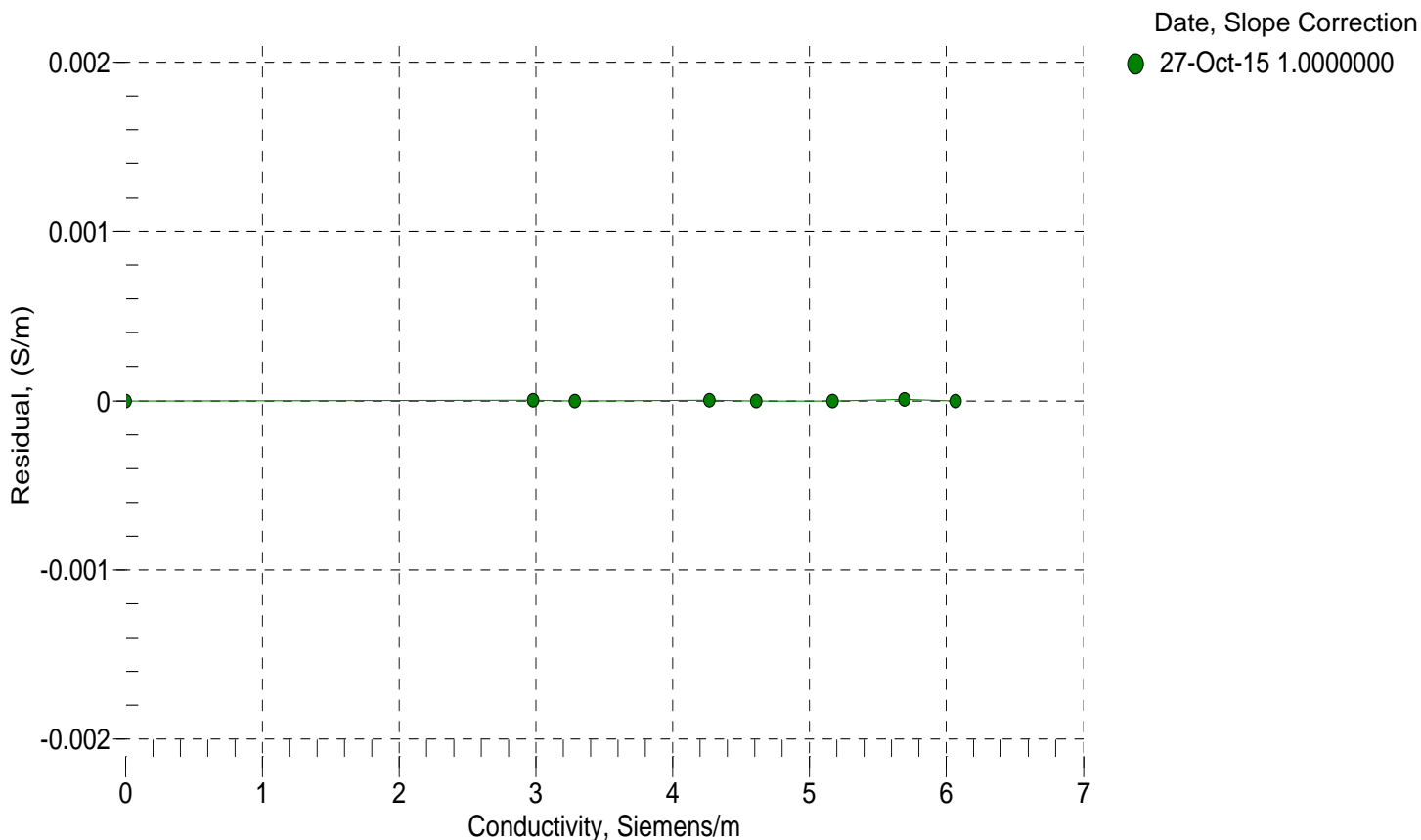
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2554.41	0.00000	0.00000
1.0001	34.8288	2.97694	5108.63	2.97694	0.00000
4.5000	34.8095	3.28415	5302.16	3.28414	-0.00000
15.0000	34.7672	4.26623	5877.51	4.26623	0.00000
18.5000	34.7579	4.61146	6066.53	4.61145	-0.00000
23.9940	34.7477	5.16893	6359.60	5.16893	-0.00000
29.0000	34.7421	5.69153	6622.22	5.69154	0.00001
32.5000	34.7389	6.06402	6803.01	6.06401	-0.00000

$f = \text{INST FREQ} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$

Conductivity = $(g + h * f^2 + i * f^3 + j * f^4) / (1 + \delta * t + \epsilon * p)$ Siemens / meter

t = temperature[°C]; p = pressure[decibars]; $\delta = \text{CTcor}$; $\epsilon = \text{CPcor}$;

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 7723
CALIBRATION DATE: 20-Oct-15

SBE 41 PRESSURE CALIBRATION DATA
10153 psia S/N 4750378

COEFFICIENTS:

PA0 = 8.307791e-001	PTCA0 = -7.271075e+003
PA1 = 1.304791e-003	PTCA1 = -7.185195e+001
PA2 = 4.144946e-012	PTCA2 = 4.423912e+000
PTHA0 = 3.335705e+002	PTCB0 = 1.033709e+002
PTHA1 = -9.772422e-005	PTCB1 = -9.334359e-003
PTHA2 = 3.703731e-012	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.74	4307.53701374.4		15.14	0.00
2001.44	1514500.73699951.8		1999.29	-0.02
3988.35	3013029.73698935.4		3986.90	-0.01
5975.39	4498333.23698061.8		5975.44	0.00
7962.36	5969525.83697317.4		7963.22	0.01
9949.85	7425411.23696518.2		9948.06	-0.02
7962.33	5970044.43697461.4		7963.91	0.02
5975.34	4499246.53698026.4		5976.67	0.01
3988.26	3014219.93698410.2		3988.50	0.00
2001.43	1515764.33698760.4		2000.95	-0.00
14.75	5100.53698360.0		16.14	0.01

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	561577.20	6366.50
29.00	610675.00	5685.87
23.99	681558.80	4876.85
18.50	759909.60	4224.02
15.00	810226.00	3946.29
4.50	961891.60	3802.80
1.00	014041.40	3978.66
TEMP(ITS90)	SPAN(mV)	
-5.25	103.42	
35.05	103.04	

$y = \text{thermistor output}; t = \text{PTHA0} + \text{PTHA1} * y + \text{PTHA2} * y^2$
 $x = \text{pressure output} - \text{PTCA0} - \text{PTCA1} * t - \text{PTCA2} * t^2$
 $n = x * \text{PTCB0} / (\text{PTCB0} + \text{PTCB1} * t + \text{PTCB2} * t^2)$
 $\text{pressure (psia)} = \text{PA0} + \text{PA1} * n + \text{PA2} * n^2$

