



**SEA-BIRD**  
SCIENTIFIC

**SBE** Sea-Bird  
Electronics

Sea-Bird Electronics  
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## SBE 37-SIP MicroCAT

### Instrument Configuration

Instrument Serial Number: 37-13442  
 Instrument Firmware Version: 4.1  
 Zero Conductivity Frequency: 2612.69  
 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 Sensor	Druck	4705526	7000m(7000 dBar)

Maximum Depth: **7000m**

**CAUTION** - The maximum deployment depth will be limited by the measurement range of the pressure sensor, if installed, an attached sensor, if installed, or the housing.

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SENSOR SERIAL NUMBER: 13442  
CALIBRATION DATE: 10-May-15

SBE 37 V2 TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## COEFFICIENTS:

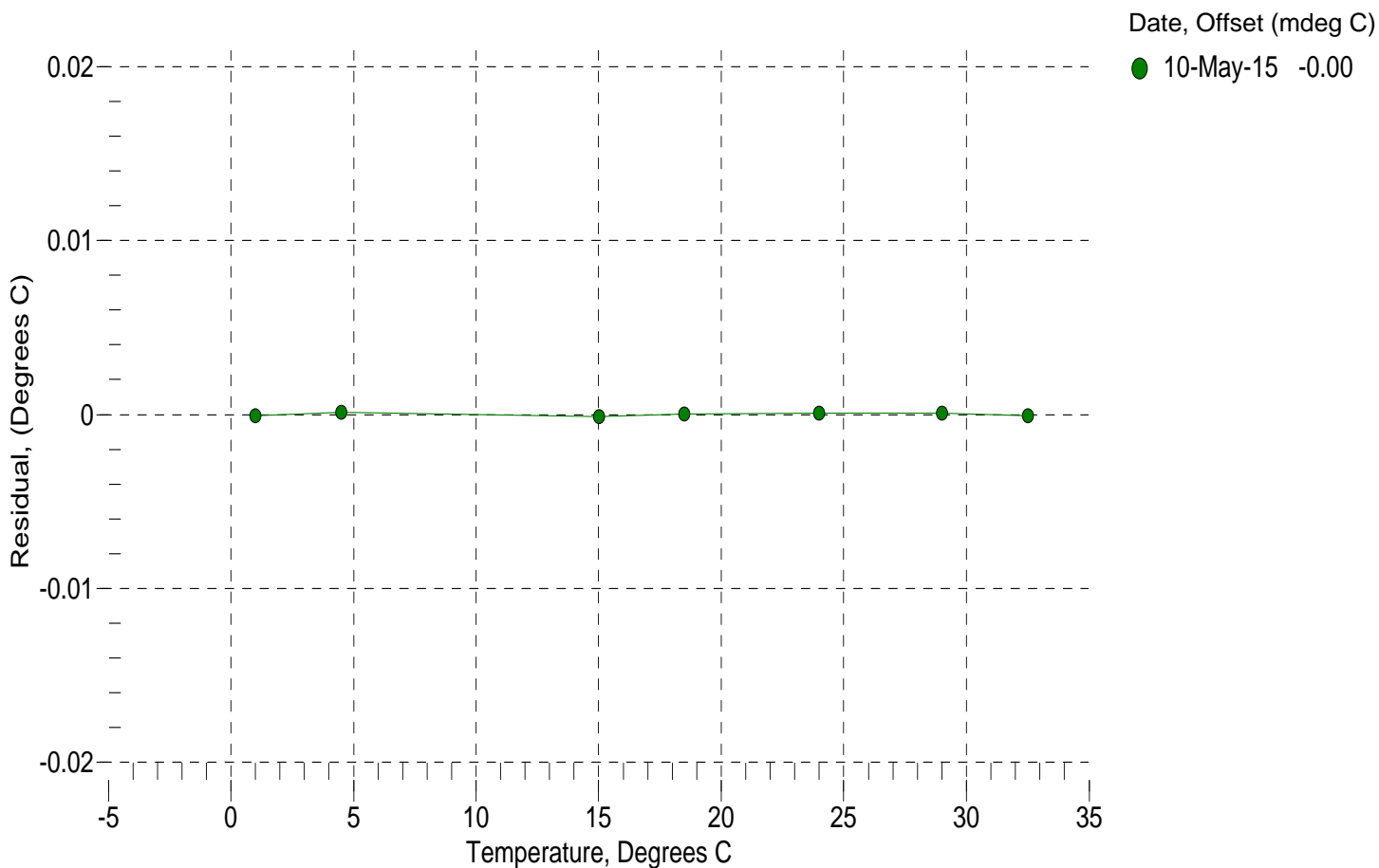
a0 = -9.661824e-005  
a1 = 2.955317e-004  
a2 = -3.294252e-006  
a3 = 1.734305e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	574504.4	0.9999	-0.0001
4.5000	492636.6	4.5001	0.0001
15.0000	316697.5	14.9999	-0.0001
18.5000	275009.6	18.5000	0.0000
24.0000	221605.5	24.0001	0.0001
28.9999	183208.8	29.0000	0.0001
32.5000	160887.9	32.4999	-0.0001

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

Residual = instrument temperature - bath temperature

n = instrument output



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SENSOR SERIAL NUMBER: 13442  
 CALIBRATION DATE: 10-May-15

SBE 37 V2 CONDUCTIVITY CALIBRATION DATA  
 PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

## COEFFICIENTS:

g = -9.784802e-001  
 h = 1.436215e-001  
 i = -1.991247e-004  
 j = 3.520736e-005

CPcor = -9.5700e-008  
 CTcor = 3.2500e-006  
 WBOTC = 5.1030e-007

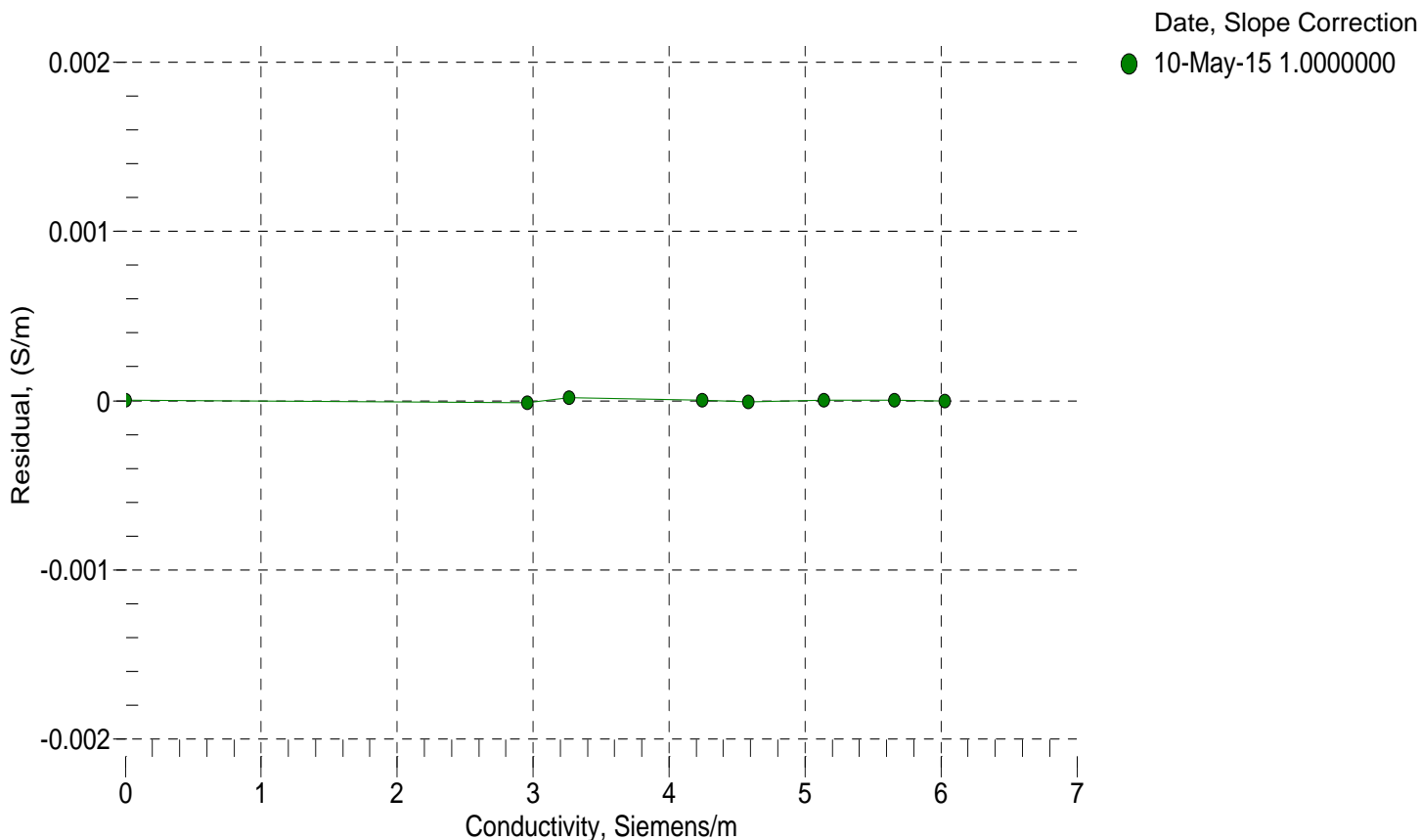
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2612.69	0.00000	0.00000
1.0000	34.6055	2.95966	5237.84	2.95965	-0.00001
4.5000	34.5860	3.26513	5436.56	3.26514	0.00002
15.0000	34.5440	4.24173	6027.29	4.24173	0.00000
18.5000	34.5354	4.58511	6221.41	4.58510	-0.00001
24.0000	34.5261	5.14021	6522.74	5.14021	0.00000
28.9999	34.5216	5.65945	6792.20	5.65945	0.00000
32.5000	34.5199	6.03012	6978.01	6.03012	-0.00000

$$f = \text{INST FREQ} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$$

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

t = temperatur e[°C]; p = pressure[decibars];  $\delta$  = CTcor;  $\epsilon$  = CPcor;

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 13442  
CALIBRATION DATE: 04-May-15

SBE 37 V2 PRESSURE CALIBRATION DATA  
FSR: 10153 psia S/N 4705526

## COEFFICIENTS:

PA0 =	-1.184990e+000	PTCA0 =	5.237228e+005
PA1 =	2.996205e-002	PTCA1 =	-6.171817e+000
PA2 =	2.171711e-009	PTCA2 =	1.927687e-001
PTEMPA0 =	-9.636137e+001	PTCB0 =	1.035700e+002
PTEMPA1 =	3.996384e-002	PTCB1 =	-2.400769e-002
PTEMPA2 =	1.262210e-006	PTCB2 =	5.176217e-004

## PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.57	524199.0	2755.0	14.30	-0.00
2014.69	590386.0	2760.0	2012.43	-0.02
4014.68	656025.0	2762.0	4012.92	-0.02
6015.02	721102.0	2763.0	6014.87	-0.00
8014.87	785551.0	2764.0	8015.72	0.01
10014.78	849321.0	2765.0	10013.34	-0.01
8014.94	785573.0	2764.0	8016.40	0.01
6015.11	721139.0	2764.0	6016.01	0.01
4014.81	656084.0	2763.0	4014.73	-0.00
2014.72	590442.0	2763.0	2014.12	-0.01
14.57	524246.0	2763.0	15.68	0.01

## THERMAL CORRECTION

TEMP ITS90	THERMISTOR OUTPUT	INST OUTPUT
32.50	2950	524259.78
29.00	2876	524240.17
24.00	2770	524220.45
18.50	2652	524210.07
15.00	2577	524206.60
4.50	2349	524232.51
1.00	2273	524251.77

TEMP (ITS90)	SPAN (mV)
-4.19	103.68
26.81	103.30
36.47	103.38

$$y = \text{thermistor output}; t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2$$

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

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

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

