SEA-BIRD SCIENTIFIC

SBE Sea-Bird Electronics

Sea-Bird Electronics
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98005 USA

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SBE41-CP ALACE

Instrument Configuration

Instrument Serial Number:	41-8682
Instrument Firmware Version:	V 7.2.5
Zero Conductivity Frequency:	2699.40
Communications Format:	RS232
Communications Settings:	9600 baud, 8 Data Bits, No Parity

Installed Devices/Sensors

Data Format	*Measurement*	*Sensor Type*	*Serial Number*	*Rating*
Count	Temperature	Internal	N/A	N/A
Frequency	Conductivity	Internal	N/A	N/A
Count	Pressure	Druck	10300460	2000m(2000 dBar)

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SENSOR SERIAL NUMBER: 8682
CALIBRATION DATE: 29-Jul-16

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

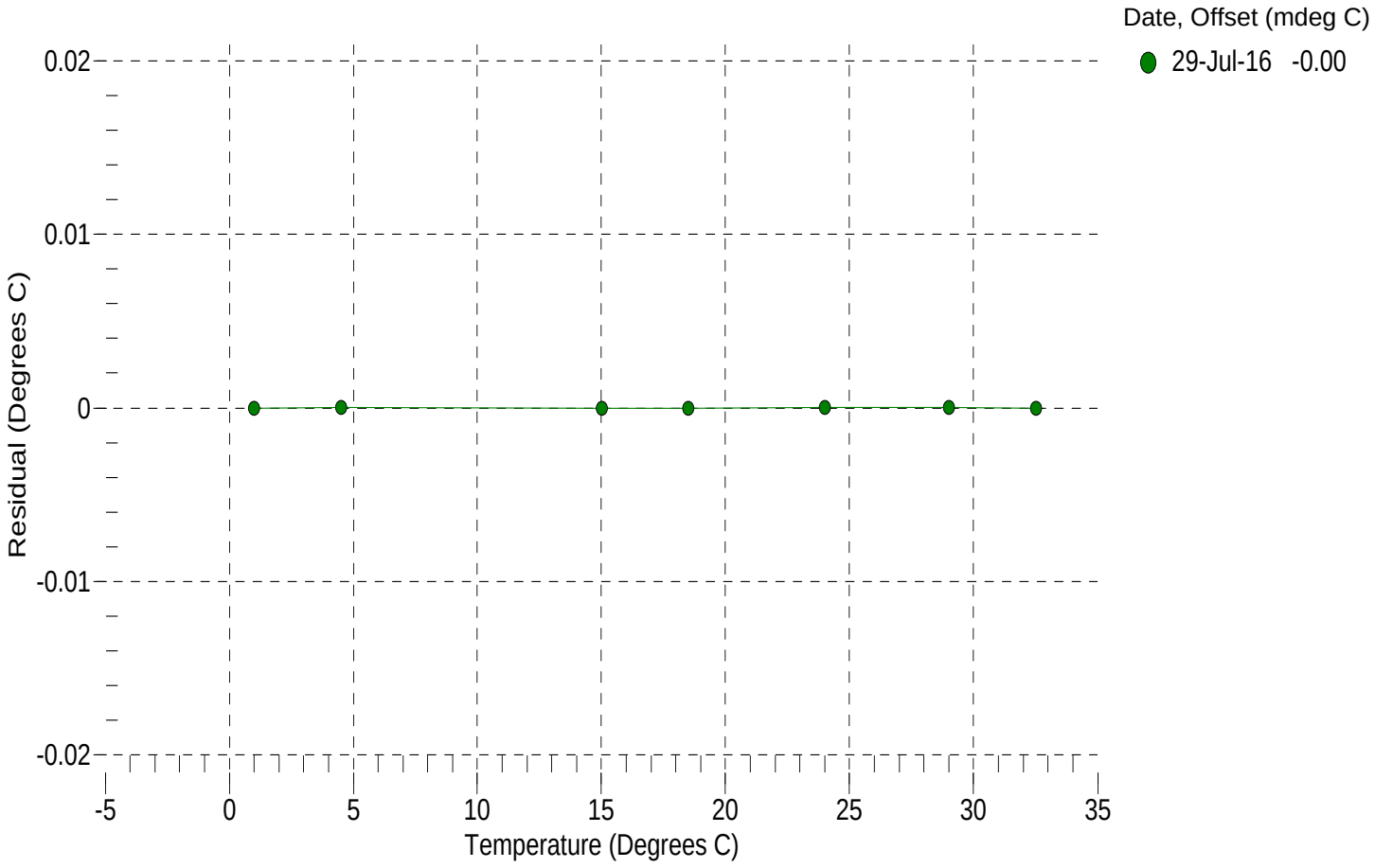
```
a0 = -8.552857e-004
a1 =  2.969853e-004
a2 = -4.068893e-006
a3 =  1.557866e-007
```

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	15196538.5	1.0000	-0.0000
4.5000	12965769.8	4.5000	0.0000
15.0000	8213351.5	15.0000	-0.0000
18.5000	7098165.3	18.5000	-0.0000
23.9940	5678905.0	23.9940	0.0000
29.0000	4662840.2	29.0000	0.0000
32.5001	4076095.7	32.5001	-0.0000

n = Instrument Output (counts)

Temperature ITS-90 (°C) = $1/\{a0 + a1[ln(n)] + a2[ln^2(n)] + a3[ln^3(n)]\} - 273.15$

Residual (°C) = instrument temperature - bath temperature



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SENSOR SERIAL NUMBER: 8682
CALIBRATION DATE: 29-Jul-16

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

COEFFICIENTS:

```
g = -1.003079e+000
h =  1.382576e-001
i = -3.382072e-004
j =  4.340336e-005

CPcor = -9.5700e-008
CTcor =  3.2500e-006
WBOTC = -1.1421e-006
```

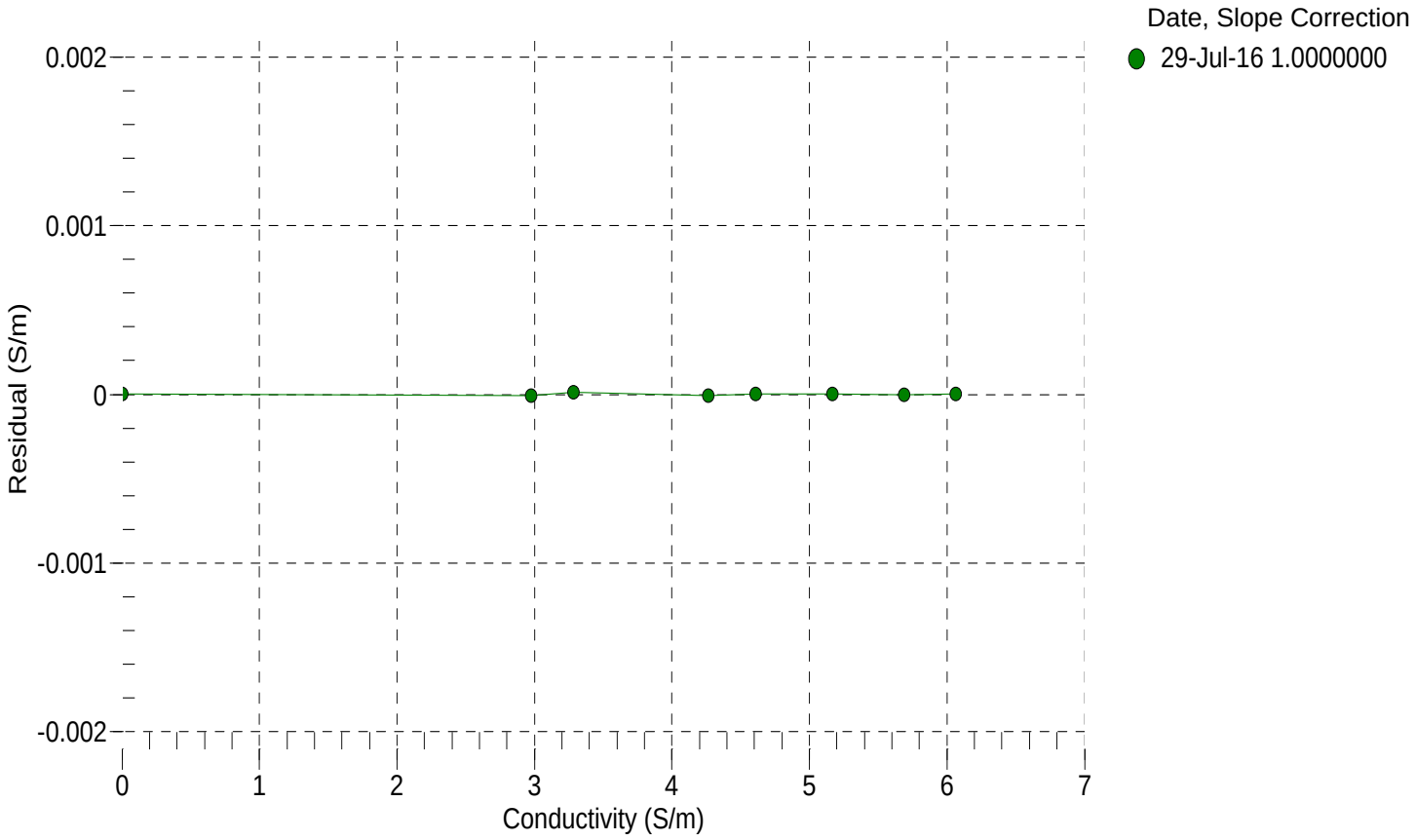
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2699.40	0.00000	0.00000
1.0000	34.8080	2.97532	5375.24	2.97531	-0.00001
4.5000	34.7884	3.28235	5578.28	3.28236	0.00001
15.0000	34.7465	4.26396	6182.02	4.26395	-0.00001
18.5000	34.7377	4.60907	6380.44	4.60907	0.00000
23.9940	34.7284	5.16637	6688.11	5.16638	0.00000
29.0000	34.7236	5.68884	6963.85	5.68884	-0.00000
32.5001	34.7209	6.06124	7153.69	6.06124	0.00000

f = Instrument Output(Hz) * sqrt(1.0 + WBOTC * t) / 1000.0

t = temperature (°C); p = pressure (decibars); δ = CTcor; ε = CPcor;

Conductivity (S/m) = $(g + h * f^2 + i * f^3 + j * f^4) / 10 (1 + \delta * t + \varepsilon * p)$

Residual (Siemens/meter) = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 8682
CALIBRATION DATE: 19-Jul-16

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 10300460

COEFFICIENTS:

PA0 =	5.690152e-001	PTCA0 =	4.292328e+003
PA1 =	3.928085e-004	PTCA1 =	8.197283e+001
PA2 =	-2.915401e-013	PTCA2 =	-7.737932e-001
PTHA0 =	2.895809e+002	PTCB0 =	2.518339e+001
PTHA1 =	-6.144301e-005	PTCB1 =	-1.253133e-004
PTHA2 =	-8.647506e-013	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (counts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)
14.66	41799.1	4110475.0	14.73	0.00
591.26	1510913.9	4106185.4	591.21	-0.00
1167.74	2983386.0	4104204.6	1167.75	0.00
1744.22	4459078.8	4102901.2	1744.29	0.00
2320.75	5938050.9	4101731.6	2320.82	0.00
2897.20	7419721.0	4100625.6	2897.14	-0.00
2320.71	5937621.4	4100608.4	2320.66	-0.00
1744.28	4459422.6	4100588.8	1744.42	0.00
1167.70	2983015.2	4100568.0	1167.60	-0.00
590.97	1509893.9	4100439.8	590.81	-0.01
14.65	41744.9	4100299.0	14.70	0.00

THERMAL CORRECTION

TEMP (°C)	THERMISTOR OUTPUT (counts)	INSTRUMENT OUTPUT (counts)
32.50	3963031.20	43581.80
29.00	4014211.40	43563.16
23.99	4087342.80	43377.40
18.50	4167469.80	43039.18
15.00	4218461.60	42774.92
4.50	4370849.00	42155.37
1.00	4421589.40	41880.59

TEMPERATURE (°C)	SPAN (mV)
-4.90	25.18
35.00	25.18

y = thermistor output (counts)

$t = PTHA0 + PTHA1 * y + PTHA2 * y^2$

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

$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$

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

Residual (%FSR) = (computed pressure - true pressure) * 100 / Full Scale Range