



Sea-Bird GmbH
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Temperature Calibration Report

Customer:	EMS/Spain		
Job Number:	E00966	Date of Report:	11/17/2015
Model Number:	SBE 03	Serial Number:	03P5007

Temperature sensors are normally calibrated 'as received', without adjustments, allowing a determination sensor drift. If the calibration identifies a problem, then a second calibration is performed after work is completed. The 'as received' calibration is not performed if the sensor is damaged or non-functional, or by customer request.

An 'as received' calibration certificate is provided, listing coefficients to convert sensor frequency to temperature. Users must choose whether the 'as received' calibration or the previous calibration better represents the sensor condition during deployment. In SEASOFT enter the chosen coefficients. The coefficient 'offset' allows a small correction for drift between calibrations (consult the SEASOFT manual). Calibration coefficients obtained after a repair apply only to subsequent data.

'AS RECEIVED CALIBRATION'

Performed Not Performed

Date: 10/21/2015

Drift since last cal: -0.00007 Degrees Celsius/year

Comments:

'FINAL CALIBRATION'

Performed Not Performed

Date: 11/18/2015

Drift since 06 Sep 12 -0.00016 Degrees Celsius/year

Comments:



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Pressure Test Certificate

Customer EMS/Spain
Job Number E00966
Date 11/18/2015
Technician SW

Serial Number 03P5007

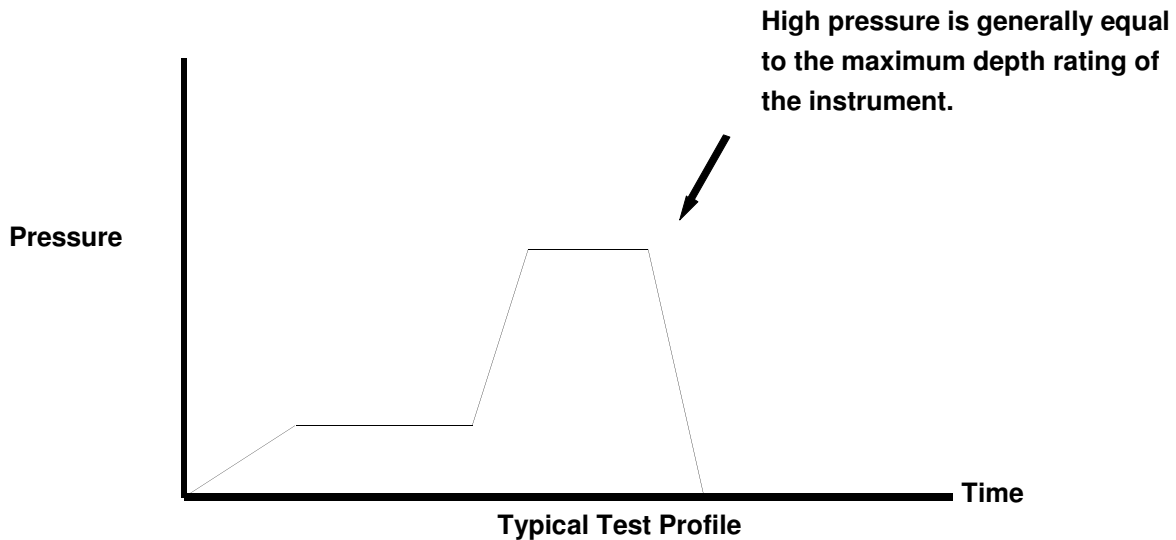
Low Pressure (PSI) 45 PSI
Time (Minutes) 15 Minutes

High Pressure (PSI) 8000 PSI
Time (Minutes) 30 Minutes

Pass
Fail

Comments

Replaced the main piston "O"-Rings.



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SENSOR SERIAL NUMBER: 5007
CALIBRATION DATE: 18-Nov-15

SBE 3 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

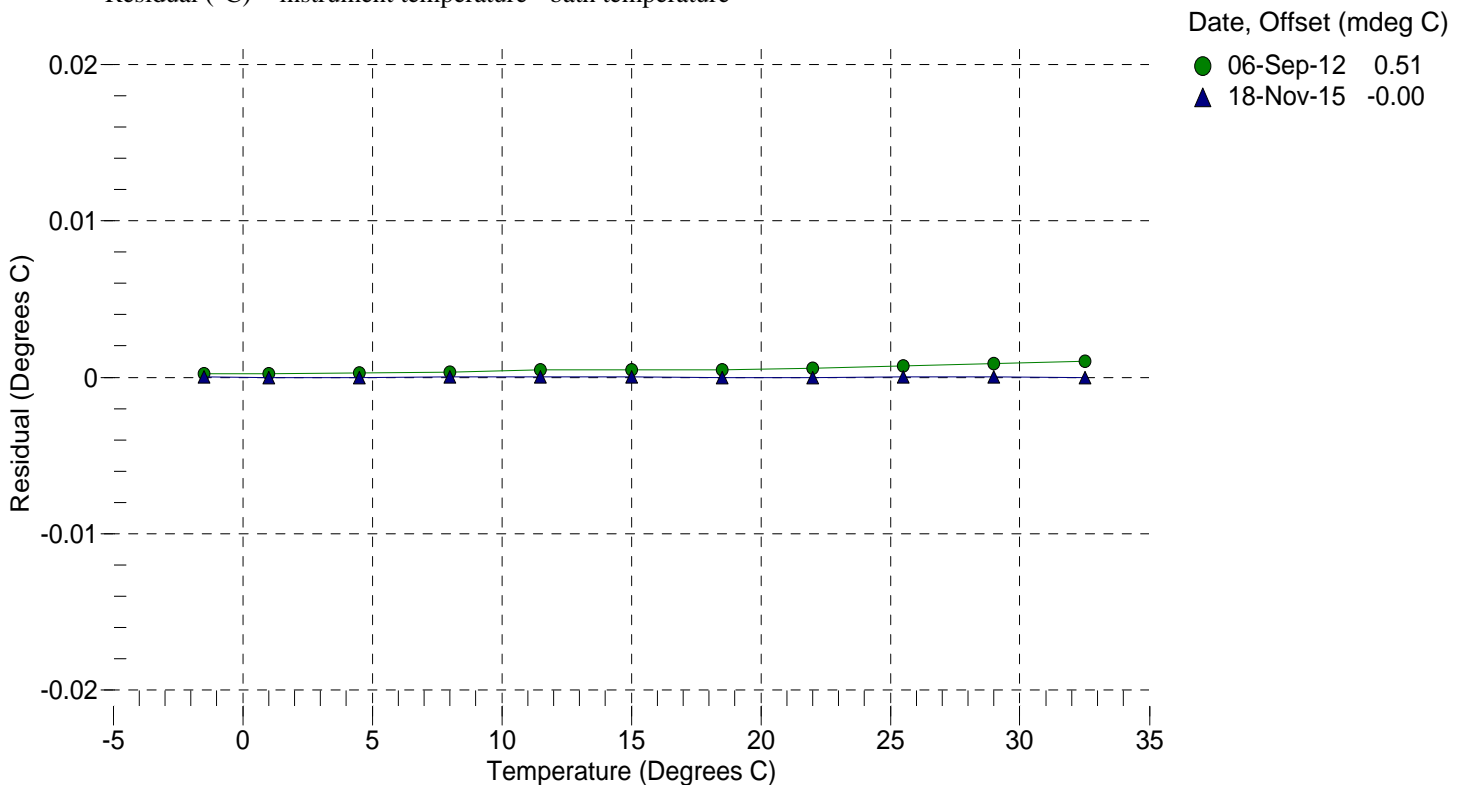
g = 4.36171066e-003
h = 6.39400398e-004
i = 2.13839764e-005
j = 1.84207304e-006
f0 = 1000.0

BATH TEMP (° C)	INSTRUMENT OUTPUT (Hz)	INST TEMP (° C)	RESIDUAL (° C)
-1.5000	3007.105	-1.5000	0.00001
1.0000	3180.690	1.0000	-0.00002
4.5000	3435.720	4.5000	-0.00002
8.0000	3705.125	8.0000	0.00003
11.5000	3989.287	11.5000	0.00001
15.0000	4288.596	15.0000	0.00002
18.5000	4603.411	18.5000	-0.00005
22.0000	4934.108	22.0000	-0.00002
25.5000	5281.025	25.5000	0.00001
29.0000	5644.498	29.0000	0.00005
32.5000	6024.835	32.5000	-0.00003

f = Instrument Output (Hz)

Temperature ITS-90 (°C) = $1 / \{g + h[\ln(f_0 / f)] + i[\ln^2(f_0 / f)] + j[\ln^3(f_0 / f)]\} - 273.15$

Residual (°C) = instrument temperature - bath temperature



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SENSOR SERIAL NUMBER: 5007
CALIBRATION DATE: 21-Oct-15

SBE 3 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS:

g = 4.36195267e-003
h = 6.39876596e-004
i = 2.17004129e-005
j = 1.91218971e-006
f0 = 1000.0

BATH TEMP (ITS-90)	INSTRUMENT FREQ (Hz)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	3007.149	-1.4999	0.00009
1.0000	3180.716	0.9999	-0.00010
4.5000	3435.739	4.4999	-0.00011
8.0000	3705.153	8.0001	0.00010
11.5000	3989.315	11.5001	0.00008
15.0000	4288.616	15.0000	-0.00000
18.5000	4603.437	18.5000	-0.00003
22.0000	4934.131	22.0000	-0.00004
25.5000	5281.047	25.5000	-0.00002
29.0000	5644.515	29.0000	0.00001
32.5000	6024.853	32.5000	0.00002

Temperature ITS-90 = $1 / \{ g + h[\ln(f_0/f)] + i[\ln^2(f_0/f)] + j[\ln^3(f_0/f)] \} - 273.15$ (°C)

Residual = instrument temperature - bath temperature

