



**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: 41-8605  
Instrument Firmware Version: V 7.2.5  
Zero Conductivity Frequency: 2693.49  
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	10374299	2000m(2000 dBar)

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SENSOR SERIAL NUMBER: 8605  
CALIBRATION DATE: 17-Jul-16

SBE 41 TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## COEFFICIENTS:

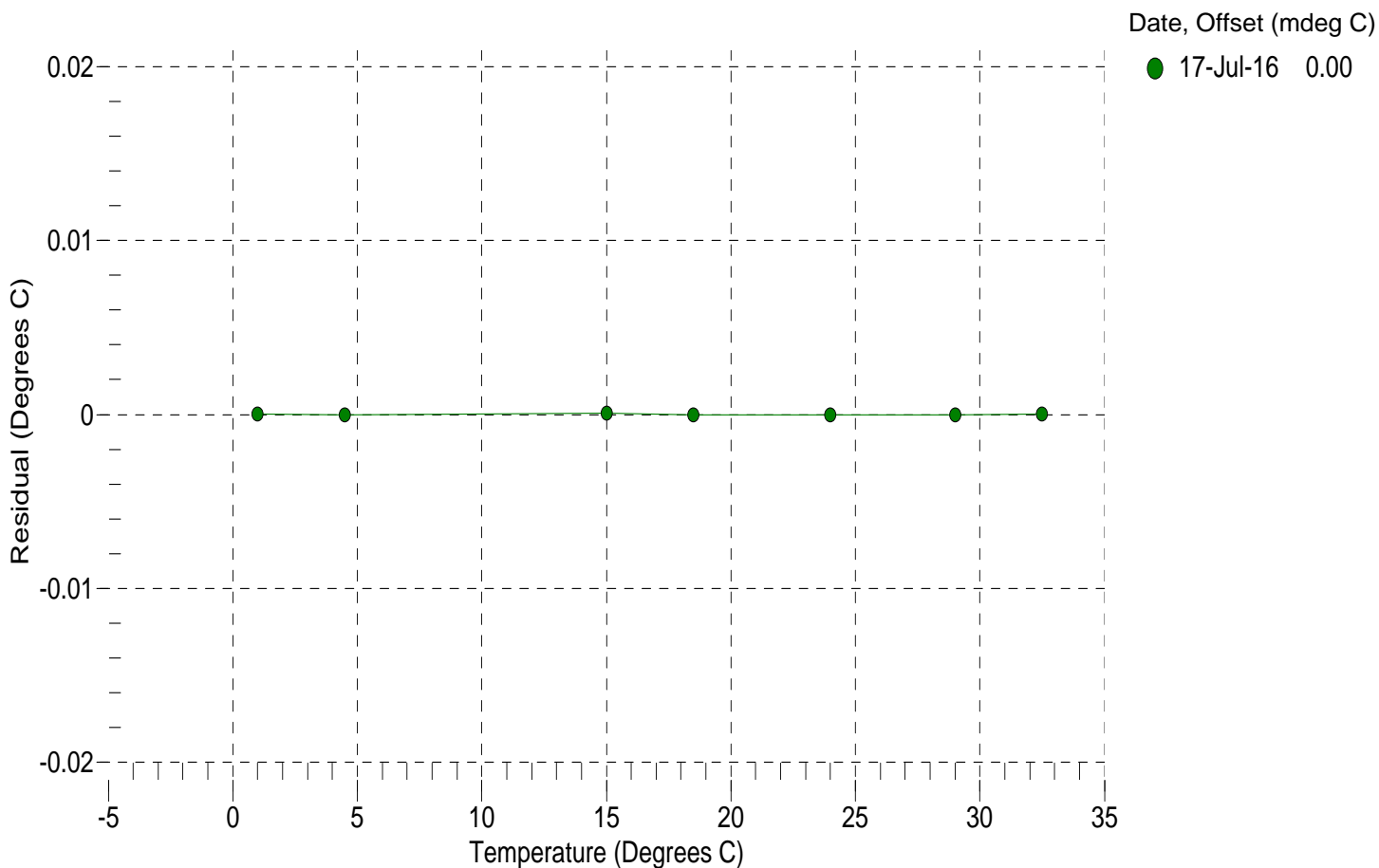
a0 = -7.340753e-004  
a1 = 2.745541e-004  
a2 = -2.678689e-006  
a3 = 1.264548e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	15312378.8	1.0000	0.0000
4.5000	13061422.9	4.5000	-0.0000
15.0000	8268212.3	15.0001	0.0001
18.5001	7144016.1	18.5001	-0.0000
23.9940	5713691.0	23.9940	-0.0000
29.0000	4689961.0	29.0000	-0.0000
32.5001	4098900.3	32.5001	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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SBE 41 CONDUCTIVITY CALIBRATION DATA  
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

## COEFFICIENTS:

g = -9.865302e-001  
h = 1.366585e-001  
i = -3.729485e-004  
j = 4.544973e-005

CPcor = -9.5700e-008  
CTcor = 3.2500e-006  
WBOTC = -7.1149e-007

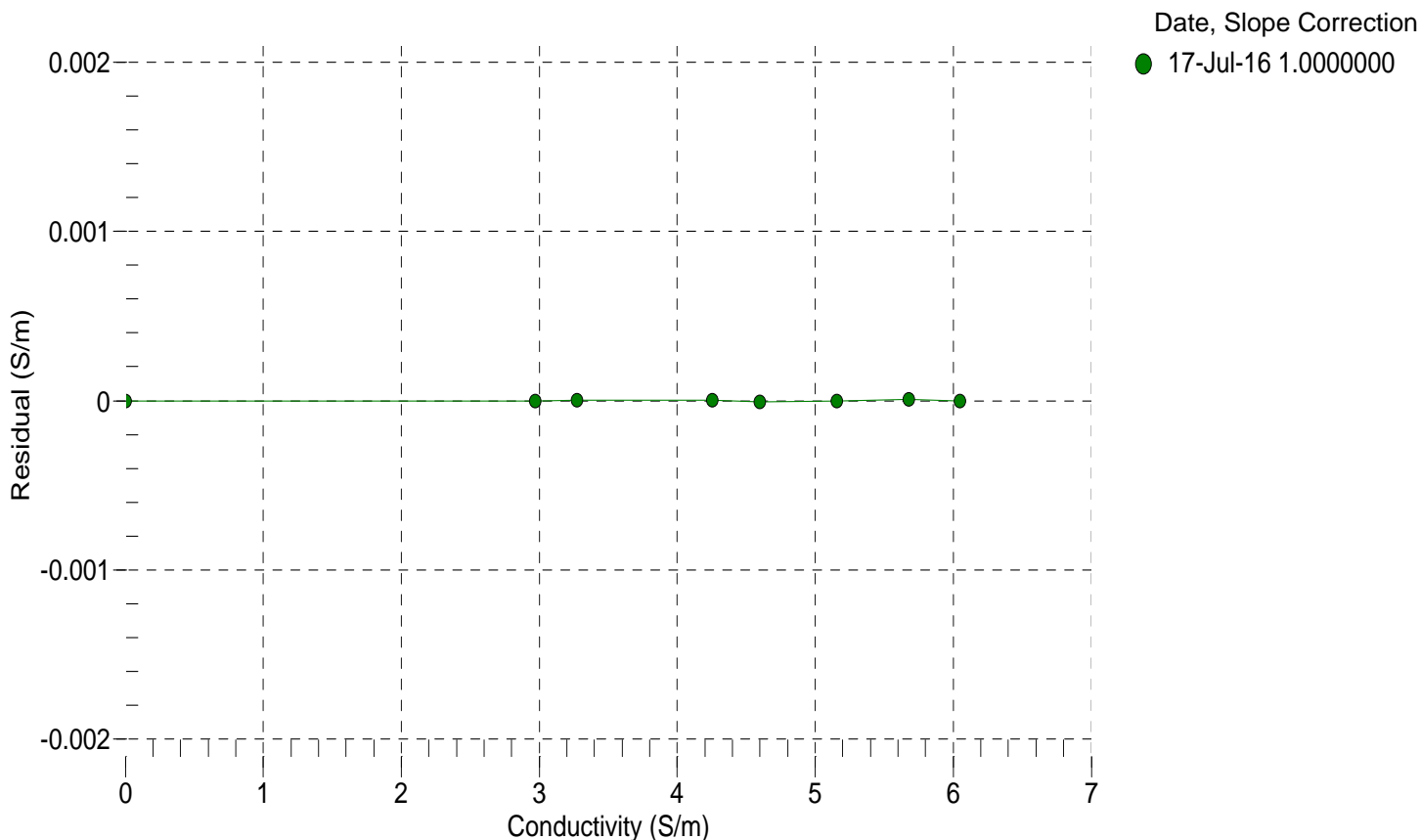
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2693.49	0.00000	0.00000
1.0000	34.7246	2.96887	5393.56	2.96887	-0.00000
4.5000	34.7052	3.27527	5598.07	3.27527	0.00000
15.0000	34.6630	4.25479	6205.99	4.25480	0.00000
18.5001	34.6541	4.59918	6405.73	4.59917	-0.00001
23.9940	34.6446	5.15528	6715.40	5.15528	-0.00000
29.0000	34.6396	5.67663	6992.90	5.67663	0.00001
32.5001	34.6366	6.04820	7183.91	6.04820	-0.00000

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

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

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

$$\text{Residual (Siemens/meter)} = \text{instrument conductivity} - \text{bath conductivity}$$



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CALIBRATION DATE: 13-Jul-16

SBE 41 PRESSURE CALIBRATION DATA

2900 psia S/N 10374299

**COEFFICIENTS:**

PA0 =	9.591993e-001	PTCA0 =	5.268442e+003
PA1 =	3.930516e-004	PTCA1 =	1.540215e+002
PA2 =	-2.856203e-013	PTCA2 =	-2.023279e+000
PTHA0 =	2.937112e+002	PTCB0 =	2.513175e+001
PTHA1 =	-6.208670e-005	PTCB1 =	5.500000e-004
PTHA2 =	-8.390861e-013	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)
14.72	42935.1	4136870.8	14.80	0.00	32.50	3991861.40	44339.50
591.23	1511977.8	4134286.8	591.27	0.00	29.00	4042671.40	44310.31
1167.66	2983938.7	4132783.0	1167.65	-0.00	23.99	4115349.40	44095.69
1744.06	4459054.7	4131687.6	1744.03	-0.00	18.50	4194779.80	43686.13
2320.50	5937698.5	4130662.0	2320.54	0.00	15.00	4245535.80	43322.75
2896.82	7418830.1	4129668.8	2896.76	-0.00	4.50	4396938.80	42122.88
2320.45	5937548.9	4129797.6	2320.47	0.00	1.00	4447228.40	41710.49
1744.11	4459542.6	4129799.0	1744.21	0.00			
1167.64	2983945.4	4129919.4	1167.65	0.00			
591.14	1511086.7	4129874.0	590.91	-0.01	TEMPERATURE (°C)	SPAN (mV)	
14.72	42843.9	4129540.8	14.75	0.00	-5.00	25.13	
					35.00	25.15	

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)

● 13-Jul-16 0.00

