



SEA-BIRD ELECTRONICS, INC.

13431 NE 20th St. Bellevue, Washington 98005 USA

Phone: (425) 643-9866 Fax: (425) 643-9954 www.seabird.com

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|----------------|
| Service |
| Report |

| | |
|-------------------|-------|
| RMA Number | 61957 |
|-------------------|-------|

Customer Information:

| | | | |
|------------------|------------------------------|-------------|-----------|
| Company | Pacific Marine Center / NOAA | Date | 12/7/2010 |
| Contact | Richard Conway | | |
| PO Number | Credit Card | | |

| | |
|----------------------|--------------|
| Serial Number | 3845414-0317 |
| Model Number | SBE 38 |

Services Requested:

1. Evaluate/Repair Instrumentation.
2. Perform Routine Calibration Service.

Problems Found:

1. Probe guard missing.

Services Performed:

1. Performed initial diagnostic evaluation.
2. Performed "Post Cruise" calibration of the temperature sensor.
3. Installed NEW temperature probe guard.
4. Performed complete system check and full diagnostic evaluation.

Special Notes:

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Temperature Calibration Report

| | | | |
|--------------|------------------------------|-----------------|--------------|
| Customer: | Pacific Marine Center / NOAA | | |
| Job Number: | 61957 | Date of Report: | 11/11/2010 |
| Model Number | SBE 38 | Serial Number: | 3845414-0317 |

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 using the program SEACON. 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: 11/11/2010

Drift since last cal: +0.00001 Degrees Celsius/year

Comments:

'CALIBRATION AFTER REPAIR'

Performed Not Performed

Date:

Drift since Last cal: Degrees Celsius/year

Comments:

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Phone: (425) 643 - 9866 Fax (425) 643 - 9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 0317
CALIBRATION DATE: 11-Nov-10

SBE 38 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS

a0 = -7.084446e-006
a1 = 2.721922e-004
a2 = -2.131518e-006
a3 = 1.471202e-007

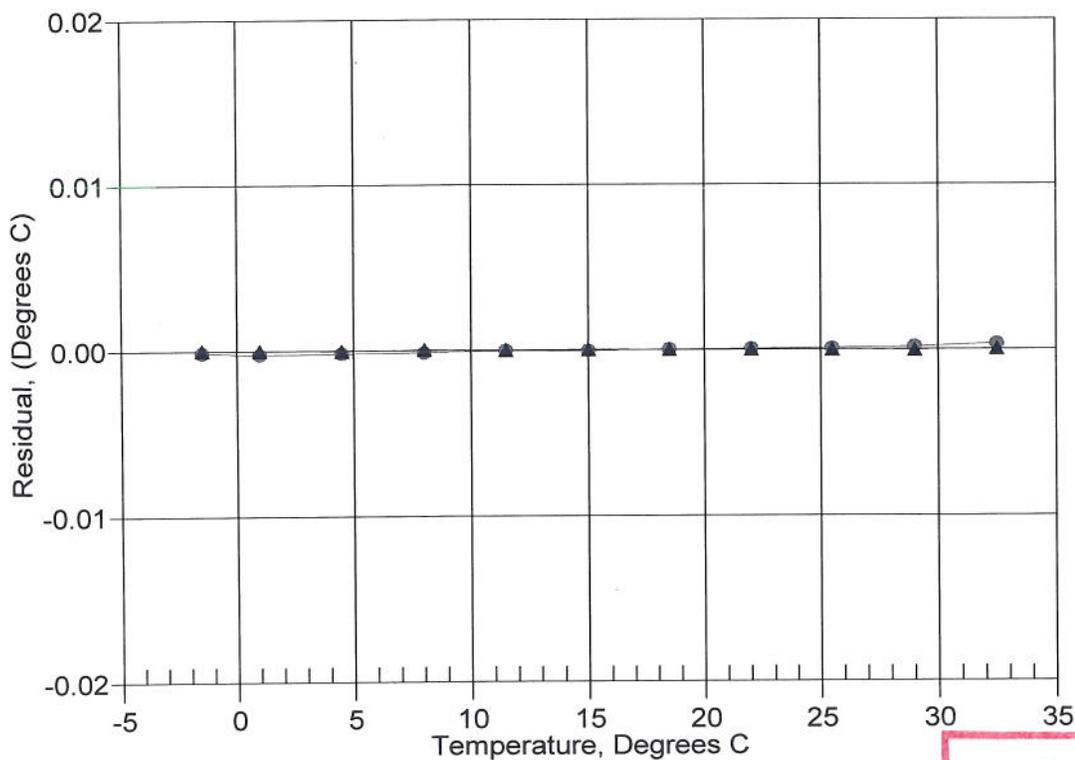
| BATH TEMP (ITS-90) | INSTRUMENT OUTPUT | INST TEMP (ITS-90) | RESIDUAL (ITS-90) |
|-----------------------|----------------------|-----------------------|----------------------|
| -1.50000 | 835660.4 | -1.49999 | 0.00001 |
| 1.00000 | 745976.1 | 1.00000 | 0.00000 |
| 4.50000 | 638195.5 | 4.49995 | -0.00005 |
| 8.00000 | 547779.1 | 8.00003 | 0.00003 |
| 11.50000 | 471675.6 | 11.49999 | -0.00001 |
| 15.00000 | 407402.8 | 15.00001 | 0.00001 |
| 18.50000 | 352947.9 | 18.50001 | 0.00001 |
| 22.00000 | 306666.0 | 22.00001 | 0.00001 |
| 25.50000 | 267210.5 | 25.49999 | -0.00001 |
| 29.00000 | 233474.6 | 28.99996 | -0.00004 |
| 32.50000 | 204545.0 | 32.50003 | 0.00003 |

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

Date, Delta T (mdeg C)

● 28-Oct-08 -0.02
▲ 11-Nov-10 0.00



**POST CRUISE
CALIBRATION**

3E
ELECTRIC & ELECTRONIC
EQUIPMENT CORPORATION
No. 38 10, 500m
No. 90299 4
No. 38454 4 0317
Made in U.S.A.

10500 METERS
MAXIMUM DEPTH





SEABIRD ELECTRONICS INC.
Bellevue, Washington, USA

| | | |
|-----|--------------|---------|
| No. | 38 | 10,500m |
| No. | 90299.4 | |
| No. | 3845414-0317 | |

Made in U.S.A.

**10500 METERS
MAXIMUM DEPTH**