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:	41-8604
Instrument Firmware Version:	V 7.2.5
Zero Conductivity Frequency:	2718.18
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	10374298	2000m(2000 dBar)

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SENSOR SERIAL NUMBER: 8604
CALIBRATION DATE: 15-Jul-16

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

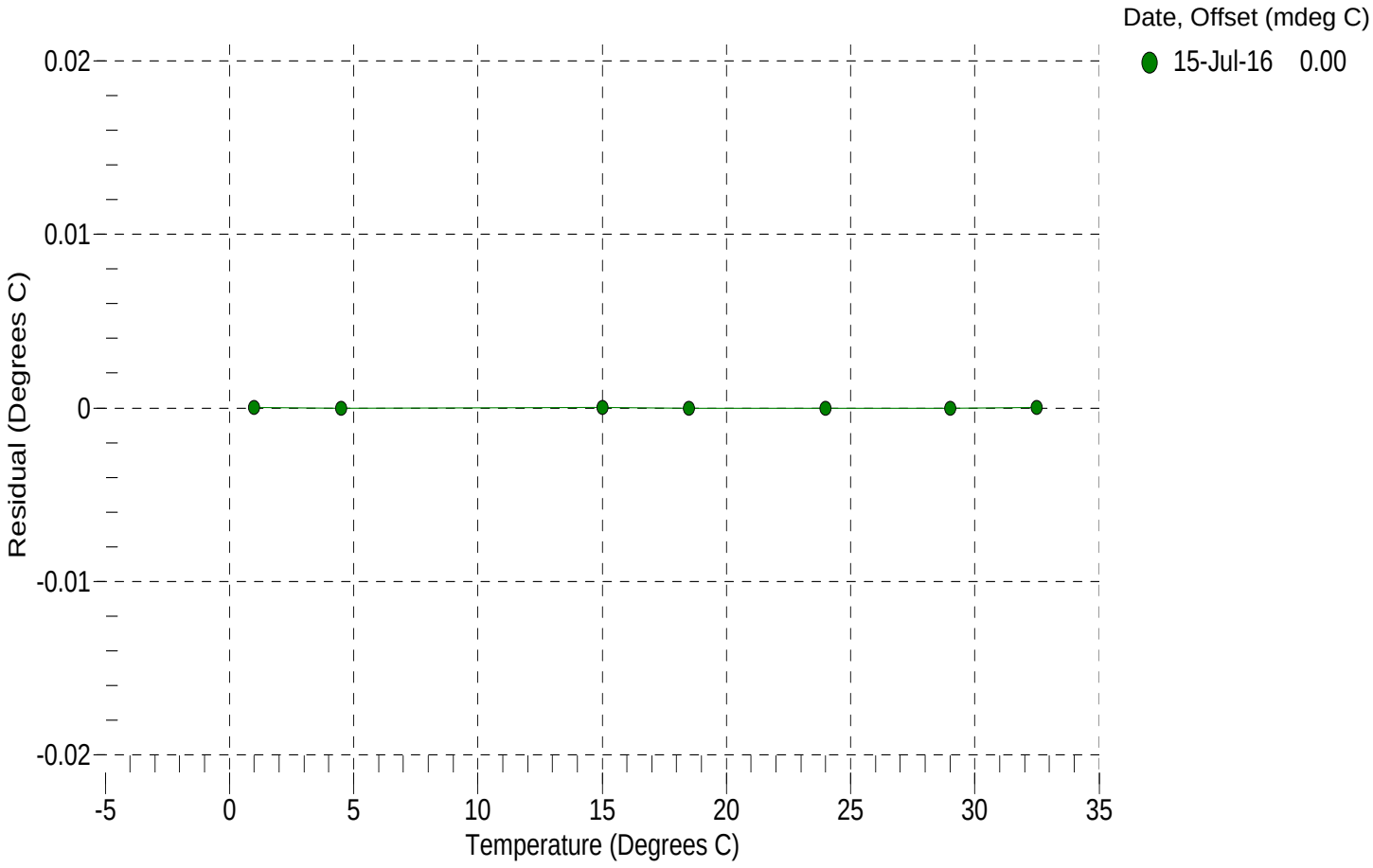
```
a0 = -8.240171e-004
a1 =  2.876289e-004
a2 = -3.496023e-006
a3 =  1.441044e-007
```

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	16258670.8	1.0000	0.0000
4.5000	13875818.5	4.5000	-0.0000
15.0000	8796544.3	15.0000	0.0000
18.5000	7603978.7	18.5000	-0.0000
23.9940	6085710.7	23.9940	-0.0000
29.0000	4998337.5	29.0000	-0.0000
32.5001	4370207.3	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: 8604
CALIBRATION DATE: 15-Jul-16

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

COEFFICIENTS:

```
g = -9.797745e-001
h =  1.332135e-001
i = -3.363392e-004
j =  4.220509e-005

CPcor = -9.5700e-008
CTcor =  3.2500e-006
WBOTC = -1.1955e-006
```

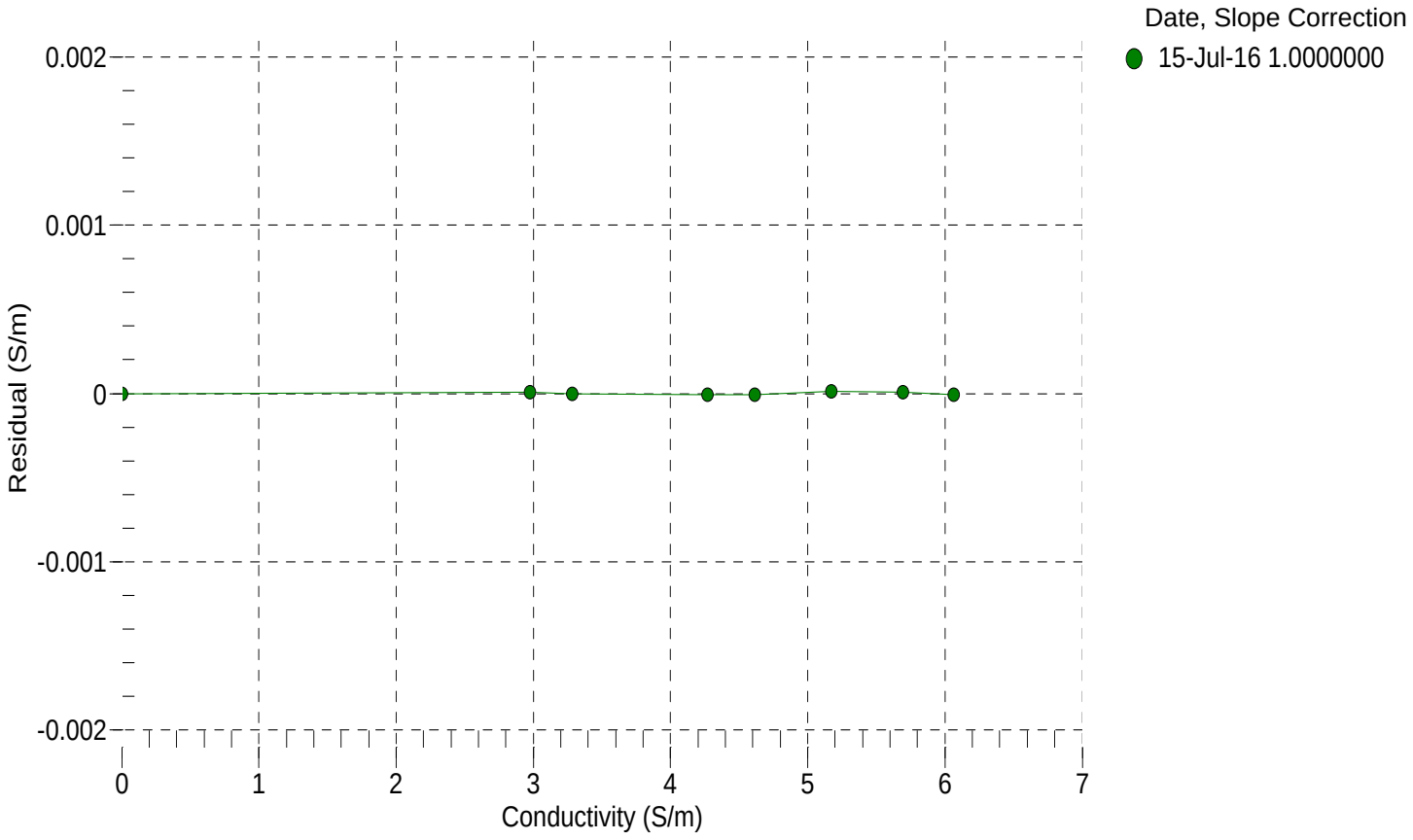
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2718.18	0.00000	0.00000
1.0000	34.8461	2.97827	5462.75	2.97828	0.00001
4.5000	34.8262	3.28557	5670.28	3.28556	-0.00000
15.0000	34.7829	4.26795	6287.13	4.26794	-0.00001
18.5000	34.7737	4.61333	6489.77	4.61332	-0.00001
23.9940	34.7635	5.17102	6803.91	5.17103	0.00001
29.0000	34.7574	5.69376	7085.33	5.69376	0.00001
32.5001	34.7530	6.06621	7278.98	6.06620	-0.00001

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: 8604
CALIBRATION DATE: 13-Jul-16

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 10374298

COEFFICIENTS:

PA0 =	5.468218e-001	PTCA0 =	-3.669663e+003
PA1 =	3.929772e-004	PTCA1 =	9.202530e+001
PA2 =	-2.899026e-013	PTCA2 =	-1.337922e+000
PTHA0 =	2.893046e+002	PTCB0 =	2.507300e+001
PTHA1 =	-6.021113e-005	PTCB1 =	1.200000e-003
PTHA2 =	-1.059614e-012	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (counts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)
14.72	33965.1	4130994.8	14.77	0.00
591.23	1504270.9	4128643.8	591.29	0.00
1167.66	2977381.7	4127303.0	1167.64	-0.00
1744.06	4453879.9	4126250.2	1744.06	-0.00
2320.50	5933875.6	4125238.2	2320.57	0.00
2896.82	7416310.1	4124237.2	2896.76	-0.00
2320.45	5933630.9	4124339.0	2320.47	0.00
1744.11	4454289.3	4124307.4	1744.20	0.00
1167.64	2977151.5	4124377.2	1167.54	-0.00
591.14	1503657.3	4124240.0	591.03	-0.00
14.72	33858.8	4123794.4	14.73	0.00

THERMAL CORRECTION

TEMP (°C)	THERMISTOR OUTPUT (counts)	INSTRUMENT OUTPUT (counts)
32.50	3985520.00	35545.30
29.00	4036461.20	35564.42
23.99	4109211.20	35476.66
18.50	4188783.00	35229.43
15.00	4239445.40	35035.93
4.50	4390760.80	34409.28
1.00	4441164.60	34079.60

TEMPERATURE (°C)	SPAN (mV)
-5.00	25.07
35.00	25.11

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