

# Sea-Bird Electronics, Inc.

13431 NE 20th Street, Bellevue, WA 98005-2010 USA

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SENSOR SERIAL NUMBER: 1063  
CALIBRATION DATE: 14-May-15

SBE 63 OXYGEN TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## COEFFICIENTS:

TA0 = 6.628366e-004 TA2 = -5.623907e-007

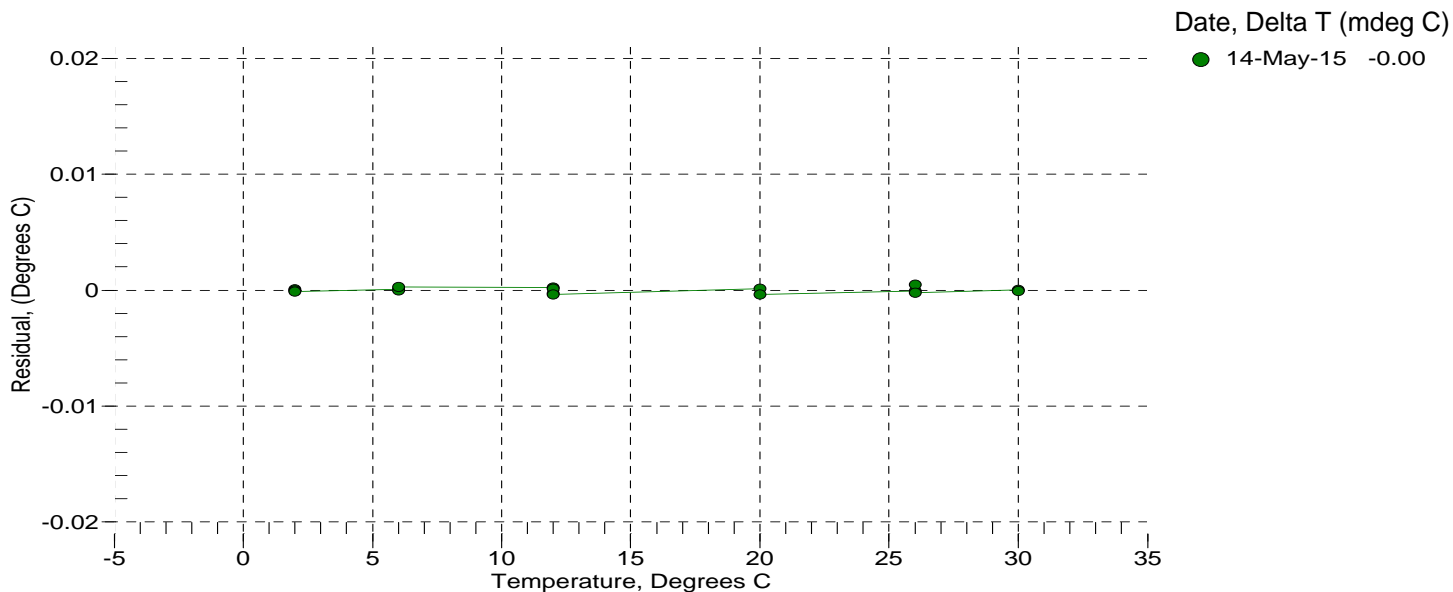
TA1 = 2.634277e-004 TA3 = 1.435124e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT(V)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.9999	1.11310	2.0000	0.00007
2.0000	1.11310	2.0000	-0.00003
2.0000	1.11310	2.0000	-0.00003
2.0001	1.11310	2.0000	-0.00013
5.9999	0.98931	6.0000	0.00006
6.0000	0.98931	6.0000	-0.00004
6.0000	0.98931	6.0000	-0.00004
6.0000	0.98930	6.0003	0.00029
11.9999	0.82410	12.0001	0.00024
12.0000	0.82411	11.9997	-0.00026
12.0000	0.82410	12.0001	0.00014
12.0001	0.82411	11.9997	-0.00036
19.9999	0.64128	20.0000	0.00014
19.9999	0.64128	20.0000	0.00014
19.9999	0.64128	20.0000	0.00014
19.9999	0.64129	19.9995	-0.00036
26.0000	0.52987	25.9999	-0.00010
26.0000	0.52987	25.9999	-0.00010
26.0000	0.52986	26.0005	0.00049
26.0001	0.52987	25.9999	-0.00020
30.0000	0.46641	30.0000	0.00003
30.0000	0.46641	30.0000	0.00003
30.0001	0.46641	30.0000	-0.00007
30.0001	0.46641	30.0000	-0.00007

Temperature ITS-90 =  $1 / (TA0 + TA1 * L + TA2 * L^2 + TA3 * L^3) - 273.15$  (°C)

$L = \ln(100000 * V / (3.3 - V))$ ; V = thermistor voltage

Residual = instrument temperature - bath temperature



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**COEFFICIENTS:**

A0 = 1.0513e+000    B0 = -2.1931e-001    C0 = 9.3546e-002    E = 1.1000e-002  
 A1 = -1.5000e-003    B1 = 1.6782e+000    C1 = 3.9949e-003  
 A2 = 4.6941e-001    C2 = 5.1919e-005

BATH OX (ml/l)	BATH TEMP (ITS-90)	BATH SAL (PSU)	INSTRUMENT OUTPUT (U)	INSTRUMENT OXYGEN (ml/l)	RESIDUAL (ml/l)
0.873	30.00	0.00	29.35	0.886	0.013
0.904	26.00	0.00	30.08	0.913	0.009
0.957	20.00	0.00	31.22	0.961	0.004
1.043	12.00	0.00	32.80	1.039	-0.004
1.157	6.00	0.00	33.81	1.156	-0.001
1.248	2.00	0.00	34.52	1.249	0.001
2.401	30.00	0.00	21.74	2.416	0.015
2.538	26.00	0.00	22.32	2.548	0.011
2.686	20.00	0.00	23.50	2.689	0.003
3.200	12.00	0.00	24.50	3.193	-0.007
3.618	6.00	0.00	25.50	3.612	-0.006
3.892	30.00	0.00	18.06	3.894	0.002
3.983	2.00	0.00	26.16	3.977	-0.006
4.157	26.00	0.00	18.49	4.159	0.002
4.580	20.00	0.00	19.26	4.576	-0.005
5.342	12.00	0.00	20.33	5.333	-0.008
5.514	30.00	0.00	15.59	5.506	-0.008
5.906	26.00	0.00	15.96	5.895	-0.010
6.088	6.00	0.00	21.20	6.083	-0.004
6.628	20.00	0.00	16.49	6.634	0.005
6.709	2.00	0.00	21.82	6.703	-0.006
7.664	12.00	0.00	17.51	7.667	0.004
8.671	6.00	0.00	18.36	8.681	0.011
9.119	2.00	0.00	19.31	9.124	0.005

$V = U / 39.457071$

Oxygen (ml/l) =  $\{((A0 + A1*T + A2 * V^2)/(B0 + B1 * V) - 1.0)/(C0 + C1 * T + C2 * T^2)\} * [Scorr] * \exp(E * P / K)$

Note: [Scorr] = salinity correction function = 1.0 for calibration in DI water

T = temperature [deg C], K = temperature [Kelvin], P = pressure [dbar]

Residual = instrument oxygen - bath oxygen

