



Sea-Bird GmbH
Postfach 1167, 87401 Kempten, Germany
Phone: +49 831 9 60994 701 Fax: +49 831 960994 709
Email: seabird.eu@seabird.com

Temperature Calibration Report

Customer:	EMS/Spain		
Job Number:	E00966	Date of Report:	11/17/2015
Model Number:	SBE 03Plus	Serial Number:	03P5006

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: -0.00031 Degrees Celsius/year

Comments:

'FINAL CALIBRATION'

Performed Not Performed

Date: 11/18/2015

Drift since 06 Sep 12 -0.00050 Degrees Celsius/year

Comments:



Sea-Bird GmbH
Postfach 1167, 87401 Kempten, Germany
Phone: +49 831 9 60994 701 Fax: +49 831 960994 709
Email: seabird.eu@seabird.com

Pressure Test Certificate

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

Serial Number 03P5006

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

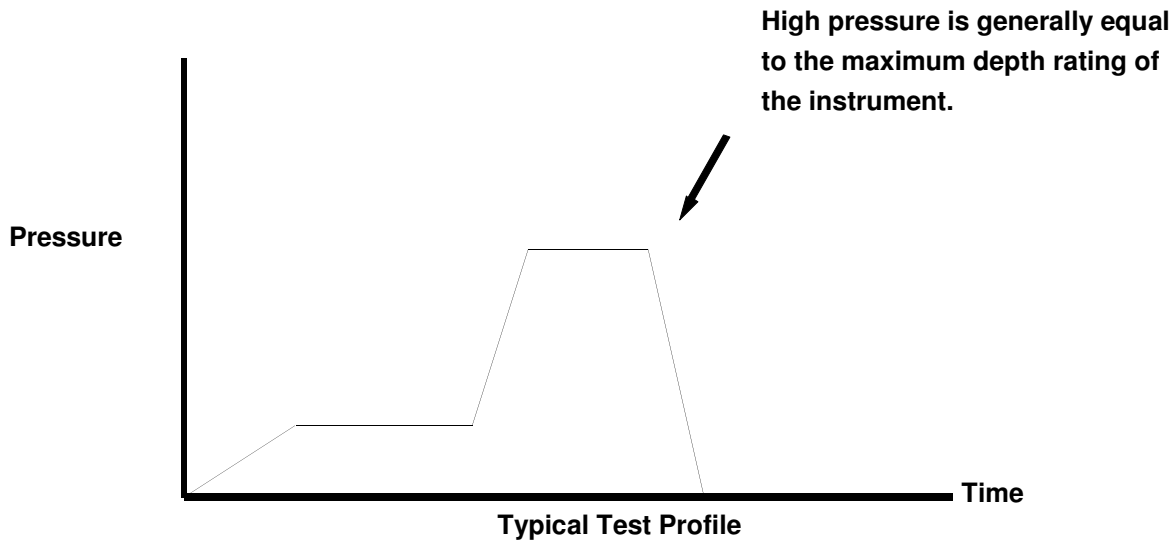
High Pressure (PSI) 8000 PSI
Time (Minutes) 30 Minutes

Pass

Fail

Comments

Replaced the main piston "O"-Rings.



Sea-Bird GmbH

Postfach 1167, 87401 Kempten, Germany

Phone: +49 831 960994 701 Fax: +49 831 960994 709 Email: seabird.eu@seabird.com

SENSOR SERIAL NUMBER: 5006
CALIBRATION DATE: 18-Nov-15

SBE 3 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

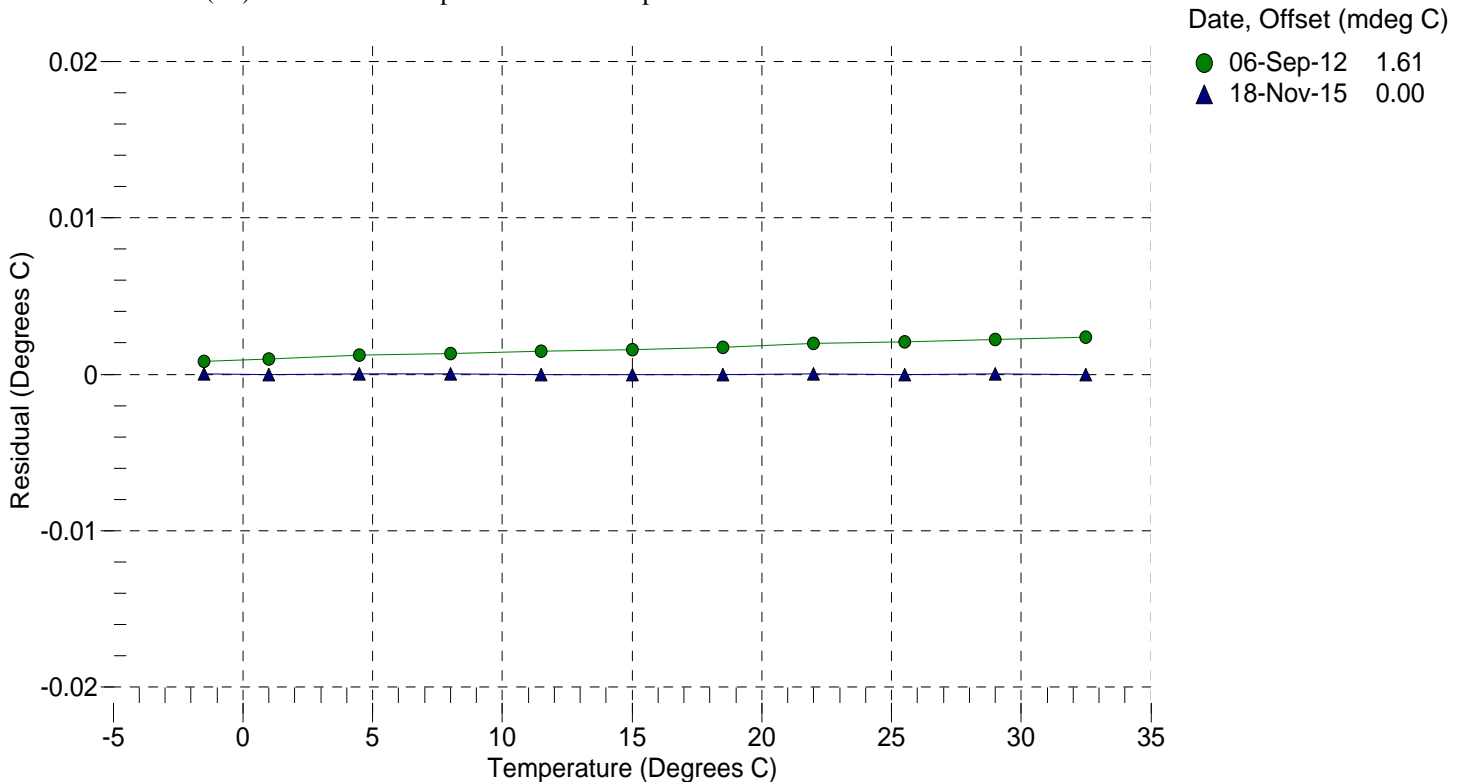
g = 4.35791279e-003
h = 6.36993879e-004
i = 2.10816788e-005
j = 1.81640051e-006
f0 = 1000.0

BATH TEMP (° C)	INSTRUMENT OUTPUT (Hz)	INST TEMP (° C)	RESIDUAL (° C)
-1.5000	2999.660	-1.5000	0.00002
1.0000	3173.336	1.0000	-0.00004
4.5000	3428.549	4.5000	0.00001
8.0000	3698.193	8.0000	0.00002
11.5000	3982.663	11.5000	-0.00000
15.0000	4282.349	15.0000	-0.00000
18.5000	4597.622	18.5000	-0.00002
22.0000	4928.851	22.0000	0.00001
25.5000	5276.379	25.5000	-0.00001
29.0000	5640.553	29.0000	0.00001
32.5000	6021.692	32.5000	-0.00000

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



Sea-Bird GmbH

Postfach 1167, 87401 Kempten, Germany

Phone: +49 831 960994 701 Fax: +49 831 960994 709 Email: seabird.eu@seabird.com

SENSOR SERIAL NUMBER: 5006
CALIBRATION DATE: 21-Oct-15

SBE 3 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS:

g = 4.35792376e-003
h = 6.37008187e-004
i = 2.10975390e-005
j = 1.82145445e-006
f0 = 1000.0

BATH TEMP (ITS-90)	INSTRUMENT FREQ (Hz)	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	2999.700	-1.5000	0.00004
1.0000	3173.375	0.9999	-0.00007
4.5000	3428.596	4.5000	0.00002
8.0000	3698.244	8.0000	0.00003
11.5000	3982.719	11.5000	0.00001
15.0000	4282.406	15.0000	-0.00003
18.5000	4597.688	18.5000	0.00001
22.0000	4928.919	22.0000	0.00002
25.5000	5276.449	25.5000	-0.00001
29.0000	5640.624	29.0000	-0.00001
32.5000	6021.768	32.5000	0.00001

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

