



**SEA-BIRD**  
SCIENTIFIC

## SBE41-CP ALACE

### Instrument Configuration

Instrument Serial Number: 41-10662  
Instrument Firmware Version: V 7.2.5  
Zero Conductivity Frequency: 2696.71  
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	10719993	2000m(2000 dBar)



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SENSOR SERIAL NUMBER: 10662  
 CALIBRATION DATE: 02-Mar-18

SBE 41 TEMPERATURE CALIBRATION DATA  
 ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

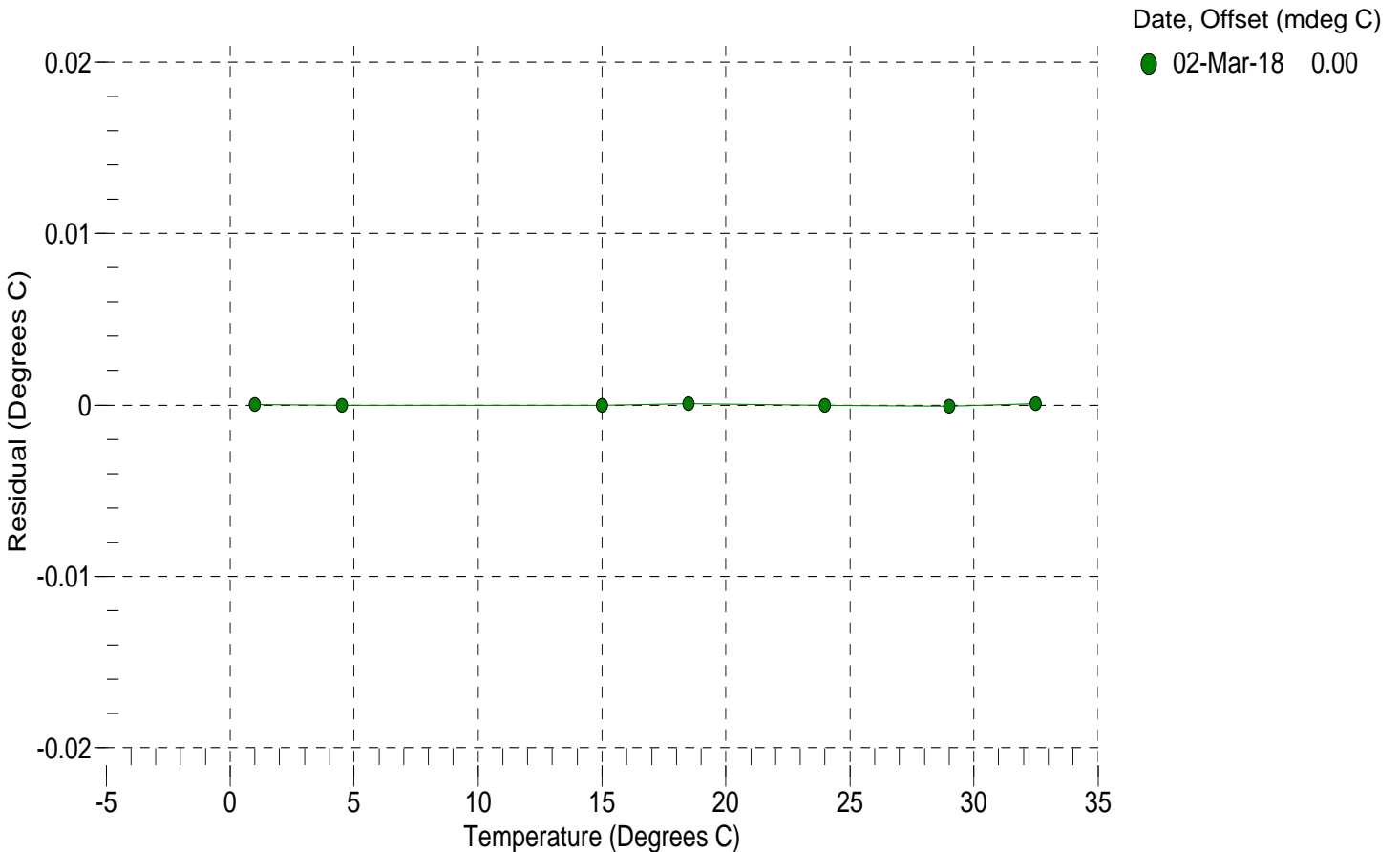
a0 = -7.845494e-004  
 a1 = 2.844500e-004  
 a2 = -3.304791e-006  
 a3 = 1.386779e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	15460178.5	1.0000	0.0000
4.5000	13182294.3	4.5000	-0.0000
15.0000	8335394.8	15.0000	-0.0000
18.5000	7199484.3	18.5001	0.0001
23.9940	5754994.1	23.9940	-0.0000
29.0000	4721711.0	28.9999	-0.0001
32.5000	4125383.4	32.5001	0.0001

n = Instrument Output (counts)

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

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 = -1.018382e+000      CPcor = -9.5700e-008  
 h = 1.406145e-001      CTcor = 3.2500e-006  
 i = -3.308365e-004      WBOTC = 6.1797e-008  
 j = 4.325322e-005

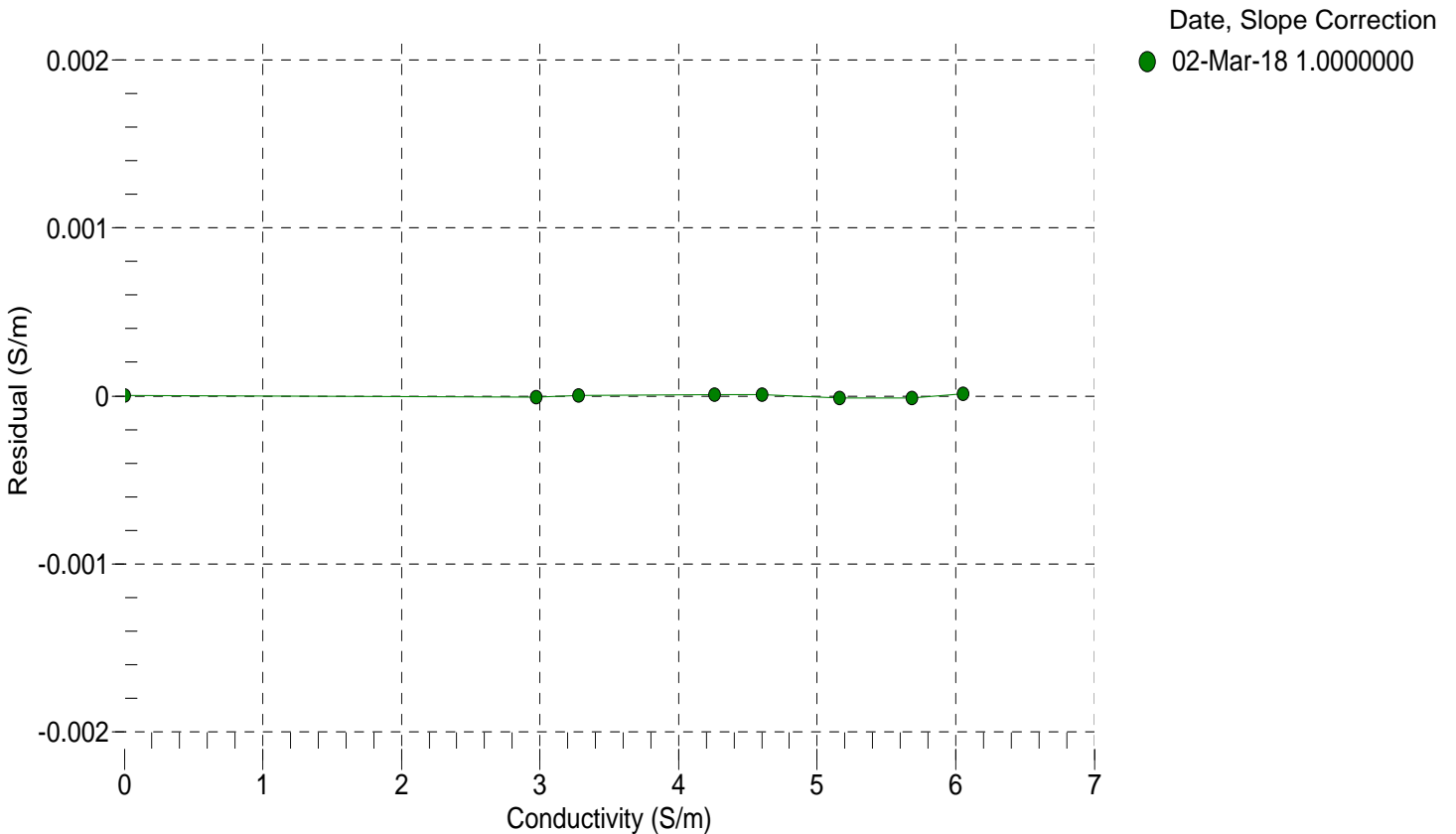
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2696.71	0.00000	0.00000
1.0000	34.7628	2.97183	5337.14	2.97182	-0.00001
4.5000	34.7429	3.27848	5537.90	3.27848	0.00000
15.0000	34.7011	4.25897	6135.12	4.25898	0.00001
18.5000	34.6922	4.60368	6331.42	4.60369	0.00001
23.9940	34.6826	5.16031	6635.84	5.16030	-0.00001
29.0000	34.6773	5.68211	6908.70	5.68210	-0.00001
32.5000	34.6741	6.05399	7096.58	6.05400	0.00001

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

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

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

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





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SENSOR SERIAL NUMBER: 10662  
 CALIBRATION DATE: 27-Feb-18

SBE 41 PRESSURE CALIBRATION DATA  
 2900 psia S/N 10719993

COEFFICIENTS:

PA0 =	5.971576e-001	PTCA0 =	-5.263235e+003
PA1 =	3.909500e-004	PTCA1 =	5.241526e+001
PA2 =	-2.662668e-013	PTCA2 =	7.826005e-001
PTHA0 =	3.332265e+002	PTCB0 =	3.068762e+005
PTHA1 =	-6.048851e-005	PTCB1 =	-9.851904e+001
PTHA2 =	-1.799520e-012	PTCB2 =	2.864353e+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)
14.64	32136.0	4534988.8	14.66	0.00	32.50	4396571.20	33871.00
592.16	1507258.0	4533325.6	592.21	0.00	29.00	4442388.60	33624.96
1169.72	2985550.7	4532342.6	1169.83	0.00	23.99	4507753.00	33204.08
1747.46	4467008.0	4531516.6	1747.51	0.00	18.50	4579249.80	32650.30
2325.17	5951703.0	4530677.4	2325.27	0.00	15.00	4624622.80	32290.16
2902.82	7438849.4	4529863.8	2902.78	-0.00	4.50	4760438.40	31619.70
2325.21	5951562.8	4530152.8	2325.20	-0.00	1.00	4805364.00	31505.93
1747.39	4466522.3	4530314.4	1747.30	-0.00			
1169.78	2985079.0	4530470.2	1169.63	-0.01			
591.91	1506459.1	4530705.2	591.88	-0.00			
14.64	32058.3	4530525.2	14.62	-0.00			

TEMPERATURE (°C)	SPAN
4.27	306508.05
25.75	306238.74
34.78	306914.48

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)  
 ● 27-Feb-18 0.00

