

Sea-Bird Electronics, Inc.

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

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SENSOR SERIAL NUMBER: 1072
 CALIBRATION DATE: 14-May-15

SBE 63 OXYGEN TEMPERATURE CALIBRATION DATA
 ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

TA0 = 7.347467e-004 TA2 = 1.585765e-006

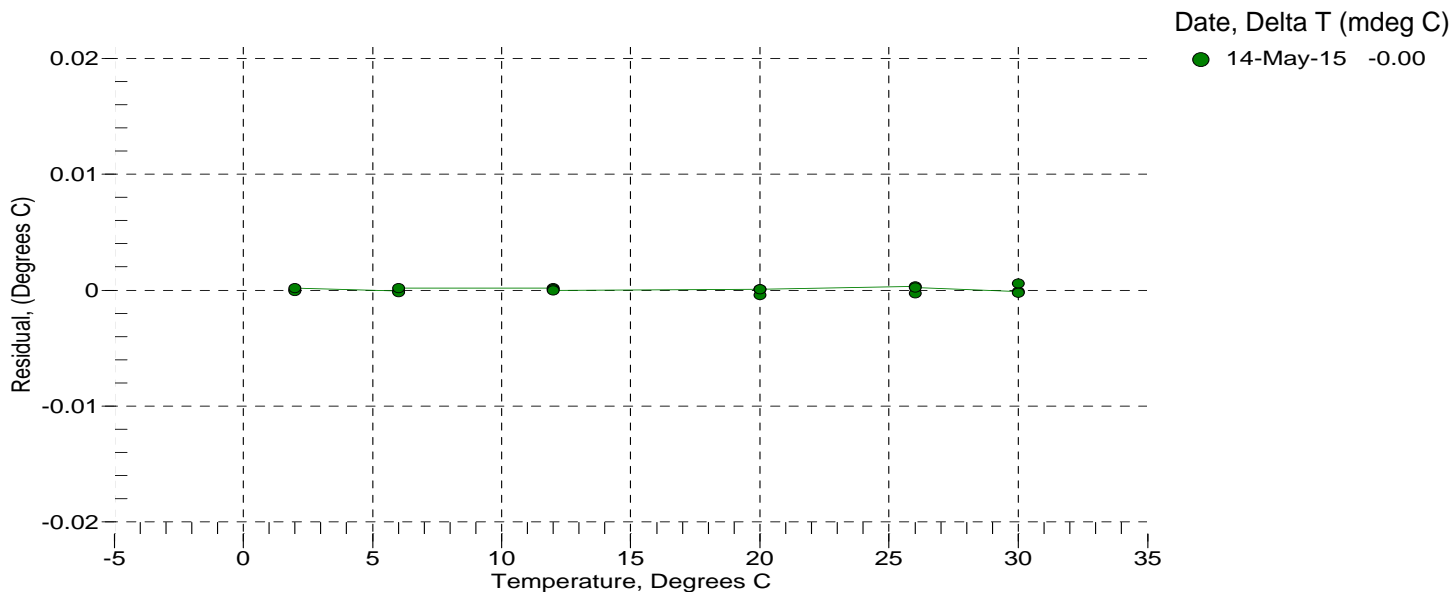
TA1 = 2.414084e-004 TA3 = 7.317318e-008

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT(V)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.9999	1.12279	1.9999	0.00004
2.0000	1.12279	1.9999	-0.00006
2.0000	1.12279	1.9999	-0.00006
2.0001	1.12278	2.0003	0.00015
5.9999	0.99837	5.9998	-0.00006
6.0000	0.99837	5.9998	-0.00016
6.0000	0.99837	5.9998	-0.00016
6.0000	0.99836	6.0002	0.00017
11.9999	0.83215	12.0001	0.00016
12.0000	0.83215	12.0001	0.00006
12.0000	0.83215	12.0001	0.00006
12.0001	0.83215	12.0001	-0.00004
19.9999	0.64798	20.0000	0.00009
19.9999	0.64799	19.9995	-0.00040
19.9999	0.64798	20.0000	0.00009
19.9999	0.64798	20.0000	0.00009
26.0000	0.53561	26.0003	0.00033
26.0000	0.53562	25.9997	-0.00026
26.0000	0.53562	25.9997	-0.00026
26.0001	0.53561	26.0003	0.00023
30.0000	0.47157	29.9999	-0.00011
30.0000	0.47156	30.0006	0.00055
30.0001	0.47157	29.9999	-0.00021
30.0001	0.47157	29.9999	-0.00021

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 = -2.1242e-001 C0 = 1.0866e-001 E = 1.1000e-002
 A1 = -1.5000e-003 B1 = 1.5684e+000 C1 = 4.5945e-003
 A2 = 3.5846e-001 C2 = 5.9617e-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	29.20	0.894	0.021
0.904	26.00	0.00	29.92	0.921	0.017
0.957	20.00	0.00	31.05	0.966	0.010
1.043	12.00	0.00	32.61	1.040	-0.003
1.157	6.00	0.00	33.60	1.151	-0.005
1.248	2.00	0.00	34.30	1.238	-0.010
2.401	30.00	0.00	21.58	2.416	0.015
2.538	26.00	0.00	22.15	2.550	0.013
2.686	20.00	0.00	23.33	2.692	0.006
3.200	12.00	0.00	24.31	3.199	-0.001
3.618	6.00	0.00	25.29	3.618	0.000
3.892	30.00	0.00	17.88	3.889	-0.004
3.983	2.00	0.00	25.93	3.982	-0.002
4.157	26.00	0.00	18.30	4.154	-0.003
4.580	20.00	0.00	19.07	4.568	-0.012
5.342	12.00	0.00	20.12	5.328	-0.013
5.514	30.00	0.00	15.40	5.510	-0.004
5.906	26.00	0.00	15.76	5.897	-0.009
6.088	6.00	0.00	20.97	6.081	-0.007
6.628	20.00	0.00	16.29	6.634	0.006
6.709	2.00	0.00	21.57	6.700	-0.009
7.664	12.00	0.00	17.29	7.667	0.004
8.671	6.00	0.00	18.12	8.684	0.014
9.119	2.00	0.00	19.05	9.124	0.005

$$V = U / 39.457071$$

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

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

