



SEA-BIRD
SCIENTIFIC

SBE37-IMP-ODO MicroCAT

Instrument Configuration

Instrument Serial Number: 37-27308
Instrument Firmware Version: 6.1.1
Zero Conductivity Frequency: 2884.96
IM Firmware Version: 1.14
Instrument ID#: 08
Communications Format: Inductive Modem
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	13126168	350m(350 dBar)
RS232	Oxygen	SBE 63	63-3977	600m

Maximum Depth: **350m**

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: 27308
CALIBRATION DATE: 16-Dec-24

SBE 37 V2 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

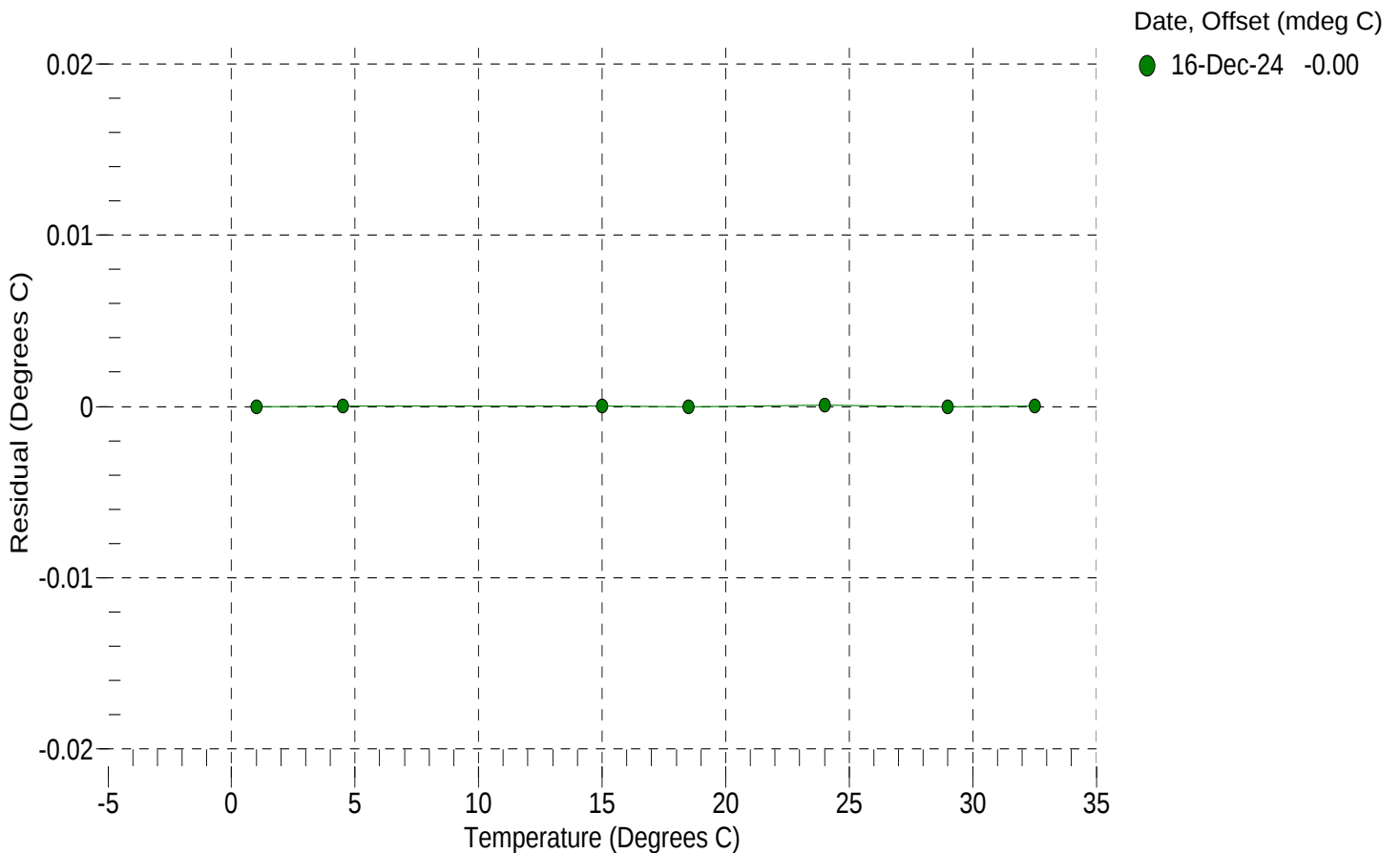
a0 = -1.921957e-04
a1 = 3.225651e-04
a2 = -5.497144e-06
a3 = 2.296915e-07

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	561679.0	1.0000	-0.0000
4.5000	481174.0	4.5000	0.0000
15.0000	308457.0	15.0000	0.0000
18.5000	267617.0	18.5000	-0.0000
24.0000	215358.0	24.0001	0.0001
29.0000	177838.0	29.0000	-0.0000
32.5000	156051.0	32.5000	0.0000

n = Instrument Output (counts)

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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CALIBRATION DATE: 16-Dec-24

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

COEFFICIENTS:

g = -1.001659e+00
h = 1.208675e-01
i = -2.778082e-04
j = 3.344812e-05

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 1.5308e-06

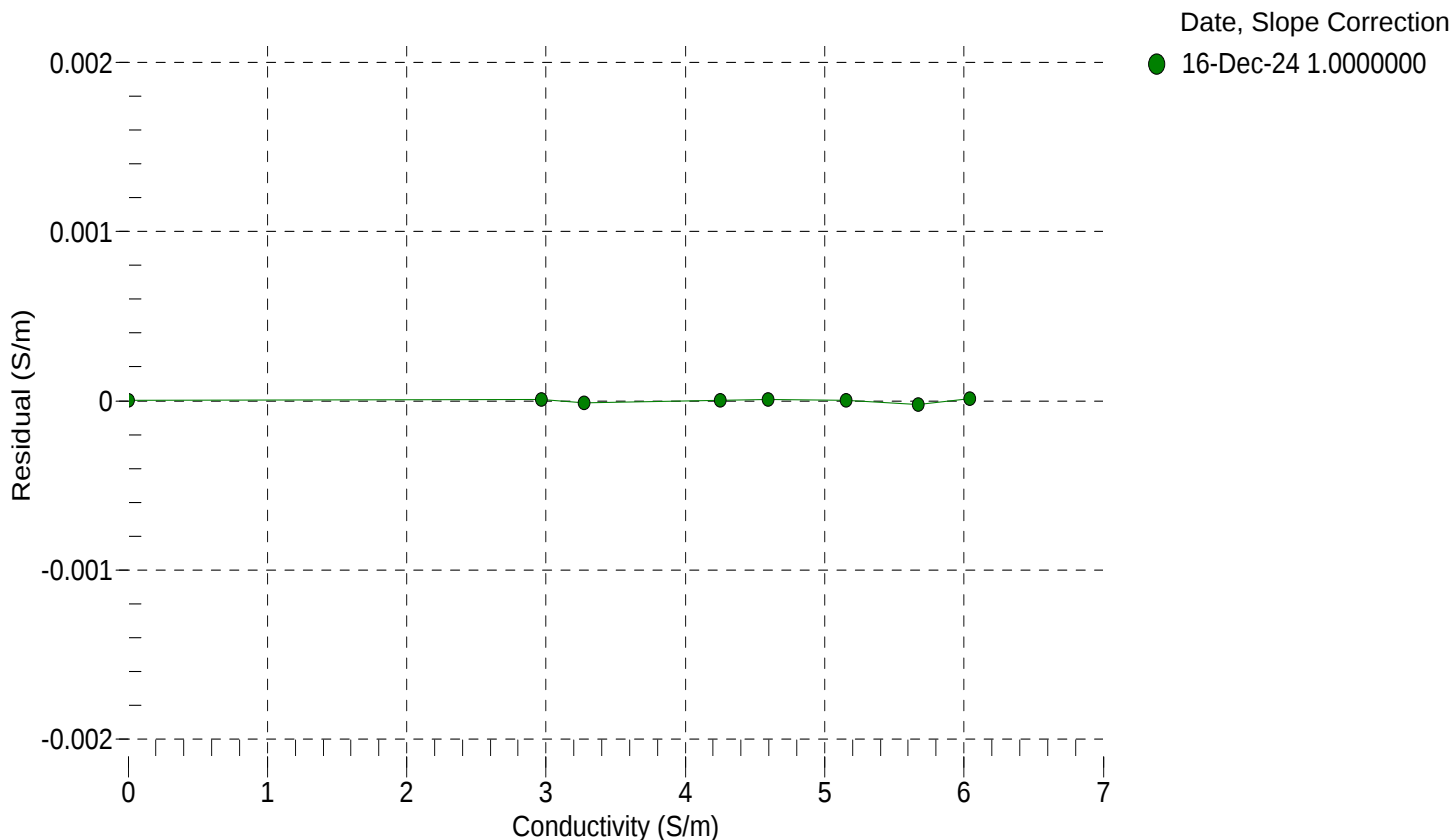
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2884.96	0.00000	0.00000
1.0000	34.6936	2.96647	5741.50	2.96648	0.00001
4.5000	34.6736	3.27258	5958.23	3.27257	-0.00001
15.0000	34.6306	4.25124	6602.75	4.25124	0.00000
18.5000	34.6219	4.59535	6814.59	4.59536	0.00001
24.0000	34.6123	5.15162	7143.39	5.15163	0.00000
29.0000	34.6065	5.67181	7437.32	5.67179	-0.00002
32.5000	34.6022	6.04286	7639.87	6.04288	0.00001

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

$t = \text{temperature (°C)}$; $p = \text{pressure (decibars)}$; $\delta = \text{CTcor}$; $\epsilon = \text{CPcor}$;

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

$\text{Residual (Siemens/meter)} = \text{instrument conductivity} - \text{bath conductivity}$





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SENSOR SERIAL NUMBER: 27308
CALIBRATION DATE: 06-Dec-24

SBE 37 V2 PRESSURE CALIBRATION DATA
508 psia S/N 13126168

COEFFICIENTS:

PA0 =	1.780813e-01	PTCA0 =	5.241478e+05
PA1 =	1.600355e-03	PTCA1 =	8.498890e+00
PA2 =	5.993346e-12	PTCA2 =	-1.530033e-01
PTEMPA0 =	-8.113996e+01	PTCB0 =	2.512750e+01
PTEMPA1 =	4.880412e-02	PTCB1 =	-1.000000e-04
PTEMPA2 =	-3.795096e-07	PTCB2 =	0.000000e+00

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)
14.64	533302.0	2125.0	14.65	0.00	32.50	2372	533770.00
104.90	589658.0	2133.0	104.87	-0.01	29.00	2298	533771.00
204.90	652108.0	2133.0	204.90	-0.00	24.00	2192	533766.00
304.91	714523.0	2134.0	304.91	0.00	18.50	2075	533760.00
404.92	776905.0	2135.0	404.92	-0.00	15.00	2001	533746.00
504.92	839246.0	2135.0	504.91	-0.00	4.50	1779	533694.00
404.92	776914.0	2135.0	404.93	0.00	1.00	1706	533658.00
304.91	714535.0	2135.0	304.93	0.00	TEMPERATURE (°C) SPAN		
204.91	652119.0	2135.0	204.91	0.00			
104.91	589670.0	2135.0	104.89	-0.00			
14.64	533300.0	2136.0	14.65	0.00			
					-5.00	25.13	
					35.00	25.12	

y = thermistor output (counts)

t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y²

x = instrument output - PTCA0 - PTCA1 * t - PTCA2 * t²

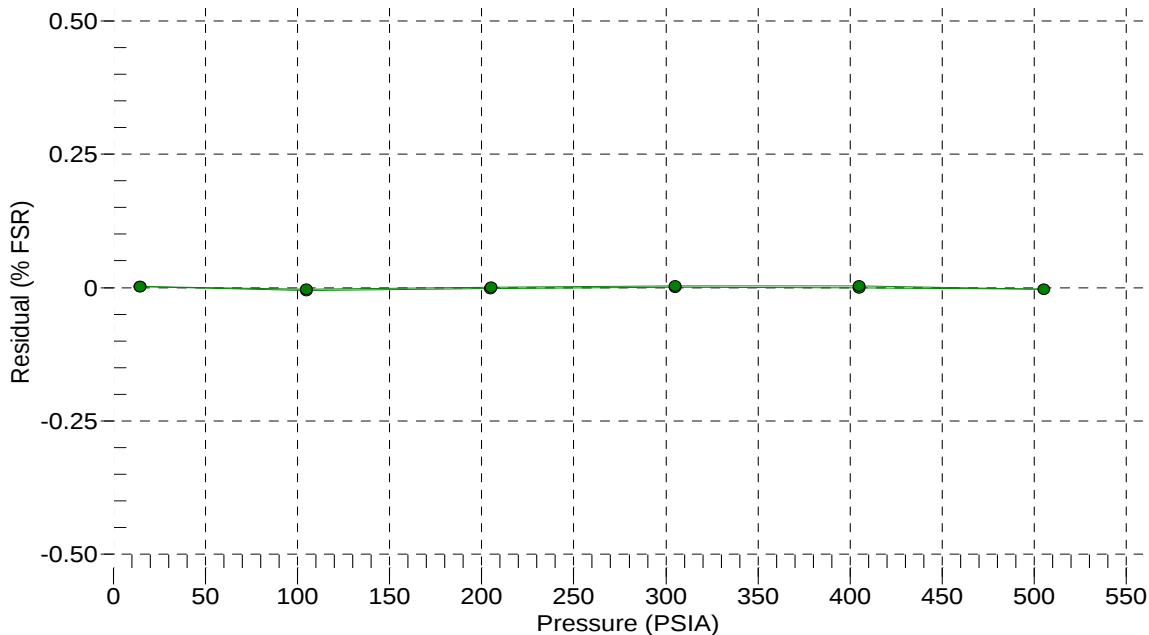
n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t²)

pressure (PSIA) = PA0 + PA1 * n + PA2 * n²

Residual (%FSR) = (computed pressure - true pressure) * 100 / Full Scale Range

Date, Offset (%FSR)

● 06-Dec-24 0.00





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Pressure Test Certificate

Test Date: **2024-12-04**

Description: **SBE-37 Microcat**

Sensor Information:

Model Number: **SBE-37**

Serial Number: **27308**

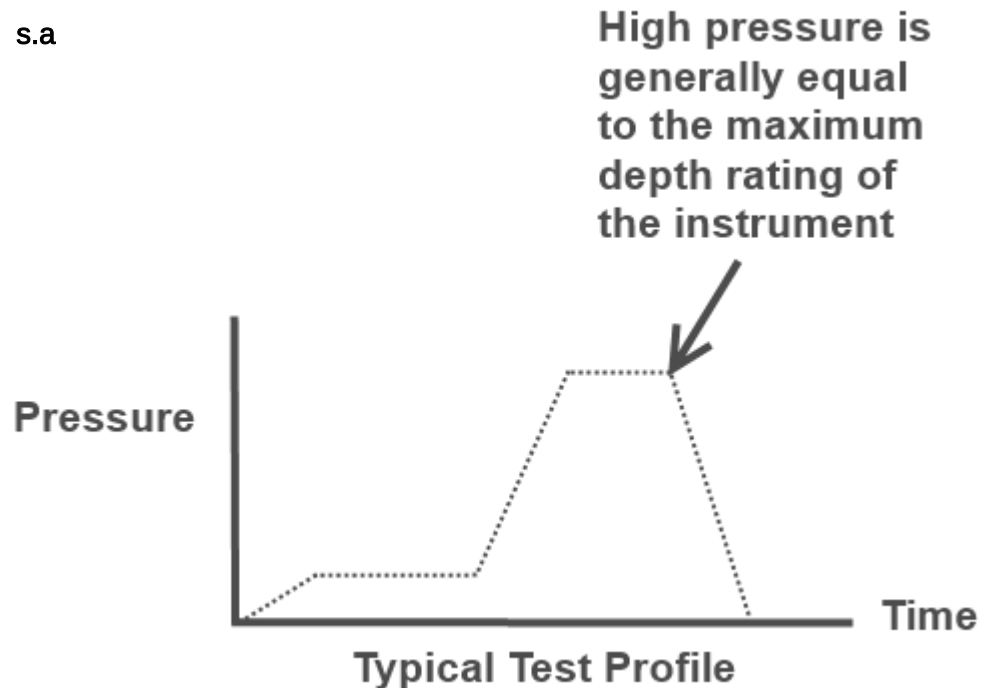
Pressure Test Protocol:

Low Pressure Test: **40** PSI Held For: **15** Minutes

High Pressure Test: **500** PSI Held For: **15** Minutes

Passed Test: **True**

Tested By: **s.a**





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SENSOR SERIAL NUMBER: 3977
CALIBRATION DATE: 22-Nov-24

SBE 63 OXYGEN TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

TA0 = 6.593397e-04 TA2 = -3.718305e-07

TA1 = 2.625114e-04 TA3 = 1.328065e-07

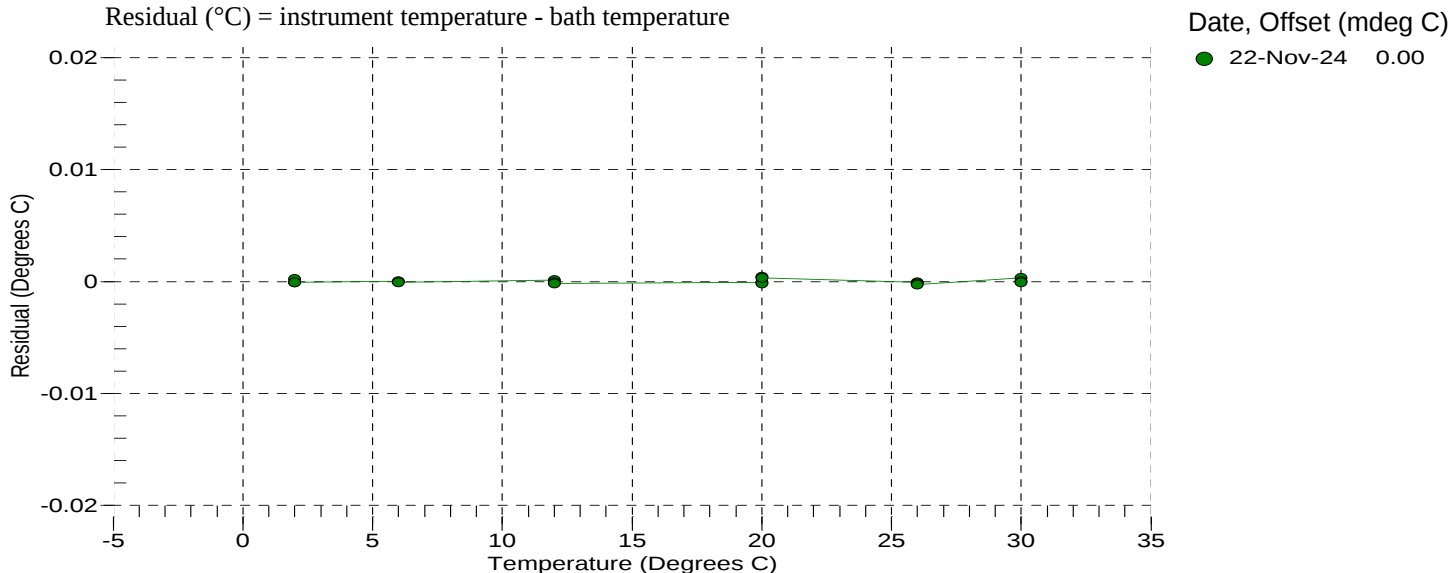
BATH TEMP (° C)	INSTRUMENT OUTPUT(V)	INST TEMP (° C)	RESIDUAL (° C)
2.0000	1.12457	1.9999	-0.00007
2.0000	1.12456	2.0002	0.00024
2.0000	1.12457	1.9999	-0.00007
2.0000	1.12457	1.9999	-0.00007
6.0000	0.99992	6.0000	0.00002
6.0000	0.99992	6.0000	0.00002
6.0000	0.99992	6.0000	0.00002
6.0001	0.99992	6.0000	-0.00008
11.9998	0.83340	11.9999	0.00013
12.0000	0.83340	11.9999	-0.00007
12.0000	0.83340	11.9999	-0.00007
12.0001	0.83340	11.9999	-0.00017
20.0000	0.64890	19.9999	-0.00006
20.0000	0.64889	20.0004	0.00042
20.0001	0.64890	19.9999	-0.00016
20.0001	0.64889	20.0004	0.00032
25.9999	0.53636	25.9998	-0.00006
26.0000	0.53636	25.9998	-0.00016
26.0000	0.53636	25.9998	-0.00016
26.0001	0.53636	25.9998	-0.00026
29.9998	0.47222	30.0001	0.00032
30.0001	0.47222	30.0001	0.00002
30.0001	0.47222	30.0001	0.00002
30.0002	0.47222	30.0001	-0.00008

V = Instrument Output (Volts)

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

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

Residual (°C) = instrument temperature - bath temperature





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SBE 63 OXYGEN CALIBRATION DATA

COEFFICIENTS:

A0 = 1.0513e+00 B0 = -2.1926e-01 C0 = 9.0525e-02 E = 1.1000e-02
A1 = -1.5000e-03 B1 = 1.6442e+00 C1 = 3.8445e-03
A2 = 4.2963e-01 C2 = 5.2963e-05

BATH OXYGEN (ml/l)	BATH TEMPERATURE (° C)	BATH SALINITY (PSU)	INSTRUMENT OUTPUT (µsec)	INSTRUMENT OXYGEN (ml/l)	RESIDUAL (ml/l)
0.748	30.00	0.00	30.86	0.748	-0.000
0.776	26.00	0.00	31.52	0.776	-0.001
0.833	20.00	0.00	32.49	0.831	-0.002
0.915	12.00	0.00	33.89	0.914	-0.000
1.023	6.00	0.00	34.80	1.023	0.001
1.118	2.00	0.00	35.40	1.119	0.001
2.326	30.00	0.00	22.57	2.327	0.000
2.451	26.00	0.00	23.18	2.451	0.000
2.600	20.00	0.00	24.35	2.598	-0.002
3.099	12.00	0.00	25.33	3.099	0.000
3.500	6.00	0.00	26.35	3.498	-0.002
3.837	2.00	0.00	27.04	3.836	-0.001
3.856	30.00	0.00	18.64	3.854	-0.002
4.103	26.00	0.00	19.12	4.102	-0.001
4.519	20.00	0.00	19.92	4.514	-0.005
5.250	12.00	0.00	21.04	5.251	0.001
5.415	30.00	0.00	16.17	5.415	0.000
5.836	26.00	0.00	16.50	5.840	0.004
5.976	6.00	0.00	21.94	5.979	0.002
6.450	20.00	0.00	17.20	6.449	-0.002
6.570	2.00	0.00	22.58	6.579	0.009
7.481	12.00	0.00	18.24	7.489	0.008
8.510	6.00	0.00	19.10	8.501	-0.009
9.000	2.00	0.00	20.01	8.997	-0.003

T = temperature (°C) , P = pressure (dbar), U = Instrument output (µsec)

S_{corr} (salinity correction function) = 1.0 for calibration in DI water

See the user manual for more information on S_{corr} calculation

$V = U / 39.457071$

Oxygen (ml/l) = $\{((A0 + A1 \cdot T + A2 \cdot V^2) / (B0 + B1 \cdot V) - 1.0) / (C0 + C1 \cdot T + C2 \cdot T^2)\} \cdot S_{corr} \cdot \exp(E \cdot P / (T + 273.15))$

Residual (ml/l) = instrument oxygen - bath oxygen

Date, Slope Correction

● 22-Nov-24 1.0000

