



SEA-BIRD
SCIENTIFIC

SBE41-CP ALACE

Instrument Configuration

Instrument Serial Number: 41-9896
Instrument Firmware Version: V 7.2.5
Zero Conductivity Frequency: 2552.62
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 | 10650688 | 2000m(2000 dBar) |



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 www.seabird.com

SENSOR SERIAL NUMBER: 9896
 CALIBRATION DATE: 02-Feb-18

SBE 41 TEMPERATURE CALIBRATION DATA
 ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

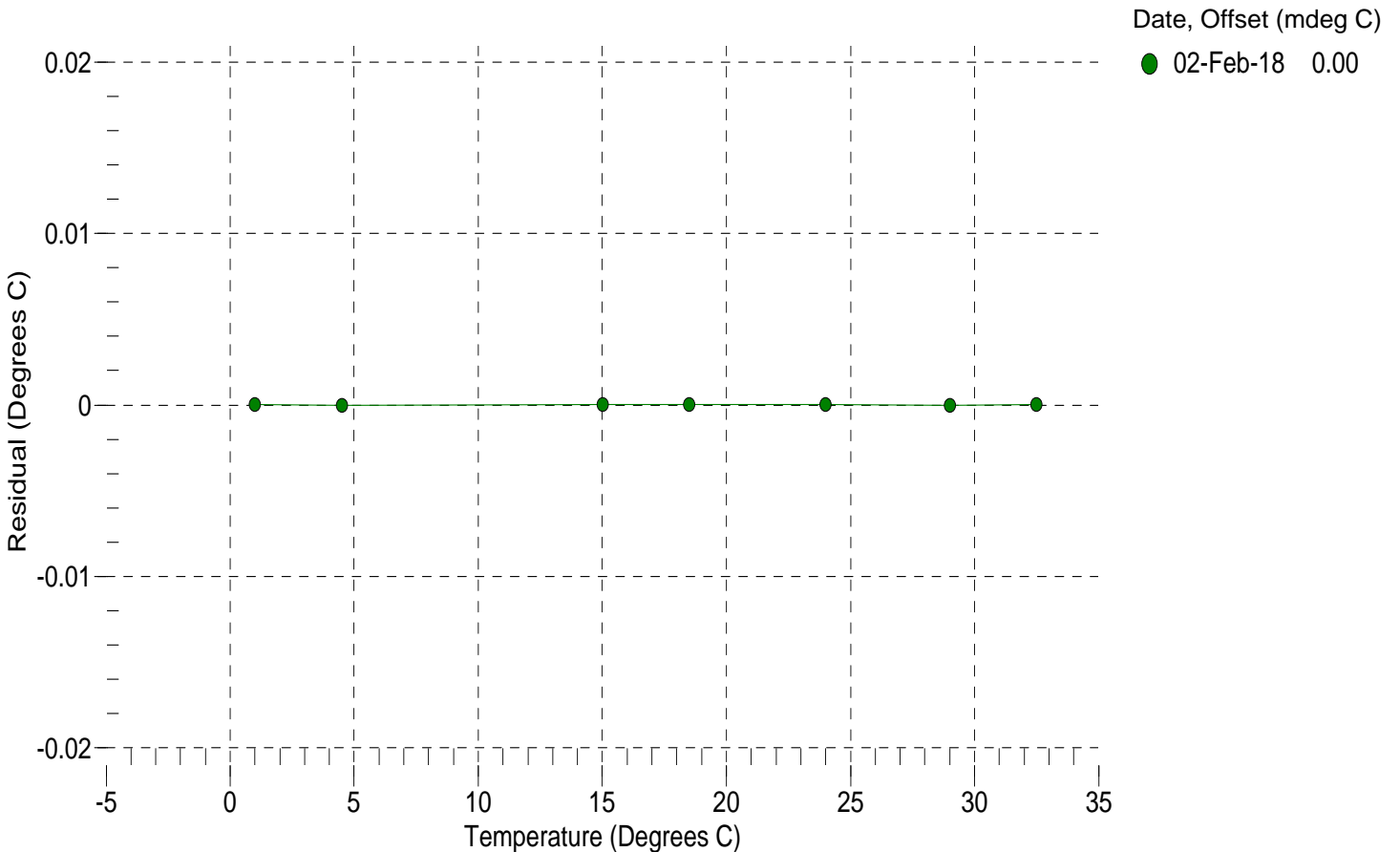
a0 = -8.042473e-004
 a1 = 2.897001e-004
 a2 = -3.615989e-006
 a3 = 1.466049e-007

| BATH TEMP (° C) | INSTRUMENT OUTPUT (counts) | INST TEMP (° C) | RESIDUAL (° C) |
|--------------------|-------------------------------|--------------------|-------------------|
| 1.0000 | 14536006.4 | 1.0000 | 0.0000 |
| 4.5000 | 12401152.2 | 4.5000 | -0.0000 |
| 15.0000 | 7853772.8 | 15.0000 | 0.0000 |
| 18.5000 | 6786890.8 | 18.5000 | 0.0000 |
| 23.9940 | 5429243.1 | 23.9940 | 0.0000 |
| 29.0000 | 4457392.7 | 29.0000 | -0.0000 |
| 32.5000 | 3896209.0 | 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 = -9.963648e-001 CPcor = -9.5700e-008
 h = 1.534974e-001 CTcor = 3.2500e-006
 i = -3.546315e-004 WBOTC = -1.2730e-006
 j = 5.006302e-005

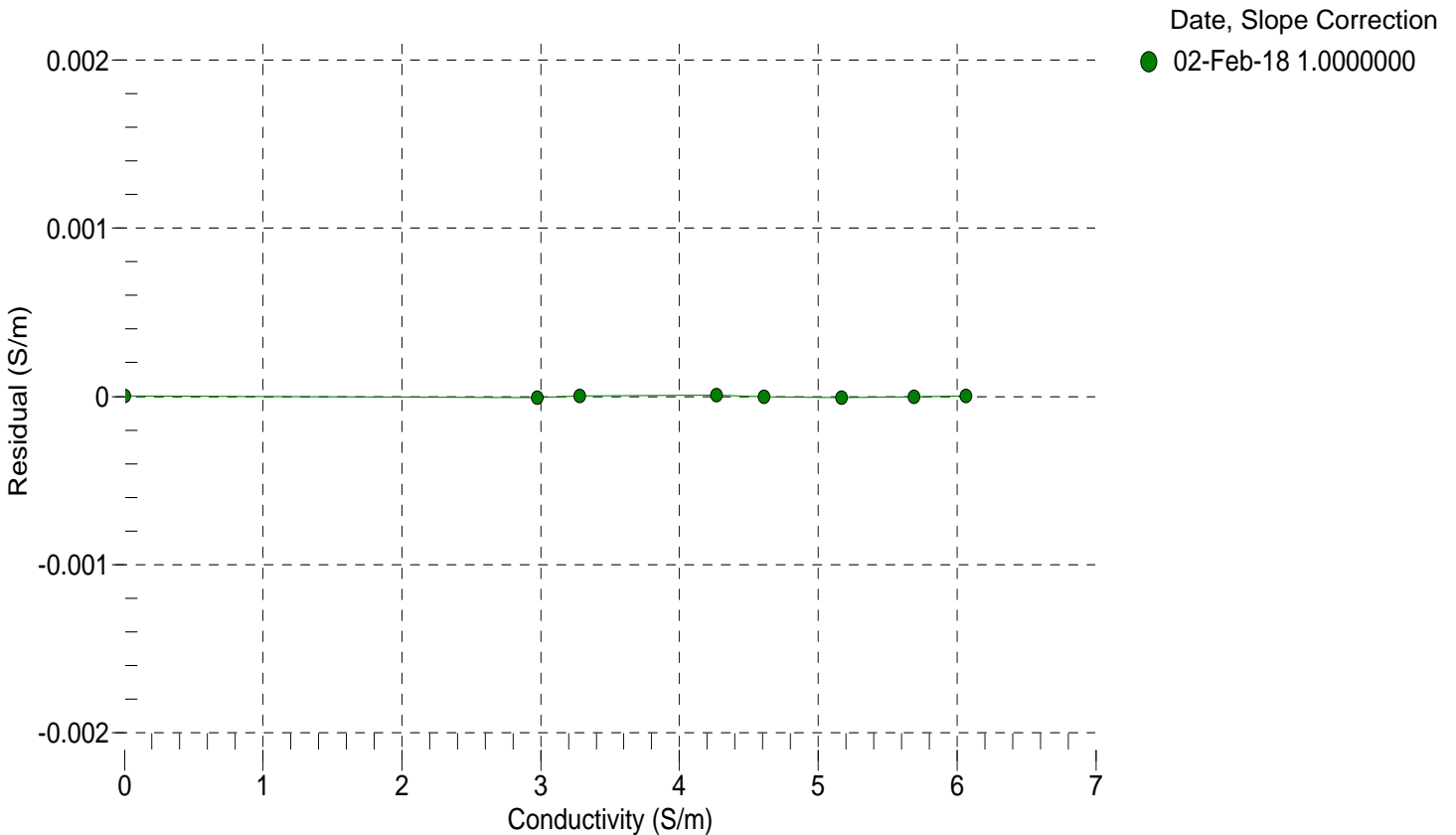
| BATH TEMP (° C) | BATH SAL (PSU) | BATH COND (S/m) | INSTRUMENT OUTPUT (Hz) | INSTRUMENT COND (S/m) | RESIDUAL (S/m) |
|--------------------|-------------------|--------------------|---------------------------|--------------------------|-------------------|
| 22.0000 | 0.0000 | 0.00000 | 2552.62 | 0.00000 | 0.00000 |
| 1.0000 | 34.8238 | 2.97654 | 5095.92 | 2.97654 | -0.00001 |
| 4.5000 | 34.8039 | 3.28367 | 5288.72 | 3.28367 | 0.00000 |
| 15.0000 | 34.7613 | 4.26558 | 5861.97 | 4.26559 | 0.00001 |
| 18.5000 | 34.7520 | 4.61076 | 6050.32 | 4.61076 | -0.00000 |
| 23.9940 | 34.7414 | 5.16810 | 6342.36 | 5.16809 | -0.00001 |
| 29.0000 | 34.7345 | 5.69043 | 6604.02 | 5.69043 | -0.00000 |
| 32.5000 | 34.7313 | 6.06284 | 6784.23 | 6.06285 | 0.00000 |

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

t = temperature (°C); p = pressure (decibars); δ = CTcor; ε = 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: 9896
 CALIBRATION DATE: 31-Jan-18

SBE 41 PRESSURE CALIBRATION DATA
 2900 psia S/N 10650688

COEFFICIENTS:

| | | | |
|---------|----------------|---------|----------------|
| PA0 = | 5.378873e-001 | PTCA0 = | 6.417506e+003 |
| PA1 = | 3.881663e-004 | PTCA1 = | 1.129154e+002 |
| PA2 = | -2.763892e-013 | PTCA2 = | -2.290765e+000 |
| PTHA0 = | 3.011809e+002 | PTCB0 = | 2.538613e+001 |
| PTHA1 = | -6.008136e-005 | PTCB1 = | 2.250000e-004 |
| PTHA2 = | -1.295044e-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) |
|-----------------|----------------------------|----------------------------|--------------------------|-----------------|------------------|----------------------------|----------------------------|
| 14.71 | 44280.5 | 4240707.2 | 14.69 | -0.00 | 32.50 | 4108161.20 | 45536.50 |
| 591.87 | 1533484.8 | 4240051.4 | 591.99 | 0.00 | 29.00 | 4157624.00 | 45696.64 |
| 1169.43 | 3026140.8 | 4239411.2 | 1169.40 | -0.00 | 23.99 | 4228186.20 | 45788.00 |
| 1746.85 | 4522060.9 | 4238958.8 | 1746.83 | -0.00 | 18.50 | 4305420.60 | 45638.40 |
| 2324.36 | 6021571.1 | 4238353.0 | 2324.41 | 0.00 | 15.00 | 4354463.40 | 45459.58 |
| 2901.74 | 7523742.8 | 4237865.0 | 2901.76 | 0.00 | 4.50 | 4501319.00 | 44744.94 |
| 2324.35 | 6021245.3 | 4238357.0 | 2324.28 | -0.00 | 1.00 | 4549961.40 | 44485.07 |
| 1746.78 | 4521935.1 | 4238813.2 | 1746.78 | 0.00 | | | |
| 1169.44 | 3026283.4 | 4239233.4 | 1169.45 | 0.00 | TEMPERATURE (°C) | SPAN | |
| 591.87 | 1533068.4 | 4239735.2 | 591.83 | -0.00 | -5.00 | 25.39 | |
| 14.70 | 44242.7 | 4240071.4 | 14.68 | -0.00 | 35.00 | 25.39 | |

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)

● 31-Jan-18 0.00

