



SEA-BIRD
SCIENTIFIC

SBE37-IMP-ODO MicroCAT

Instrument Configuration

Instrument Serial Number: 37-27307
Instrument Firmware Version: 6.1.1
Zero Conductivity Frequency: 2627.84
IM Firmware Version: 1.14
Instrument ID#: 07
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	13124757	350m(350 dBar)
RS232	Oxygen	SBE 63	63-3964	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: 27307
CALIBRATION DATE: 16-Dec-24

SBE 37 V2 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

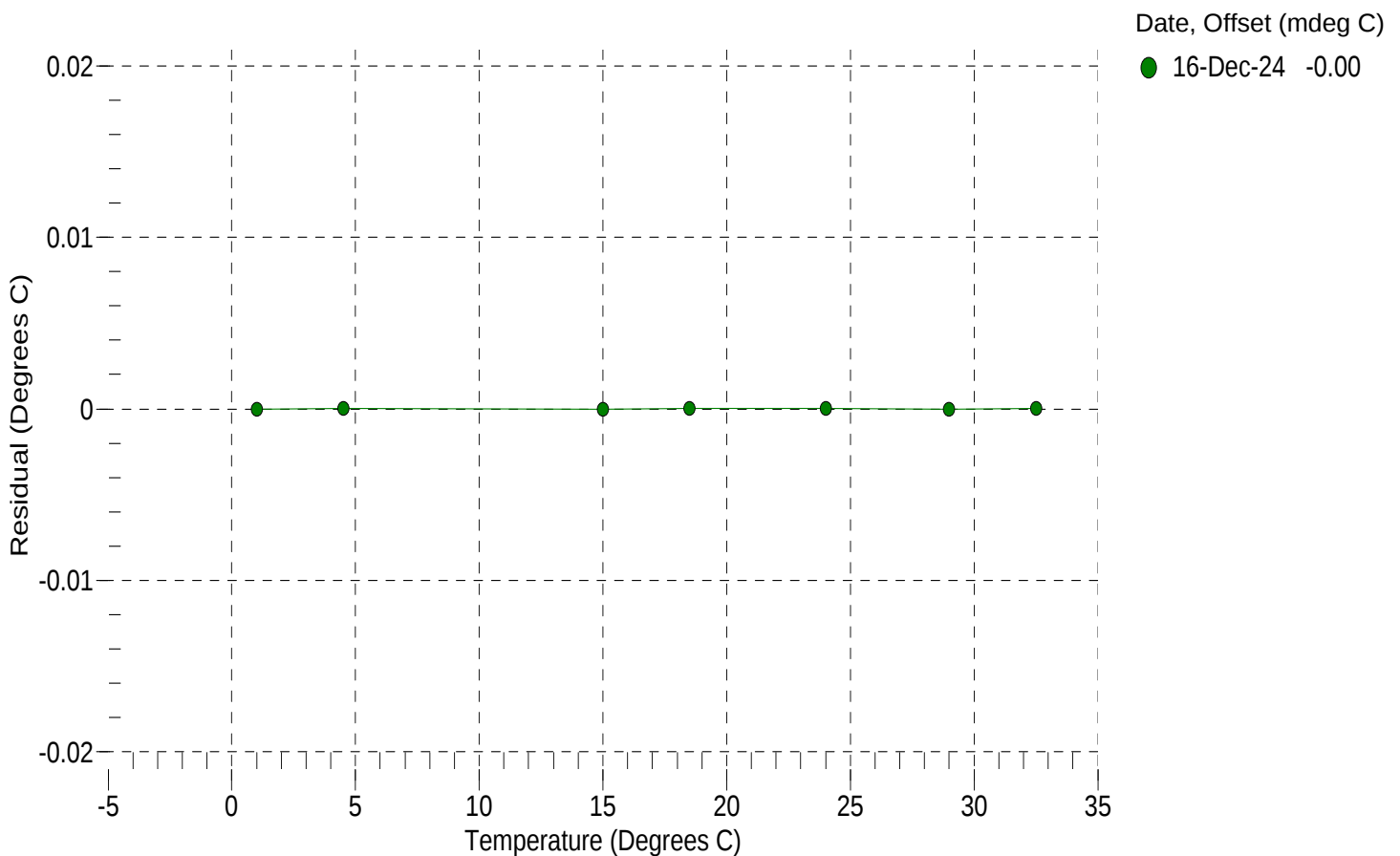
a0 = -2.101250e-04
a1 = 3.225527e-04
a2 = -5.327740e-06
a3 = 2.232905e-07

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	567828.0	1.0000	-0.0000
4.5000	486744.0	4.5000	0.0000
15.0000	312614.0	15.0000	-0.0000
18.5000	271392.0	18.5000	0.0000
24.0000	218611.0	24.0000	0.0000
29.0000	180684.0	29.0000	-0.0000
32.5000	158646.0	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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SBE 37 V2 CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

COEFFICIENTS:

g = -9.999934e-01
h = 1.453062e-01
i = -3.005706e-04
j = 4.268904e-05

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = -3.4880e-07

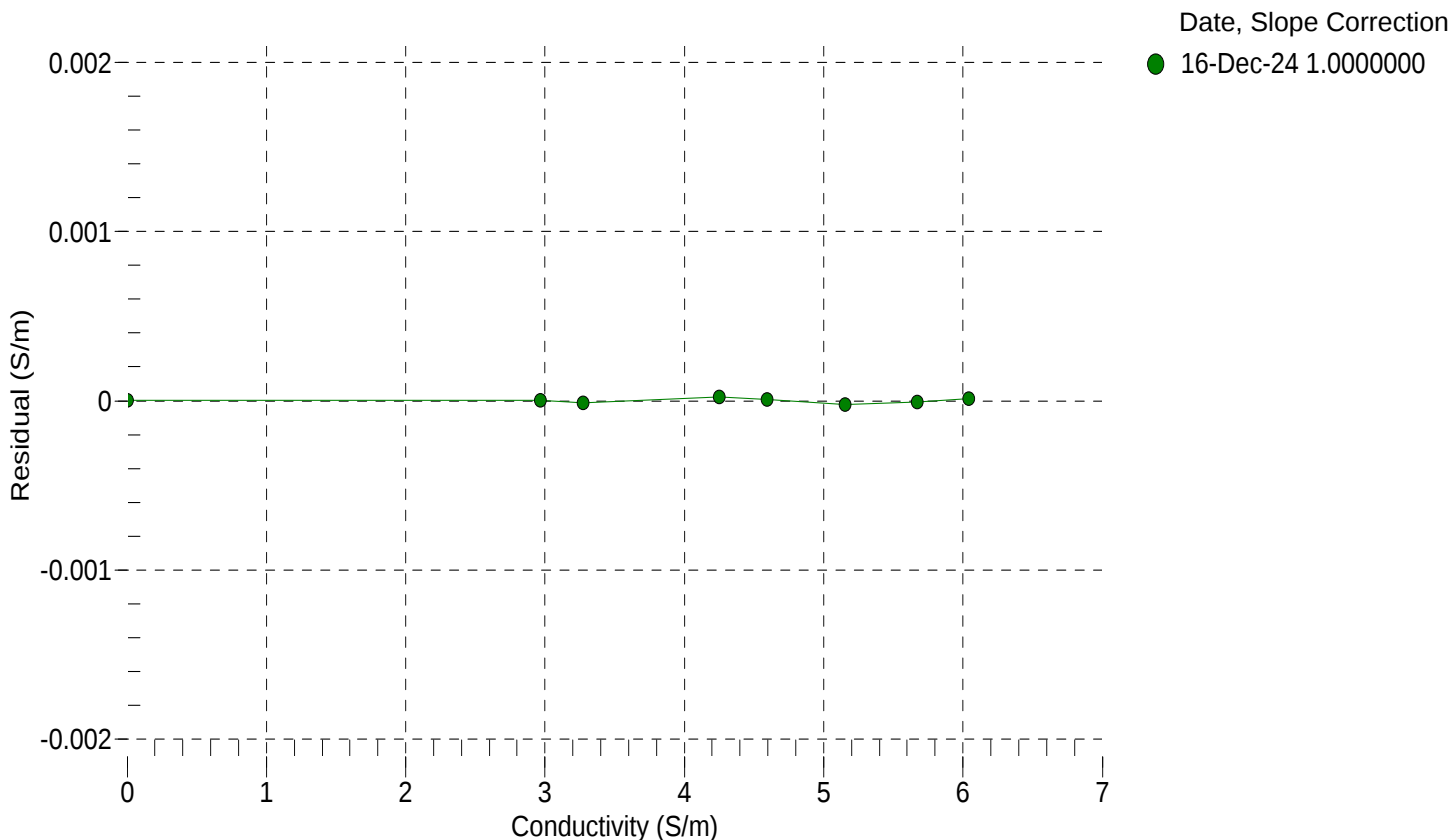
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2627.84	0.00000	0.00000
1.0000	34.6936	2.96647	5231.97	2.96648	0.00000
4.5000	34.6736	3.27258	5429.55	3.27257	-0.00001
15.0000	34.6306	4.25124	6017.17	4.25126	0.00002
18.5000	34.6219	4.59535	6210.31	4.59536	0.00001
24.0000	34.6123	5.15162	6510.11	5.15160	-0.00002
29.0000	34.6065	5.67181	6778.17	5.67180	-0.00001
32.5000	34.6022	6.04286	6962.89	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: 27307
CALIBRATION DATE: 06-Dec-24

SBE 37 V2 PRESSURE CALIBRATION DATA
508 psia S/N 13124757

COEFFICIENTS:

PA0 =	1.867654e-01	PTCA0 =	5.249616e+05
PA1 =	1.563255e-03	PTCA1 =	1.053124e+01
PA2 =	5.339959e-12	PTCA2 =	-2.281803e-01
PTEMPA0 =	-7.752710e+01	PTCB0 =	2.505875e+01
PTEMPA1 =	4.947730e-02	PTCB1 =	1.500000e-04
PTEMPA2 =	-4.653467e-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	534338.0	2027.0	14.65	0.00	32.50	2272	534790.00
104.90	592041.0	2035.0	104.87	-0.01	29.00	2199	534801.00
204.90	655989.0	2037.0	204.89	-0.00	24.00	2093	534805.00
304.91	719905.0	2038.0	304.91	0.00	18.50	1978	534806.00
404.92	783786.0	2038.0	404.91	-0.00	15.00	1904	534793.00
504.92	847631.0	2038.0	504.90	-0.00	4.50	1684	534735.00
404.92	783806.0	2038.0	404.94	0.01	1.00	1612	534694.00
304.91	719919.0	2038.0	304.93	0.00	TEMPERATURE (°C) SPAN		
204.91	656003.0	2039.0	204.91	0.00			
104.91	592059.0	2038.0	104.90	-0.00			
14.64	534332.0	2039.0	14.64	0.00			
					-5.00		25.06
					35.00		25.06

y = thermistor output (counts)

t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y²

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

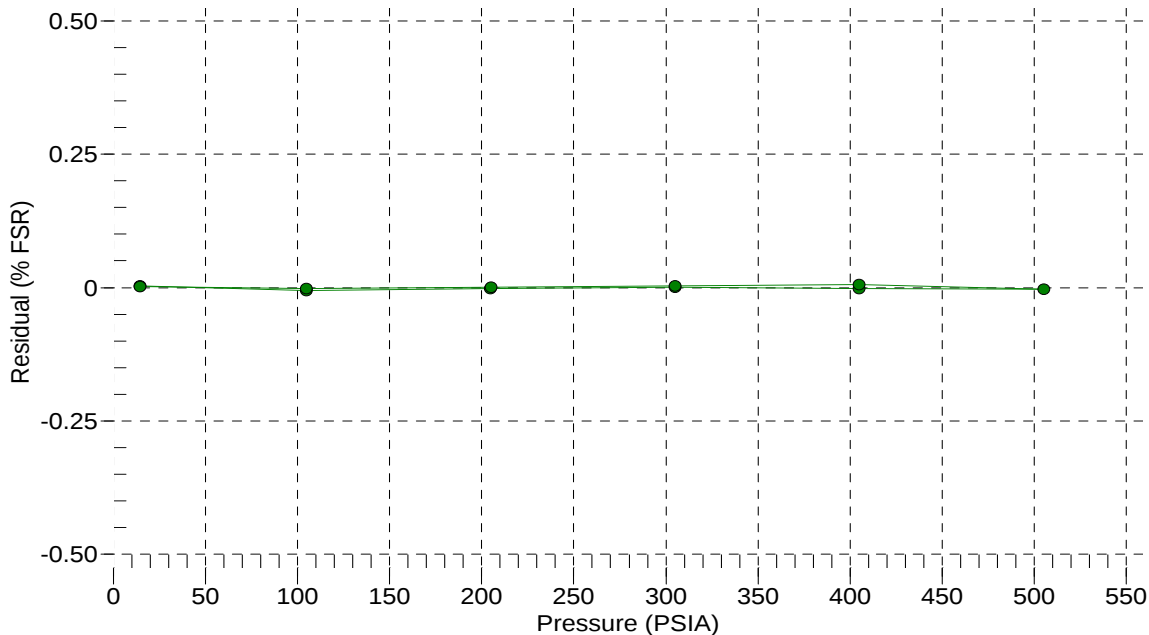
n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t²)

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: **27307**

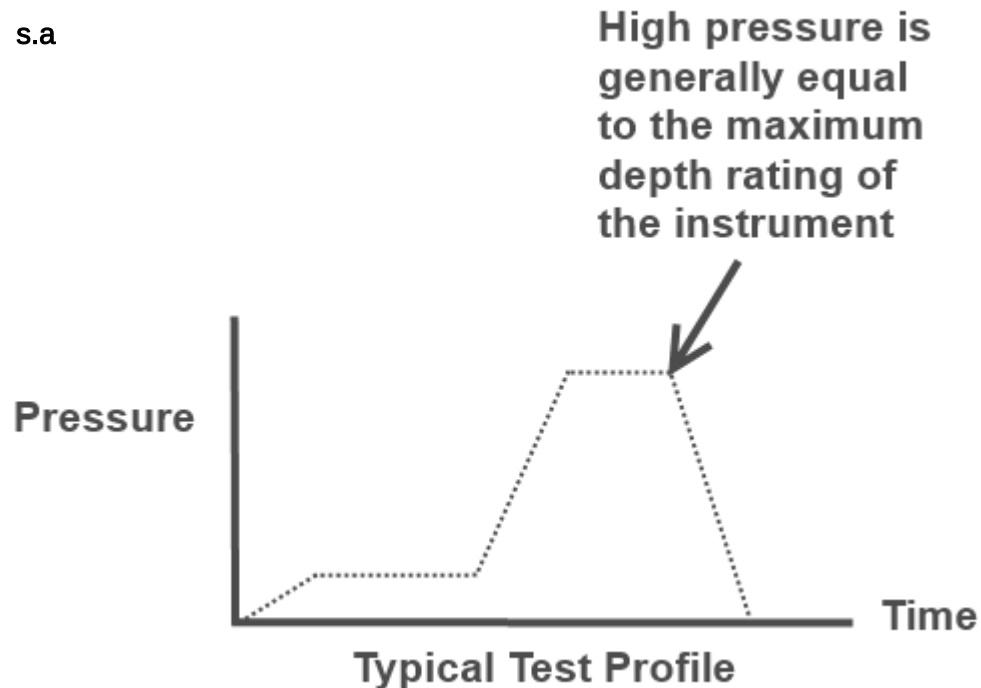
Pressure Test Protocol:

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: 3964
CALIBRATION DATE: 16-Oct-24

SBE 63 OXYGEN TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

TA0 = 7.227783e-04 TA2 = 1.226952e-06

TA1 = 2.456095e-04 TA3 = 8.158641e-08

BATH TEMP (° C)	INSTRUMENT OUTPUT(V)	INST TEMP (° C)	RESIDUAL (° C)
2.0000	1.11757	2.0003	0.00028
2.0000	1.11758	2.0000	-0.00003
2.0000	1.11758	2.0000	-0.00003
2.0001	1.11758	2.0000	-0.00013
5.9999	0.99321	5.9999	0.00003
6.0000	0.99321	5.9999	-0.00007
6.0000	0.99321	5.9999	-0.00007
6.0000	0.99321	5.9999	-0.00007
12.0000	0.82722	12.0000	0.00002
12.0000	0.82722	12.0000	0.00002
12.0000	0.82722	12.0000	0.00002
12.0001	0.82722	12.0000	-0.00008
19.9999	0.64353	20.0003	0.00040
19.9999	0.64354	19.9998	-0.00009
20.0000	0.64354	19.9998	-0.00019
20.0000	0.64353	20.0003	0.00030
26.0000	0.53161	25.9999	-0.00013
26.0000	0.53161	25.9999	-0.00013
26.0000	0.53161	25.9999	-0.00013
26.0001	0.53161	25.9999	-0.00023
29.9999	0.46786	30.0001	0.00019
29.9999	0.46786	30.0001	0.00019
30.0001	0.46786	30.0001	-0.00001
30.0002	0.46786	30.0001	-0.00011

V = Instrument Output (Volts)

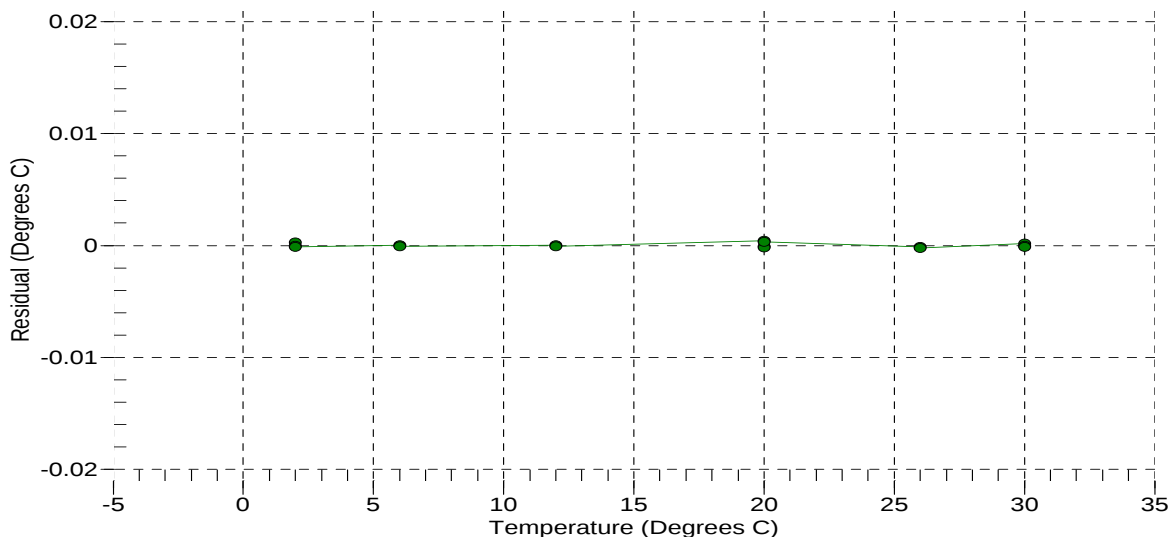
$L = \ln(100000 * V / (3.3 - V))$

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

Residual (°C) = instrument temperature - bath temperature

Date, Offset (mdeg C)

● 16-Oct-24 0.00





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SBE 63 OXYGEN CALIBRATION DATA

COEFFICIENTS:

A0 = 1.0513e+00 B0 = -2.3702e-01 C0 = 9.9747e-02 E = 1.1000e-02
A1 = -1.5000e-03 B1 = 1.6617e+00 C1 = 4.2127e-03
A2 = 4.3740e-01 C2 = 5.5499e-05

BATH OXYGEN (ml/l)	BATH TEMPERATURE (° C)	BATH SALINITY (PSU)	INSTRUMENT OUTPUT (µsec)	INSTRUMENT OXYGEN (ml/l)	RESIDUAL (ml/l)
0.804	30.00	0.00	30.11	0.807	0.003
0.830	26.00	0.00	30.83	0.832	0.003
0.879	20.00	0.00	31.90	0.880	0.001
0.955	12.00	0.00	33.41	0.955	-0.000
1.060	6.00	0.00	34.40	1.059	-0.001
1.159	2.00	0.00	35.03	1.154	-0.005
2.452	30.00	0.00	21.76	2.451	-0.001
2.576	26.00	0.00	22.36	2.578	0.002
2.705	20.00	0.00	23.58	2.703	-0.001
3.209	12.00	0.00	24.56	3.213	0.004
3.602	6.00	0.00	25.60	3.605	0.003
3.947	2.00	0.00	26.28	3.951	0.004
4.051	30.00	0.00	17.93	4.045	-0.006
4.289	26.00	0.00	18.41	4.285	-0.004
4.705	20.00	0.00	19.20	4.697	-0.008
5.425	12.00	0.00	20.31	5.421	-0.004
5.758	30.00	0.00	15.47	5.762	0.004
6.139	26.00	0.00	15.85	6.142	0.003
6.149	6.00	0.00	21.21	6.149	0.001
6.738	20.00	0.00	16.54	6.740	0.001
6.754	2.00	0.00	21.83	6.758	0.004
7.759	12.00	0.00	17.56	7.765	0.006
8.784	6.00	0.00	18.40	8.780	-0.004
9.255	2.00	0.00	19.30	9.252	-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

● 16-Oct-24 1.0000

