

SBE 41 CERTIFICATES

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SBE 41 Instrument Configuration

Model Number: SBE 41

Serial Number: 41-7260

Part Number: 41CP.FA200

Description: METOCEAN Standard Configuration

Firmware Version: 3.0C

Pressure Type: Kistler

Pressure Range: 2000 dBar

Pressure Serial Number: 4645068

SBE 41 ALACE-CP V 3.0C SERIAL NO. 7260
TEMPERATURE: 20-MAY-15
TA0 = 9.580295E-05
TA1 = 2.596168E-04
TA2 = -1.352085E-06
TA3 = 1.215511E-07
CONDUCTIVITY: 20-MAY-15
G = -9.824041E-01
H = 1.483052E-01
I = -3.572881E-04
J = 4.731438E-05
CPCOR = -9.570001E-08
CTCOR = 3.250000E-06
WBOTC = 5.815663E-07
PRESSURE S/N = 4645068, RANGE = 2900 PSIA: 12-MAY-15
PA0 = -7.657545E-01
PA1 = 1.408447E-01
PA2 = 9.142070E-09
PTCA0 = -3.549822E+01
PTCA1 = -7.064252E-01
PTCA2 = 2.053907E-02
PTCB0 = 1.031473E+02
PTCB1 = -4.254408E-03
PTCB2 = 0.000000E+00
PTHA0 = -9.888653E+01
PTHA1 = 4.148469E-02
PTHA2 = 8.756487E-07
POFFSET = 0.000000E+00

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SENSOR SERIAL NUMBER: 7260
CALIBRATION DATE: 20-May-15

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

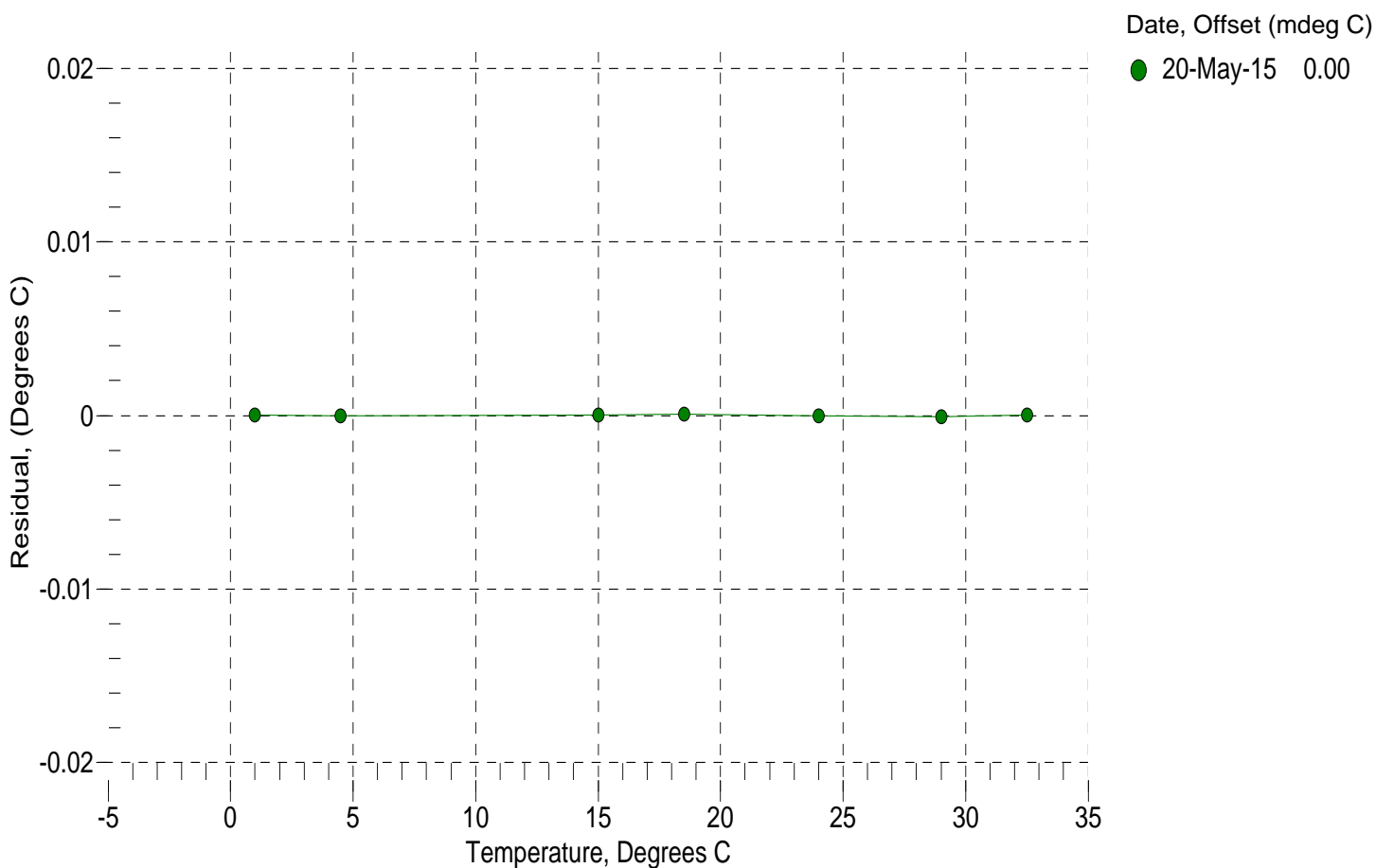
a0 = 9.580295e-005
a1 = 2.596168e-004
a2 = -1.352085e-006
a3 = 1.215511e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0000	715354.5	1.0000	0.0000
4.4999	610090.1	4.4999	-0.0000
15.0000	386013.6	15.0000	0.0000
18.5000	333478.4	18.5001	0.0001
23.9940	266651.5	23.9940	-0.0000
29.0000	218833.2	28.9999	-0.0001
32.5000	191229.4	32.5000	0.0000

Temperature ITS-90 = $1 / \{a_0 + a_1[\ln(n)] + a_2[\ln^2(n)] + a_3[\ln^3(n)]\} - 273.15$ (°C)

Residual = instrument temperature - bath temperature

n = instrument output



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SENSOR SERIAL NUMBER: 7260
CALIBRATION DATE: 20-May-15

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

COEFFICIENTS:

g = -9.824042e-001
h = 1.483052e-001
i = -3.572881e-004
j = 4.731438e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 5.8157e-007

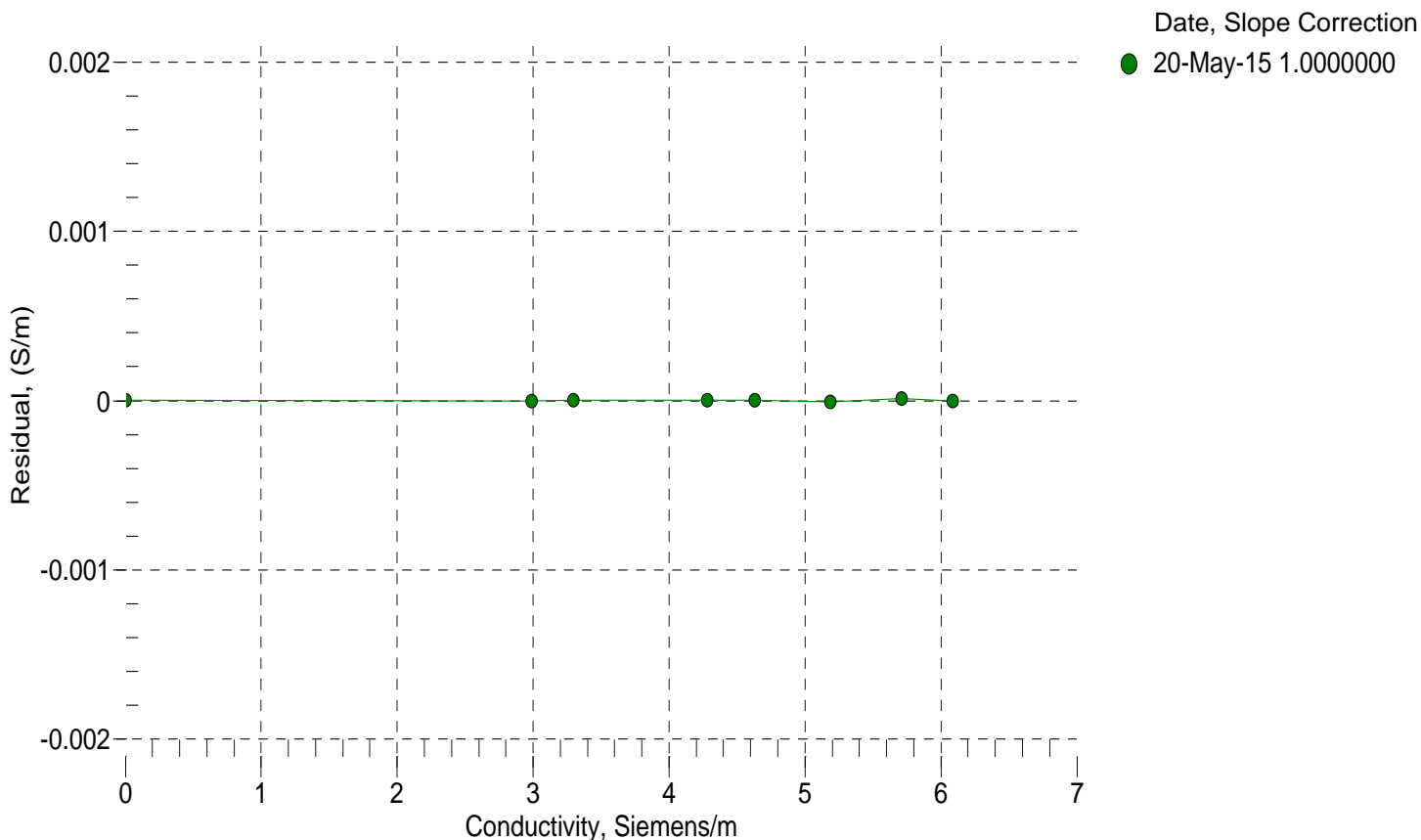
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2579.02	0.00000	0.00000
1.0000	34.9777	2.98844	5184.60	2.98844	-0.00000
4.4999	34.9584	3.29680	5381.65	3.29680	0.00000
15.0000	34.9158	4.28252	5967.34	4.28253	0.00000
18.5000	34.9062	4.62900	6159.72	4.62901	0.00000
23.9940	34.8955	5.18848	6457.97	5.18847	-0.00001
29.0000	34.8890	5.71288	6725.21	5.71289	0.00001
32.5000	34.8835	6.08638	6909.03	6.08638	-0.00000

$$f = \text{INST FREQ} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$$

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

t = temperatur e[°C]; p = pressure[decibars]; δ = CTcor; ϵ = CPcor;

Residual = instrument conductivity - bath conductivity



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SENSOR SERIAL NUMBER: 7260
CALIBRATION DATE: 12-May-15

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 4645068

COEFFICIENTS:

PA0 = -7.657545e-001	PTCA0 = -3.549822e+001
PA1 = 1.408447e-001	PTCA1 = -7.064252e-001
PA2 = 9.142070e-009	PTCA2 = 2.053907e-002
PTHA0 = -9.888653e+001	PTCB0 = 1.031473e+002
PTHA1 = 4.148469e-002	PTCB1 = -4.254408e-003
PTHA2 = 8.756487e-007	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS
14.52	68.3	2771.0	14.63	0.00
592.45	4165.9	2773.4	592.46	0.00
1169.90	8259.3	2774.6	1170.01	0.00
1747.36	12350.4	2775.1	1747.54	0.01
2324.84	16438.4	2776.3	2324.95	0.00
2902.23	20522.6	2777.3	2902.12	-0.00
2324.82	16437.6	2777.2	2324.84	0.00
1747.40	12349.0	2777.2	1747.35	-0.00
1169.83	8256.9	2777.4	1169.67	-0.01
592.35	4163.2	2777.7	592.08	-0.01
14.52	67.9	2778.5	14.57	0.00

THERMAL CORRECTION

TEMP ITS90	PRESS TEMP	INST OUTPUT
32.50	2979.70	79.48
29.00	2904.60	77.50
23.99	2797.00	75.61
18.50	2678.30	74.64
15.00	2602.30	74.83
4.50	2373.10	77.92
1.00	2296.60	80.07

TEMP(ITS90)	SPAN(mV)
-3.92	103.16
35.78	103.00

$$y = \text{thermistor output}; t = \text{PTHA0} + \text{PTHA1} * y + \text{PTHA2} * y^2$$

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

$$n = x * \text{PTCB0} / (\text{PTCB0} + \text{PTCB1} * t + \text{PTCB2} * t^2)$$

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

