

# Sea-Bird Electronics, Inc.

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

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SENSOR SERIAL NUMBER: 1064

SBE 63 OXYGEN CALIBRATION DATA

CALIBRATION DATE: 14-May-15

## COEFFICIENTS:

A0 = 1.0513e+000    B0 = -2.2824e-001    C0 = 9.5253e-002    E = 1.1000e-002  
 A1 = -1.5000e-003    B1 = 1.6736e+000    C1 = 4.0692e-003  
 A2 = 4.5723e-001    C2 = 5.3315e-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	29.45	0.887	0.014
0.904	26.00	0.00	30.18	0.913	0.010
0.957	20.00	0.00	31.32	0.961	0.004
1.043	12.00	0.00	32.89	1.040	-0.003
1.157	6.00	0.00	33.90	1.156	-0.000
1.248	2.00	0.00	34.61	1.248	0.000
2.401	30.00	0.00	21.85	2.416	0.015
2.538	26.00	0.00	22.43	2.549	0.011
2.686	20.00	0.00	23.61	2.689	0.003
3.200	12.00	0.00	24.61	3.194	-0.006
3.618	6.00	0.00	25.61	3.612	-0.006
3.892	30.00	0.00	18.17	3.896	0.003
3.983	2.00	0.00	26.27	3.976	-0.008
4.157	26.00	0.00	18.61	4.158	0.000
4.580	20.00	0.00	19.38	4.576	-0.004
5.342	12.00	0.00	20.45	5.332	-0.010
5.514	30.00	0.00	15.72	5.504	-0.010
5.906	26.00	0.00	16.08	5.897	-0.008
6.088	6.00	0.00	21.31	6.084	-0.004
6.628	20.00	0.00	16.62	6.632	0.004
6.709	2.00	0.00	21.94	6.701	-0.008
7.664	12.00	0.00	17.64	7.667	0.004
8.671	6.00	0.00	18.49	8.681	0.011
9.119	2.00	0.00	19.43	9.126	0.007

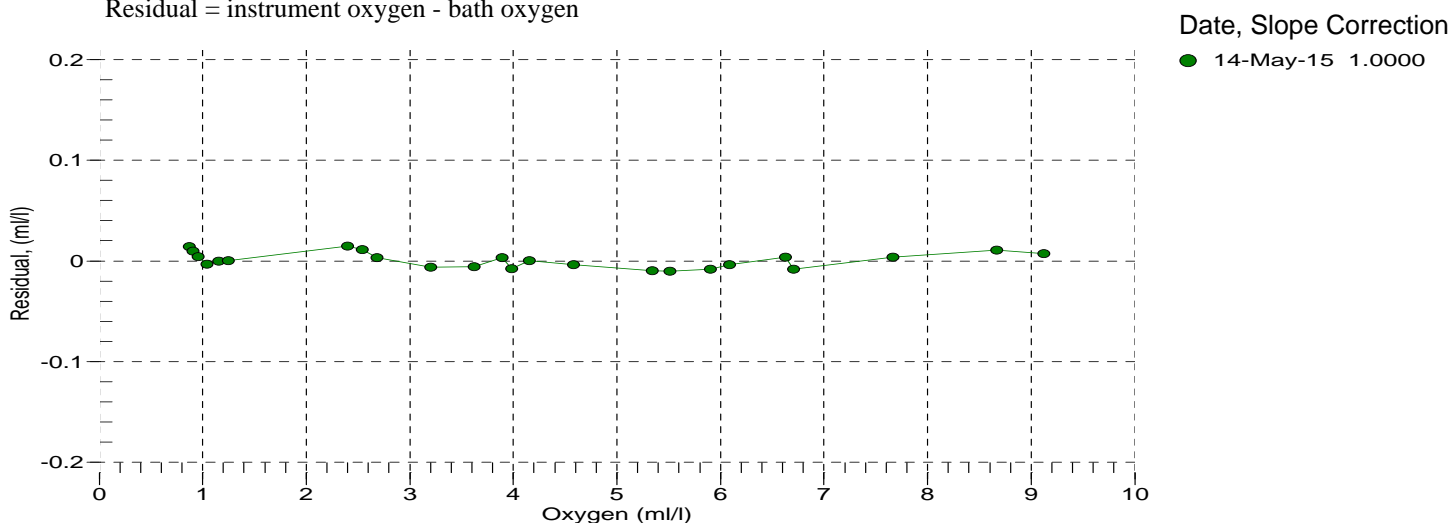
$$V = U / 39.457071$$

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

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



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SBE 63 OXYGEN TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

TA0 = 6.813323e-004    TA2 = 6.765457e-008

TA1 = 2.570802e-004    TA3 = 1.221782e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT(V)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.9999	1.12156	1.9998	-0.00006
2.0000	1.12156	1.9998	-0.00016
2.0000	1.12155	2.0001	0.00014
2.0001	1.12155	2.0001	0.00004
5.9999	0.99721	6.0000	0.00010
6.0000	0.99721	6.0000	0.00000
6.0000	0.99721	6.0000	0.00000
6.0000	0.99721	6.0000	0.00000
11.9999	0.83111	12.0002	0.00027
12.0000	0.83112	11.9998	-0.00022
12.0000	0.83112	11.9998	-0.00022
12.0001	0.83111	12.0002	0.00007
19.9999	0.64710	20.0002	0.00026
19.9999	0.64710	20.0002	0.00026
19.9999	0.64711	19.9997	-0.00023
19.9999	0.64711	19.9997	-0.00023
26.0000	0.53486	26.0000	0.00003
26.0000	0.53486	26.0000	0.00003
26.0000	0.53486	26.0000	0.00003
26.0001	0.53486	26.0000	-0.00007
30.0000	0.47089	30.0002	0.00021
30.0000	0.47089	30.0002	0.00021
30.0001	0.47090	29.9995	-0.00055
30.0001	0.47089	30.0002	0.00011

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

