



SEA-BIRD ELECTRONICS, INC.

1808 - 136th Place Northeast, Bellevue, Washington 98005 USA

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

Temperature Calibration Report

Customer:	EMS/JAMSTEC
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Job Number:	22516R
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Date of Report:	25-Jan-00
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Model Number:	SBE 03
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Serial Number:	031359
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Unless instructed otherwise and if received intact (not broken) and functional, temperature sensors are calibrated 'as received', i.e, without repairs or adjustments that would prevent determination of the sensor's drift history. If calibration uncovers problems with the sensor, a second calibration will be performed after the necessary work is finished.

An 'as received' calibration certificate listing the coefficients used to convert sensor frequency to temperature will be provided. Users may judge whether the 'as received' or previously determined coefficients are more likely to represent the condition of the sensor at the time of deployment (those using SEASOFT should enter the chosen coefficients using SEACON). Calibration coefficients obtained after a repair should only be used with data collected subsequent to the calibration.

'AS RECEIVED CALIBRATION'

Performed *Not Performed*

Date:	22-Jan-00
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Drift since last cal:	+ .00041	<i>PSU/month</i>
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Comments:

'CALIBRATION AFTER REPAIR'

performed *Not Performed*

Date:	
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Drift since last cal:		<i>PSU/month</i>
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Comments:

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1808 136th Place N.E., Bellevue, Washington 98005 USA
 Phone: (425) 643 - 9866 Fax: (425) 643 - 9954 Internet: seabird@seabird.com

SENSOR SERIAL NUMBER = 1359
 CALIBRATION DATE: 22-Jan-00s

TEMPERATURE CALIBRATION DATA
 ITS-90 TEMPERATURE SCALE

ITS-90 COEFFICIENTS

g = 4.37598479e-03
 h = 6.40739950e-04
 i = 2.26247750e-05
 j = 2.10635727e-06
 $f_0 = 1000.000$

IPTS-68 COEFFICIENTS

a = 3.68139714e-03
 b = 5.98008236e-04
 c = 1.55493054e-05
 d = 2.10783837e-06
 $f_0 = 3077.104$

BATH TEMP (ITS-90 °C)	INSTRUMENT FREQ (Hz)	INST TEMP (ITS-90 °C)	RESIDUAL (ITS-90 °C)
-1.5136	3077.104	-1.5136	0.00000
1.0473	3259.535	1.0473	0.00002
4.6220	3527.099	4.6219	-0.00003
8.1289	3804.603	8.1288	-0.00001
11.6325	4097.108	11.6325	0.00000
15.1929	4410.365	15.1929	0.00000
18.6566	4731.006	18.6567	0.00009
22.1577	5071.367	22.1577	-0.00003
25.6854	5431.237	25.6854	-0.00004
29.1566	5802.249	29.1566	-0.00002
32.6312	6190.745	32.6312	0.00003

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)

Temperature IPTS-68 = $1/\{a + b[\ln(f_0/f)] + c[\ln^2(f_0/f)] + d[\ln^3(f_0/f)]\} - 273.15$ (°C)

Following the recommendation of JPOTS: T_{68} is assumed to be $1.00024 * T_{90}$ (-2 to 35 °C).

Residual = instrument temperature - bath temperature

