SBE41-CP ALACE

Instrument Configuration

Instrument Serial Number:	41-12987
Instrument Firmware Version:	7.2.5
Zero Conductivity Frequency:	2709.06
Communications Format:	RS232
Communications Settings:	9600 baud, 8 Data Bits, No Parity

Installed Devices/Sensors

Data Format	*Measurement*	*Sensor Type*	*Serial Number*	*Rating*
Count	Temperature	Internal	N/A	N/A
Frequency	Conductivity	Internal	N/A	N/A
Count	Pressure	Druck	11518377	2000m(2000 dBar)

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SENSOR SERIAL NUMBER: 12987
CALIBRATION DATE: 27-Jun-20

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

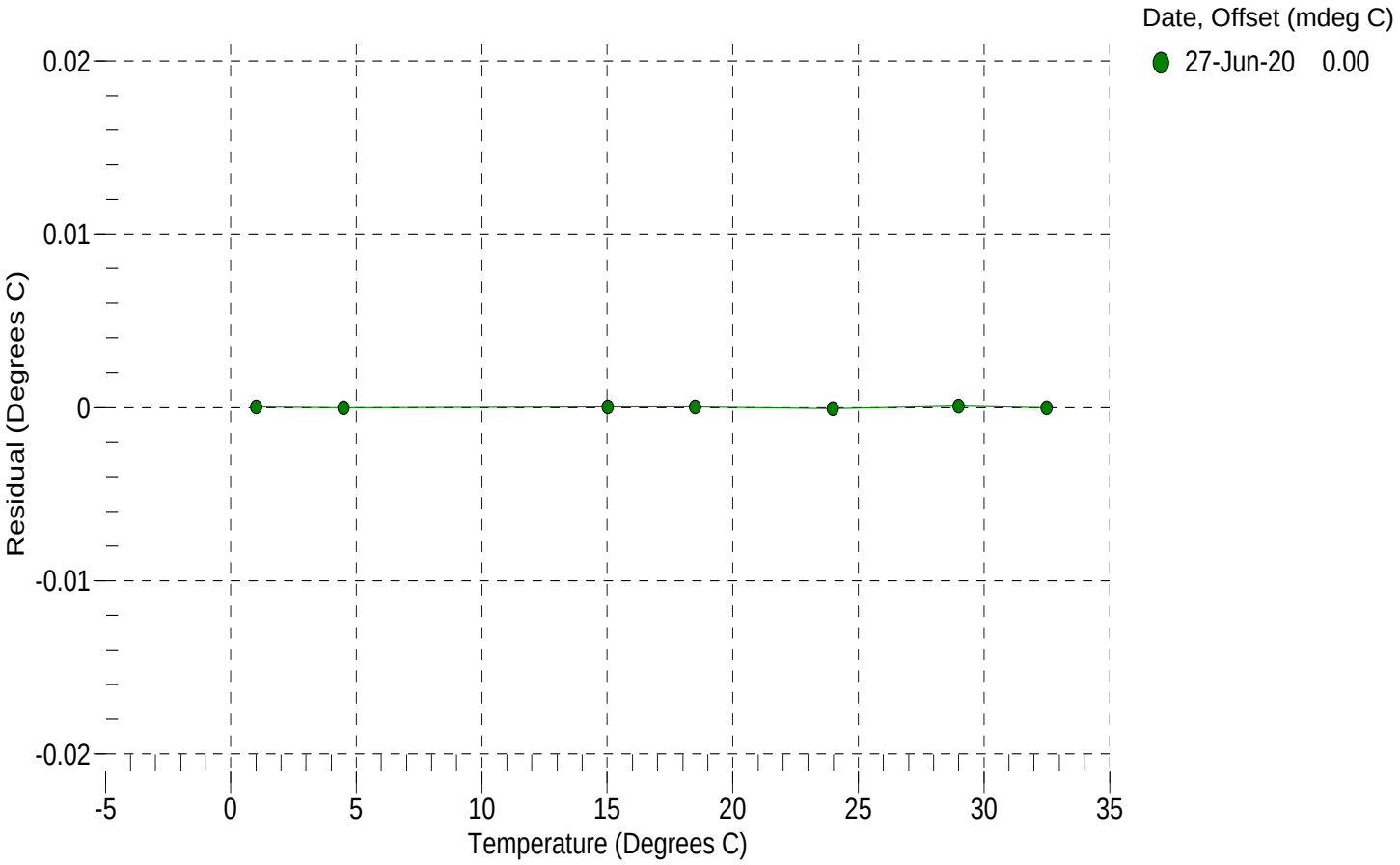
```
a0 = -7.815912e-004
a1 =  2.832926e-004
a2 = -3.177561e-006
a3 =  1.389214e-007
```

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	14448306.8	1.0000	0.0000
4.5000	12338000.5	4.5000	-0.0000
15.0000	7834893.3	15.0000	0.0000
18.5000	6776378.5	18.5000	0.0000
23.9940	5427883.3	23.9939	-0.0001
29.0000	4461283.3	29.0001	0.0001
32.5000	3902625.9	32.5000	-0.0000

n = Instrument Output (counts)

Temperature ITS-90 (°C) = 1/{a0 + a1[ln(n)] + a2[ln^2(n)] + a3[ln^3(n)]} - 273.15

Residual (°C) = instrument temperature - bath temperature



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SENSOR SERIAL NUMBER: 12987
CALIBRATION DATE: 27-Jun-20

SBE 41 CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

COEFFICIENTS:

```
g = -1.016791e+000
h =  1.385504e-001
i = -7.099087e-005
j =  2.521636e-005

CPcor = -9.5700e-008
CTcor =  3.2500e-006
WBOTC =  8.3045e-007
```

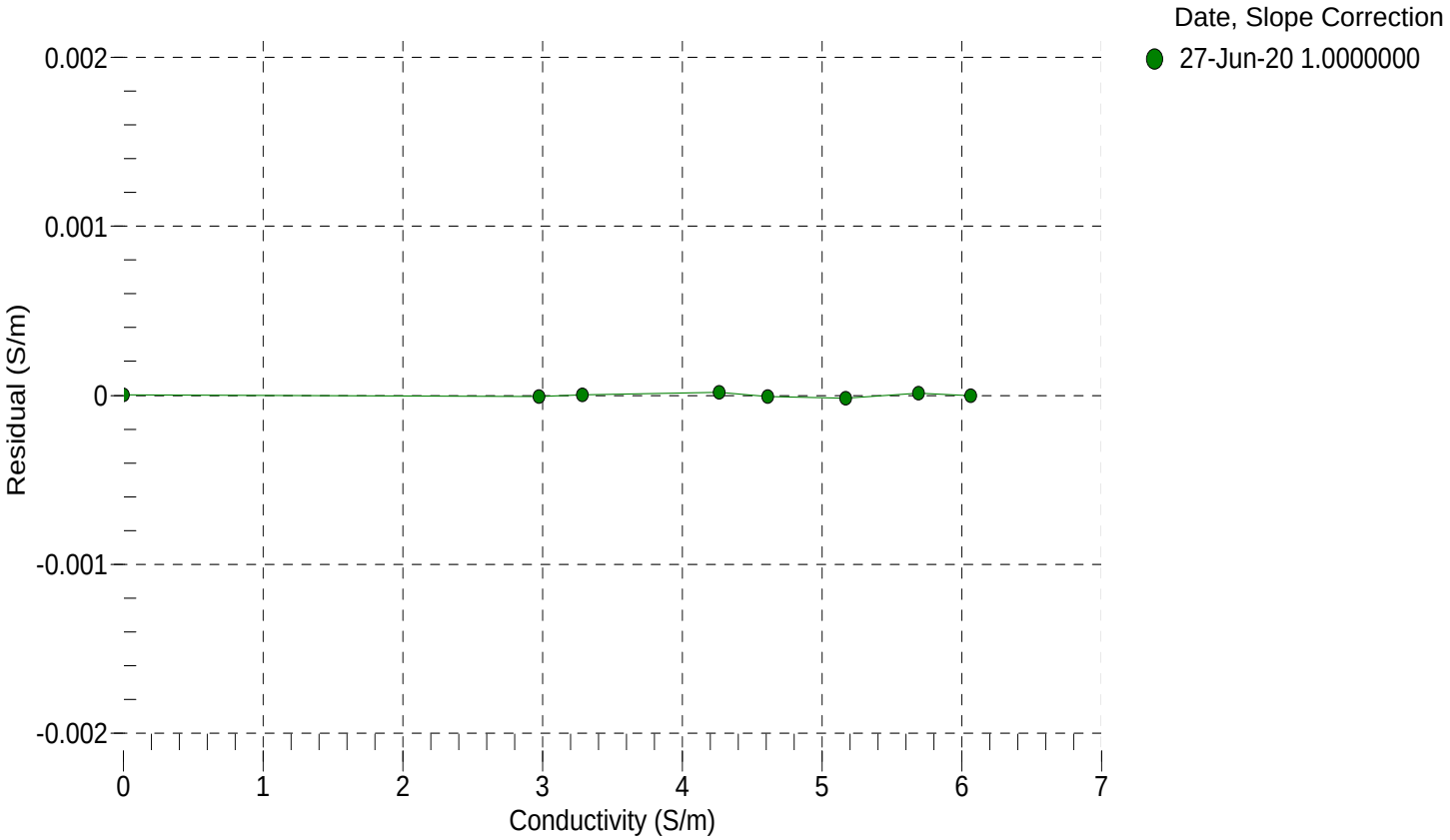
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2709.06	0.00000	0.00000
1.0000	34.8293	2.97697	5362.26	2.97696	-0.00001
4.5000	34.8109	3.28426	5563.93	3.28427	0.00000
15.0000	34.7713	4.26668	6163.79	4.26669	0.00002
18.5000	34.7633	4.61210	6360.99	4.61209	-0.00001
23.9940	34.7546	5.16984	6666.84	5.16983	-0.00002
29.0000	34.7493	5.69258	6940.98	5.69259	0.00001
32.5000	34.7454	6.06502	7129.68	6.06502	-0.00000

f = Instrument Output(Hz) * sqrt(1.0 + WBOTC * t) / 1000.0

t = temperature (°C); p = pressure (decibars); δ = CTcor; ε = CPcor;

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

Residual (Siemens/meter) = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 12987
CALIBRATION DATE: 22-Jun-20

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 11518377

COEFFICIENTS:

PA0 =	1.316343e-001	PTCA0 =	-1.068086e+004
PA1 =	3.917464e-004	PTCA1 =	4.400256e+001
PA2 =	-2.782496e-013	PTCA2 =	-1.294888e+000
PTHA0 =	3.197681e+002	PTCB0 =	3.144481e+005
PTHA1 =	-6.038319e-005	PTCB1 =	1.272539e+001
PTHA2 =	-1.564491e-012	PTCB2 =	-1.953712e-001

PRESSURE SPAN CALIBRATION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (counts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)
14.61	26629.1	4419002.0	14.61	-0.00
590.60	1499942.4	4414758.0	590.80	0.01
1167.01	2976587.7	4413398.2	1167.07	0.00
1743.15	4455994.7	4412022.6	1743.21	0.00
2319.39	5938887.4	4410453.0	2319.49	0.00
2895.41	7423987.4	4409320.0	2895.39	-0.00
2319.27	5938266.4	4409239.2	2319.24	-0.00
1743.47	4456332.7	4408883.0	1743.34	-0.00
1166.83	2975756.4	4408797.4	1166.75	-0.00
590.58	1499025.2	4408709.2	590.44	-0.00
14.61	26593.0	4406643.8	14.60	-0.00

THERMAL CORRECTION

TEMP (°C)	THERMISTOR OUTPUT (counts)	INSTRUMENT OUTPUT (counts)
32.50	4282325.40	27376.30
29.00	4329623.40	27598.82
23.99	4397307.60	27768.50
18.50	4471282.80	27755.40
15.00	4518317.00	27665.19
4.50	4658752.20	27514.35
1.00	4705440.40	27458.61

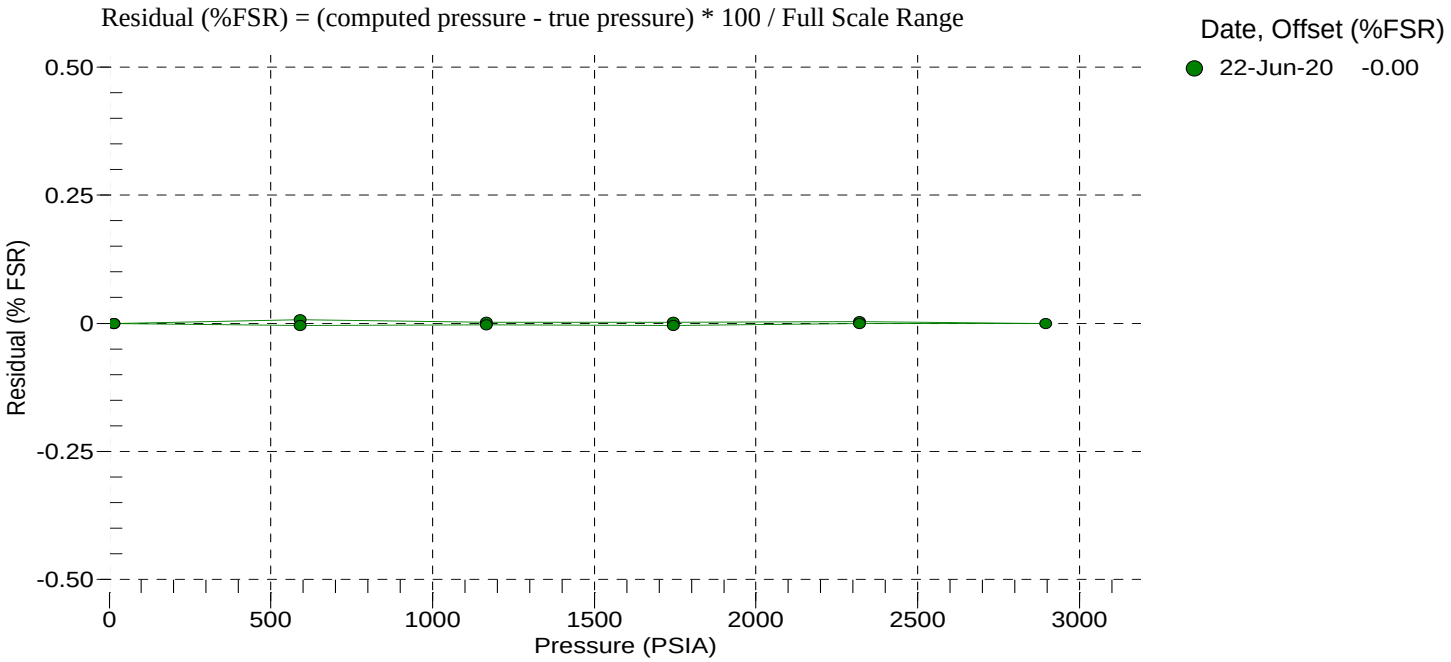
TEMPERATURE (°C)	SPAN
0.99	314460.55
20.25	314625.69
33.31	314655.23

y = thermistor output (counts)

$t = PTHA0 + PTHA1 * y + PTHA2 * y^2$

$x = \text{instrument output} - PTCA0 - PTCA1 * t - PTCA2 * t^2$

$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$

$\text{pressure (PSIA)} = PA0 + PA1 * n + PA2 * n^2$

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