

SBE 41 CERTIFICATES

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SBE 41 Instrument Configuration

Model Number: SBE 41

Serial Number: 41-7149

Part Number: 41CP.FA200

Description: METOCEAN Standard Configuration

Firmware Version: 3.0C

Pressure Type: Kistler

Pressure Range: 2000 dBar

Pressure Serial Number: 4645089

SBE 41 ALACE-CP V 3.0C SERIAL NO. 7149
TEMPERATURE: 10-APR-15
TA0 = 3.623271E-05
TA1 = 2.792375E-04
TA2 = -2.844687E-06
TA3 = 1.626173E-07
CONDUCTIVITY: 10-APR-15
G = -9.745313E-01
H = 1.354135E-01
I = -3.639112E-04
J = 4.438913E-05
CPCOR = -9.570001E-08
CTCOR = 3.250000E-06
WBOTC = -1.239389E-07
PRESSURE S/N = 4645089, RANGE = 2900 PSIA: 08-APR-15
PA0 = 1.528259E-01
PA1 = 1.399760E-01
PA2 = 1.047370E-08
PTCA0 = -6.306190E+01
PTCA1 = -4.806684E-01
PTCA2 = 2.379330E-02
PTCB0 = 1.034565E+02
PTCB1 = -8.104097E-03
PTCB2 = 0.000000E+00
PTHA0 = -9.707132E+01
PTHA1 = 4.073244E-02
PTHA2 = 9.952203E-07
POFFSET = 0.000000E+00

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SENSOR SERIAL NUMBER: 7149
CALIBRATION DATE: 10-Apr-15

SBE 41 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

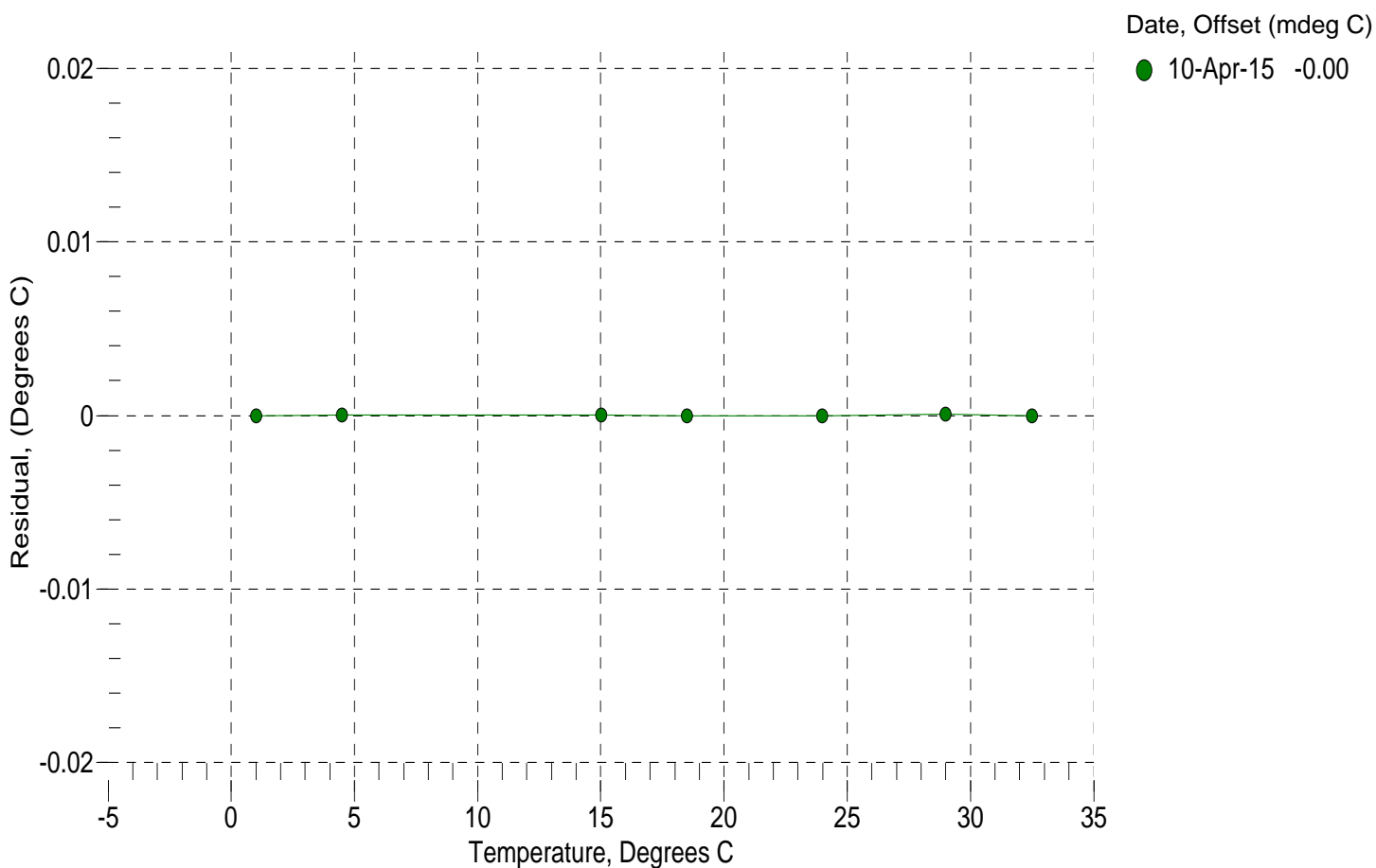
a0 = 3.623271e-005
a1 = 2.792375e-004
a2 = -2.844687e-006
a3 = 1.626173e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
1.0003	635776.6	1.0003	-0.0000
4.5000	542486.9	4.5000	0.0000
15.0000	343699.0	15.0000	0.0000
18.4999	297049.3	18.4999	-0.0000
23.9940	237672.3	23.9940	-0.0000
29.0000	195161.2	29.0001	0.0001
32.5000	170612.8	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: 7149
CALIBRATION DATE: 10-Apr-15

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

COEFFICIENTS:

g = -9.745313e-001
h = 1.354135e-001
i = -3.639112e-004
j = 4.438913e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = -1.2394e-007

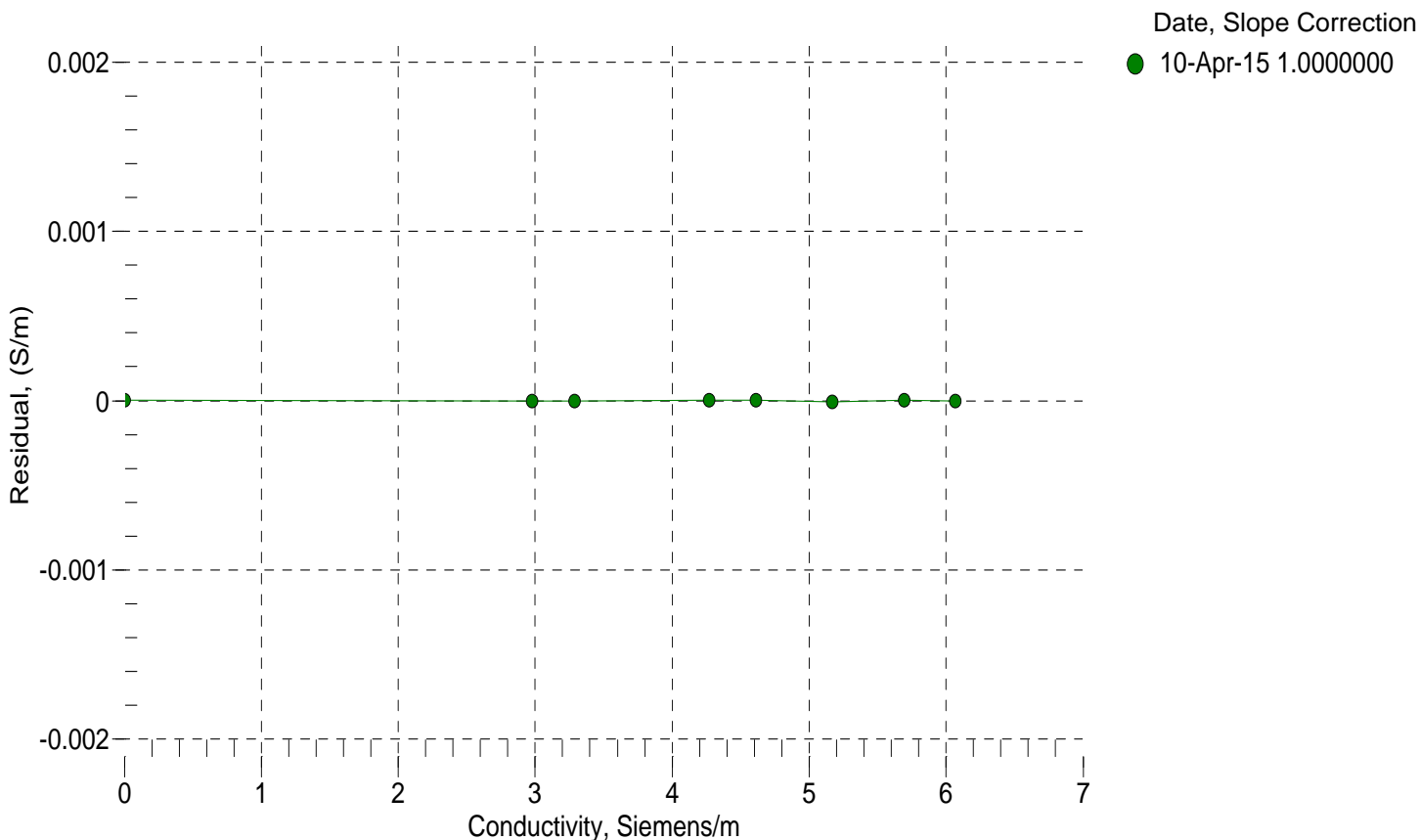
BATH TEMP (ITS-90)	BATH SAL (PSU)	BATH COND (Siemens/m)	INST FREQ (Hz)	INST COND (Siemens/m)	RESIDUAL (Siemens/m)
22.0000	0.0000	0.00000	2689.21	0.00000	0.00000
1.0003	34.8405	2.97786	5415.95	2.97786	-0.00000
4.5000	34.8204	3.28507	5621.98	3.28507	-0.00000
15.0000	34.7774	4.26735	6234.40	4.26735	0.00000
18.4999	34.7684	4.61269	6435.57	4.61269	0.00000
23.9940	34.7587	5.17038	6747.45	5.17038	-0.00001
29.0000	34.7534	5.69317	7026.88	5.69318	0.00000
32.5000	34.7508	6.06586	7219.24	6.06586	-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: 7149
CALIBRATION DATE: 08-Apr-15

SBE 41 PRESSURE CALIBRATION DATA
2900 psia S/N 4645089

COEFFICIENTS:

PA0 = 1.528259e-001	PTCA0 = -6.306190e+001
PA1 = 1.399760e-001	PTCA1 = -4.806684e-001
PA2 = 1.047370e-008	PTCA2 = 2.379330e-002
PTHA0 = -9.707132e+001	PTCB0 = 1.034565e+002
PTHA1 = 4.073244e-002	PTCB1 = -8.104097e-003
PTHA2 = 9.952202e-007	PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION					THERMAL CORRECTION		
PRESSURE PSIA	INST OUTPUT	THERMISTOR OUTPUT	COMPUTED PRESSURE	ERROR %FS	TEMP ITS90	PRESS TEMP	INST OUTPUT
14.65	42.3	2745.5	14.77	0.00	32.50	2966.00	55.34
592.57	4161.6	2748.0	592.57	-0.00	29.00	2890.90	52.03
1170.33	8278.8	2748.9	1170.43	0.00	23.99	2783.10	48.02
1748.05	12392.7	2750.6	1748.20	0.01	18.50	2664.20	45.12
2325.83	16504.0	2751.7	2325.95	0.00	15.00	2587.50	44.02
2903.52	20610.6	2752.2	2903.41	-0.00	4.50	2357.60	44.19
2325.71	16502.4	2752.6	2325.73	0.00	1.00	2280.80	45.43
1748.04	12391.3	2752.7	1748.01	-0.00			
1170.28	8276.6	2753.2	1170.13	-0.01	TEMP(ITS90)	SPAN(mV)	
592.42	4159.0	2753.3	592.19	-0.01	-3.87	103.49	
14.65	41.8	2753.9	14.67	0.00	36.56	103.16	

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

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

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

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

