



**SEA-BIRD**  
SCIENTIFIC

## SBE41-CP ALACE

### Instrument Configuration

Instrument Serial Number: 41-10979  
Instrument Firmware Version: V 7.2.5  
Zero Conductivity Frequency: 2680.12  
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	Kistler	5276540	4000m(7000 dBar)



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SENSOR SERIAL NUMBER: 10979  
 CALIBRATION DATE: 24-May-18

SBE 41 TEMPERATURE CALIBRATION DATA  
 ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

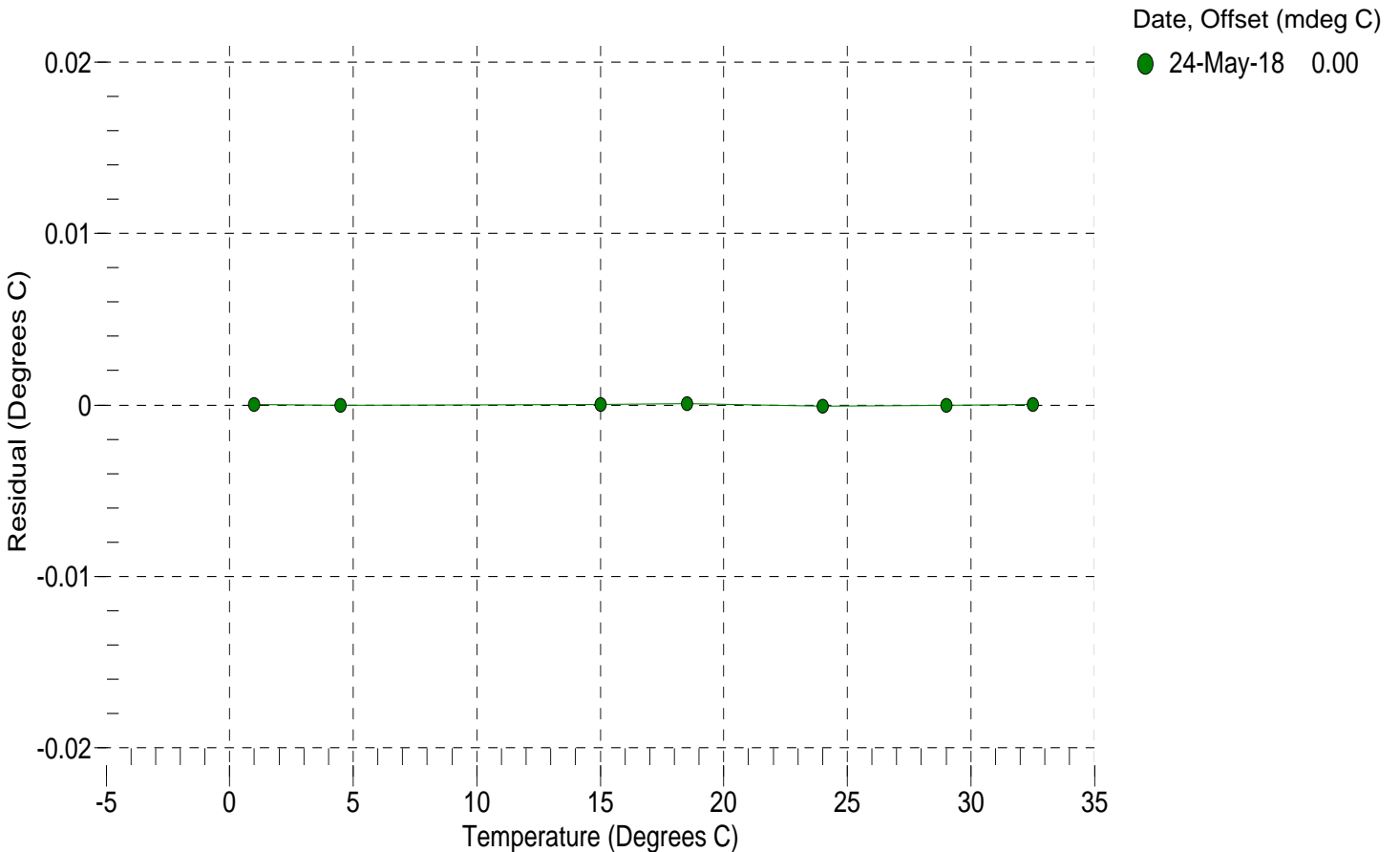
a0 = -8.659230e-004  
 a1 = 2.906833e-004  
 a2 = -3.563177e-006  
 a3 = 1.459620e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	16325438.8	1.0000	0.0000
4.5000	13950883.4	4.5000	-0.0000
15.0000	8877423.4	15.0000	0.0000
18.5000	7683160.2	18.5001	0.0001
23.9940	6160553.3	23.9939	-0.0001
29.0000	5068161.7	29.0000	-0.0000
32.5000	4436286.9	32.5000	0.0000

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 = -9.948984e-001                      CPcor = -9.5700e-008  
 h = 1.391165e-001                      CTcor = 3.2500e-006  
 i = -3.528091e-004                      WBOTC = 6.2178e-008  
 j = 4.673543e-005

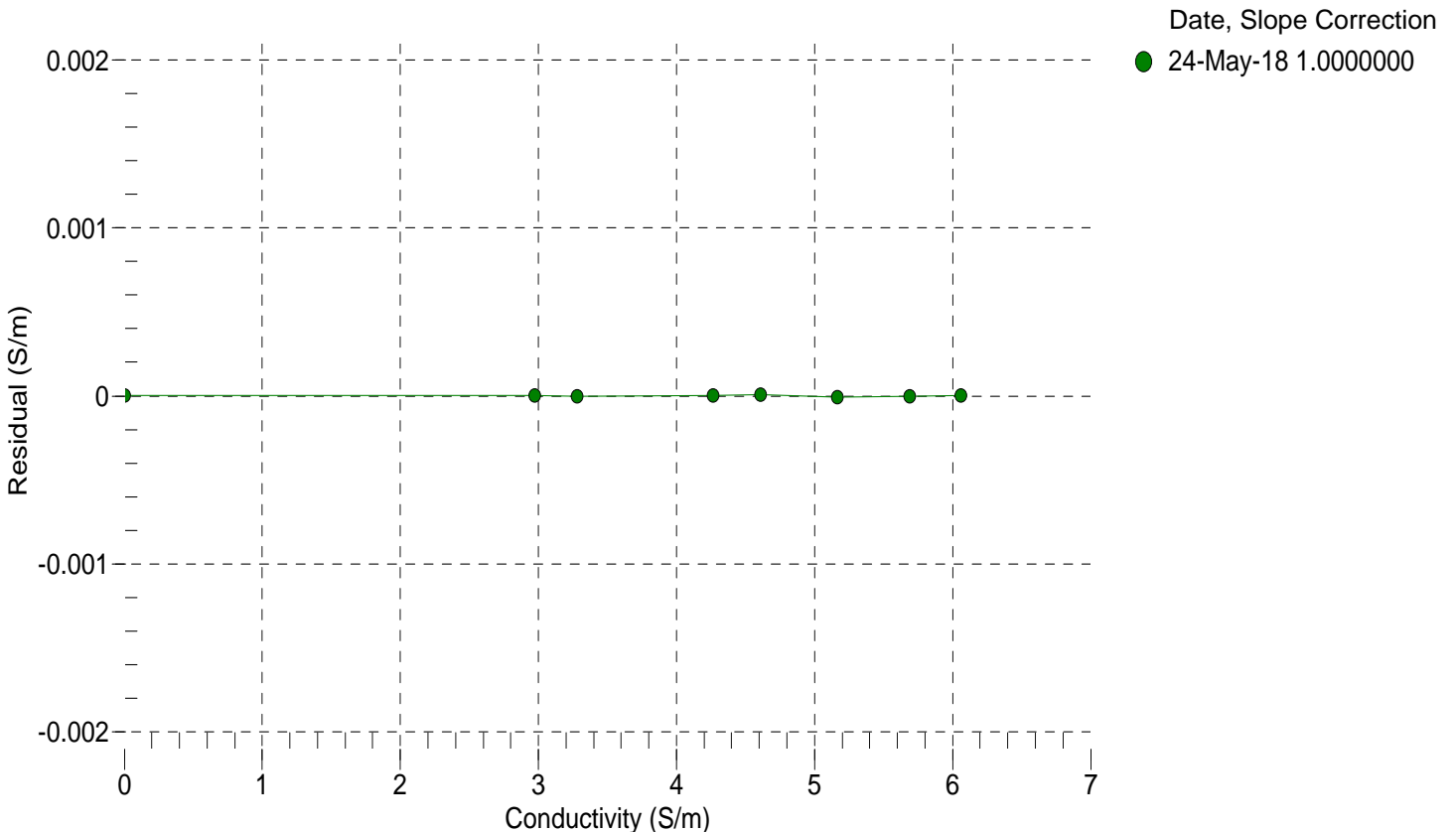
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2680.12	0.00000	0.00000
1.0000	34.8077	2.97530	5352.75	2.97530	0.00000
4.5000	34.7882	3.28233	5555.25	3.28233	-0.00000
15.0000	34.7464	4.26395	6157.30	4.26395	0.00000
18.5000	34.7379	4.60909	6355.13	4.60910	0.00001
23.9940	34.7290	5.16645	6661.84	5.16645	-0.00001
29.0000	34.7248	5.68902	6936.70	5.68901	-0.00000
32.5000	34.7222	6.06143	7125.90	6.06144	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;

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

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





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SENSOR SERIAL NUMBER: 10979  
 CALIBRATION DATE: 21-Jun-18

SBE 41 PRESSURE CALIBRATION DATA  
 10153 psia S/N 5276540

COEFFICIENTS:

PA0 =	-4.450545e+000	PTCA0 =	-4.151212e+004
PA1 =	1.361470e-003	PTCA1 =	-2.096123e+002
PA2 =	4.579212e-012	PTCA2 =	2.667791e+000
PTHA0 =	2.939424e+002	PTCB0 =	9.864982e+001
PTHA1 =	-7.925614e-005	PTCB1 =	2.858073e-003
PTHA2 =	1.724824e-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)
14.64	-30431.4	3742614.8	15.08	0.00	32.50	3576992.80	-30874.20
2002.26	1420882.7	3739906.0	1999.61	-0.03	29.00	3629796.40	-30697.58
3989.42	2860877.0	3738193.6	3987.68	-0.02	23.99	3704763.20	-30400.88
5976.56	4287948.2	3736823.0	5976.61	0.00	18.50	3787379.80	-29846.57
7964.14	5701335.0	3735414.6	7964.81	0.01	15.00	3840631.20	-29369.22
9951.83	7099625.6	3734144.2	9949.75	-0.02	4.50	3999942.60	-27835.76
7963.81	5702004.4	3734414.8	7965.75	0.02	1.00	4053982.80	-27041.51
5976.23	4289184.6	3734725.2	5978.33	0.02			
3988.96	2861900.2	3734658.0	3989.10	0.00	TEMPERATURE (°C)	SPAN	
2001.73	1421906.1	3734463.4	2001.04	-0.01	-4.87	98.64	
14.65	-29476.9	3733124.0	16.46	0.02	35.05	98.75	

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)

● 21-Jun-18 -0.00

