



**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: 41-8681  
Instrument Firmware Version: V 7.2.5  
Zero Conductivity Frequency: 2662.77  
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	Druck	10301000	2000m(2000 dBar)

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SENSOR SERIAL NUMBER: 8681  
CALIBRATION DATE: 26-Jul-16

SBE 41 TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## COEFFICIENTS:

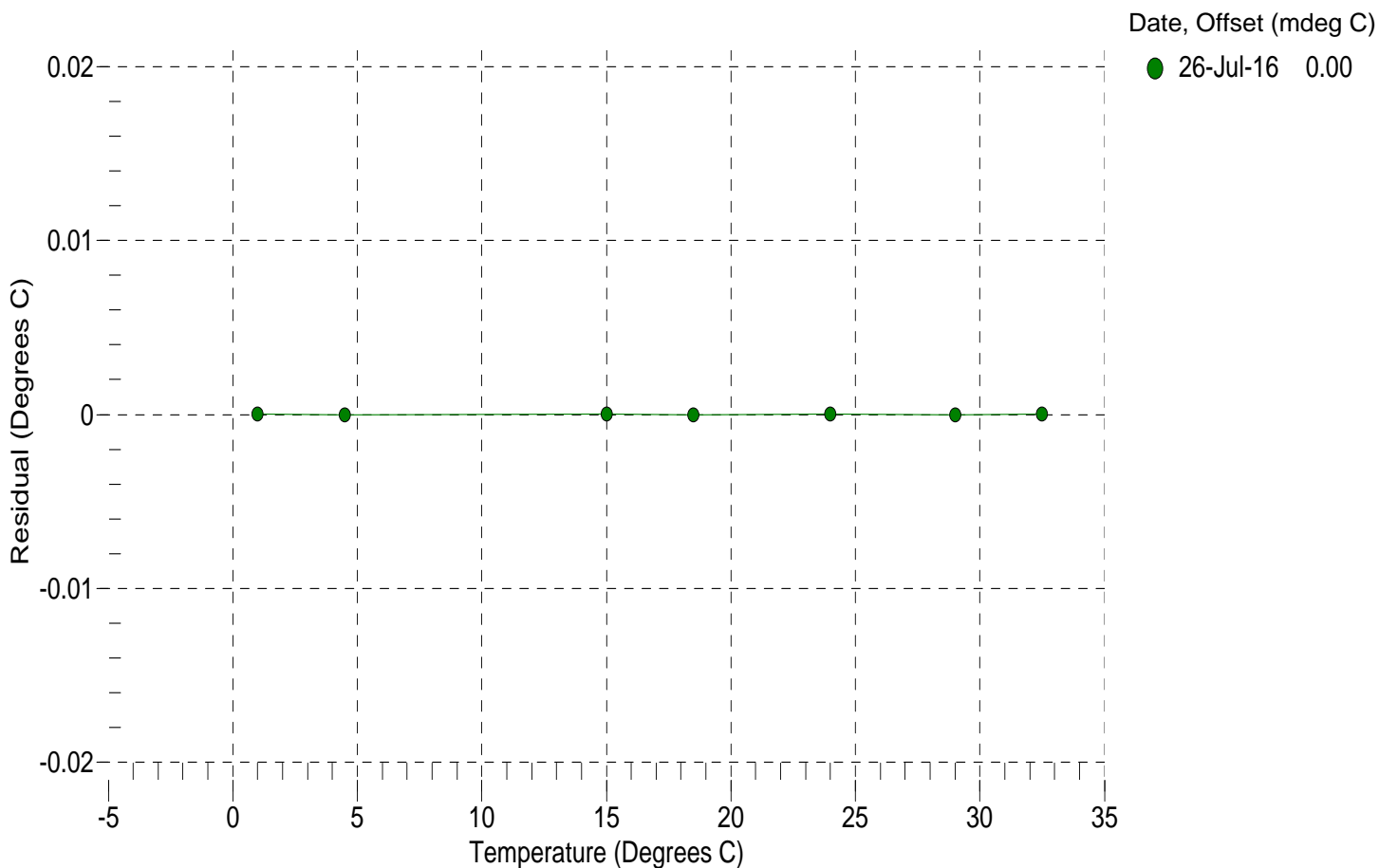
a0 = -8.407153e-004  
a1 = 2.908395e-004  
a2 = -3.703881e-006  
a3 = 1.469850e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	16685851.0	1.0000	0.0000
4.5000	14231680.3	4.5000	-0.0000
15.0000	9006544.3	15.0000	0.0000
18.5000	7781280.1	18.5000	-0.0000
23.9940	6222496.4	23.9940	0.0000
29.0000	5107052.0	29.0000	-0.0000
32.5000	4463127.3	32.5000	0.0000

n = Instrument Output (counts)

Temperature ITS-90 (°C) =  $1 / \{a_0 + a_1[\ln(n)] + a_2[\ln^2(n)] + a_3[\ln^3(n)]\} - 273.15$

Residual (°C) = instrument temperature - bath temperature



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SENSOR SERIAL NUMBER: 8681  
CALIBRATION DATE: 26-Jul-16

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

## COEFFICIENTS:

g = -9.978030e-001  
h = 1.412999e-001  
i = -3.315774e-004  
j = 4.380467e-005

CPcor = -9.5700e-008  
CTcor = 3.2500e-006  
WBOTC = -6.2584e-008

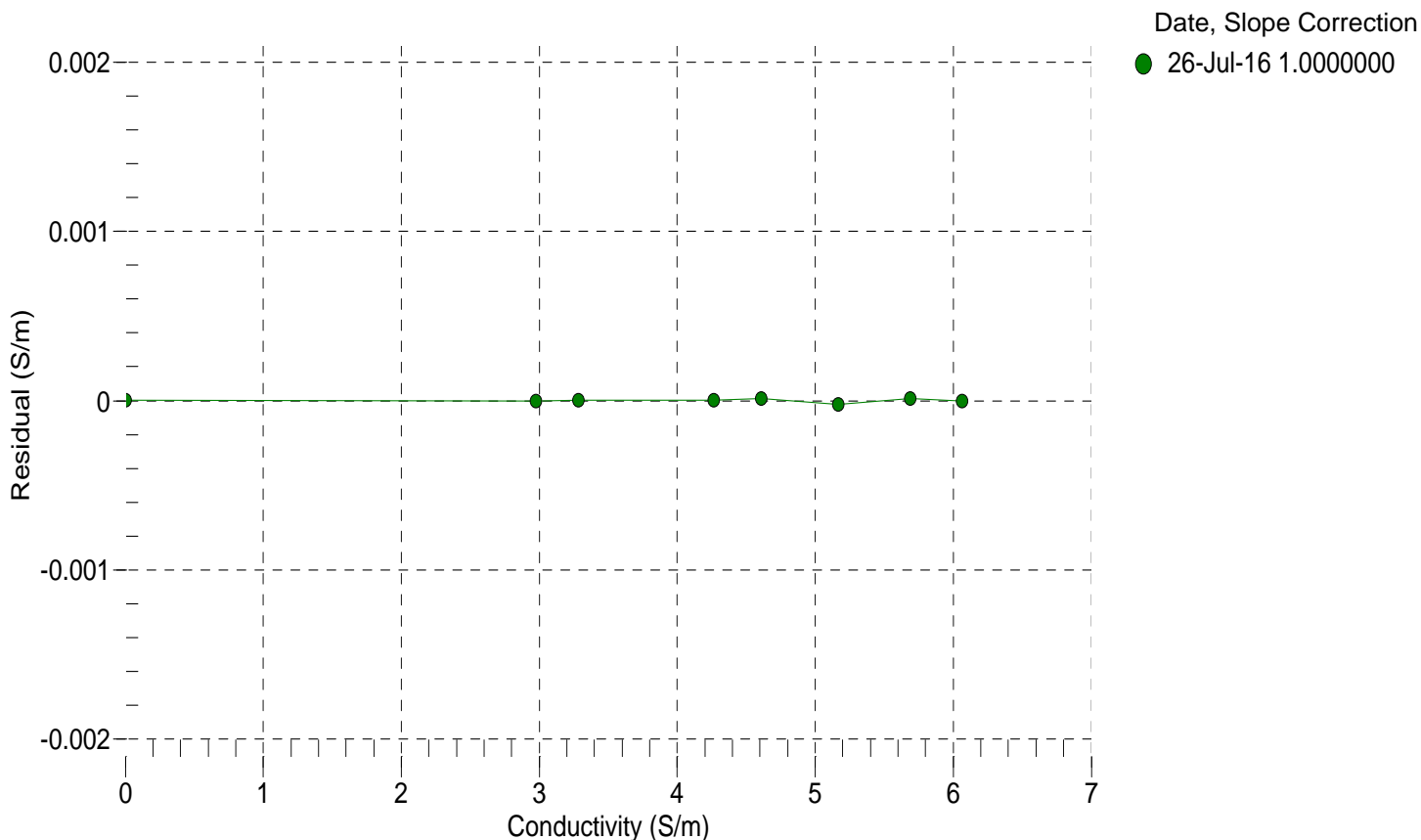
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2662.77	0.00000	0.00000
1.0000	34.8100	2.97548	5312.67	2.97548	-0.00000
4.5000	34.7904	3.28252	5513.59	3.28252	0.00000
15.0000	34.7486	4.26419	6111.02	4.26419	0.00000
18.5000	34.7400	4.60934	6307.36	4.60935	0.00001
23.9940	34.7309	5.16671	6611.79	5.16668	-0.00002
29.0000	34.7252	5.68907	6884.57	5.68909	0.00001
32.5000	34.7214	6.06131	7072.31	6.06131	-0.00000

$f = \text{Instrument Output(Hz)} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$

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

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

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



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SENSOR SERIAL NUMBER: 8681  
 CALIBRATION DATE: 19-Jul-16

SBE 41 PRESSURE CALIBRATION DATA  
 2900 psia S/N 10301000

## COEFFICIENTS:

PA0 =	3.942599e-001	PTCA0 =	-4.841706e+003
PA1 =	3.922713e-004	PTCA1 =	-3.029050e+001
PA2 =	-2.833610e-013	PTCA2 =	3.364832e+000
PTHA0 =	2.884832e+002	PTCB0 =	2.507532e+001
PTHA1 =	-6.025680e-005	PTCB1 =	8.478803e-004
PTHA2 =	-1.030170e-012	PTCB2 =	0.000000e+000

## PRESSURE SPAN CALIBRATION

## THERMAL CORRECTION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (counts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)	TEMP (°C)	THERMISTOR OUTPUT (counts)	INSTRUMENT OUTPUT (counts)
14.66	32742.3	4125417.2	14.73	0.00	32.50	3977722.20	35882.40
591.26	1505120.1	4121120.6	591.20	-0.00	29.00	4028766.00	35355.42
1167.74	2980843.4	4119006.8	1167.75	0.00	23.99	4101741.60	34636.26
1744.22	4459671.9	4117634.6	1744.28	0.00	18.50	4181604.40	33918.05
2320.75	5941762.5	4116410.2	2320.84	0.00	15.00	4232381.40	33601.89
2897.20	7426403.7	4115261.0	2897.14	-0.00	4.50	4384265.20	33355.02
2320.71	5941245.4	4115187.2	2320.63	-0.00	1.00	4434731.20	33304.09
1744.28	4460109.8	4115117.4	1744.44	0.01			
1167.70	2980522.7	4115057.0	1167.61	-0.00			
590.97	1504178.4	4114896.6	590.81	-0.01			
14.65	32776.3	4114754.8	14.71	0.00			

TEMPERATURE (°C)	SPAN (mV)
-5.10	25.07
35.00	25.11

y = thermistor output (counts)

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

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

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

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

$$\text{Residual (\%FSR)} = (\text{computed pressure} - \text{true pressure}) * 100 / \text{Full Scale Range}$$

Date, Offset (%FSR)

● 19-Jul-16 0.00

