



Sea-Bird Electronics, Inc.
Advancing the Science of Ocean Measurement

Product Information Documentation

Contains (as applicable) for each device on this order:

Configuration

Calibration Certificates

Pressure Test Certification

Please see applicable manual for statement of liability and declaration of conformity

Manuals are located on the CD/DVD provided with your order and also on our website at www.seabird.com



Support Telephone: (+1)425-643-9866
Support Email: seabird@seabird.com

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Sea-Bird Electronics, Inc.

Advancing the Science of Ocean Measurement

SBE 56 ECO Temperature Logger

Instrument Configuration

Instrument Serial Number: 56-04621
Instrument Firmware Version: 0.96
Communications Format: RS232

Installed Devices/Sensors

<i>Data Format</i>	<i>Measurement</i>	<i>Sensor Type</i>	<i>Serial Number</i>	<i>Rating</i>
Count	Temperature	Internal	N/A	N/A

Maximum Depth: **1500m**

CAUTION - The maximum deployment depth will be limited by the measurement range of the pressure sensor, if installed, an attached sensor, if installed, or the housing.



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Sea-Bird Electronics, Inc.

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Phone: (+1) 425-643-9866 Fax (+1) 425-643-9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 04621

CALIBRATION DATE: 09-Aug-14

SBE 56 TEMPERATURE CALIBRATION DATA

ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.211526e-003

a1 = 3.405460e-004

a2 = -6.276321e-006

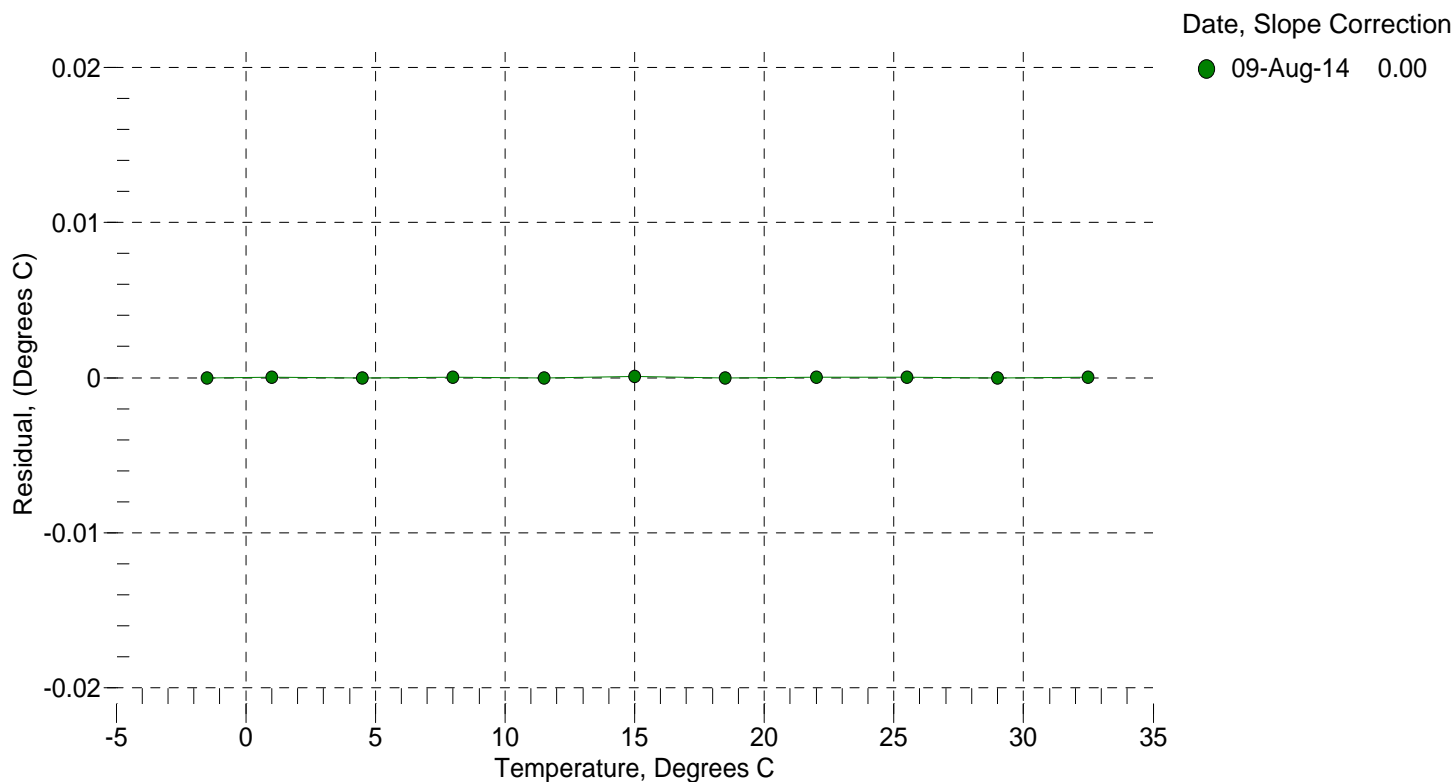
a3 = 1.967380e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	20464074.3	-1.5000	-0.0000
1.0000	18270565.1	1.0000	0.0000
4.5000	15634576.3	4.5000	-0.0000
8.0000	13423369.8	8.0000	0.0000
11.5000	11562188.3	11.5000	-0.0000
15.0000	9990292.1	15.0001	0.0001
18.5000	8658513.8	18.5000	-0.0000
22.0000	7526510.4	22.0000	0.0000
25.5000	6561390.8	25.5000	0.0000
29.0000	5736080.8	29.0000	-0.0000
32.5000	5028257.4	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





Sea-Bird Electronics, Inc.

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Pressure Test Certificate

Test Date: **06/14/14**

Description: **SBE-56 Temperature Sensor**

Sensor Information:

Model Number: **56**

Serial Number: **04621**

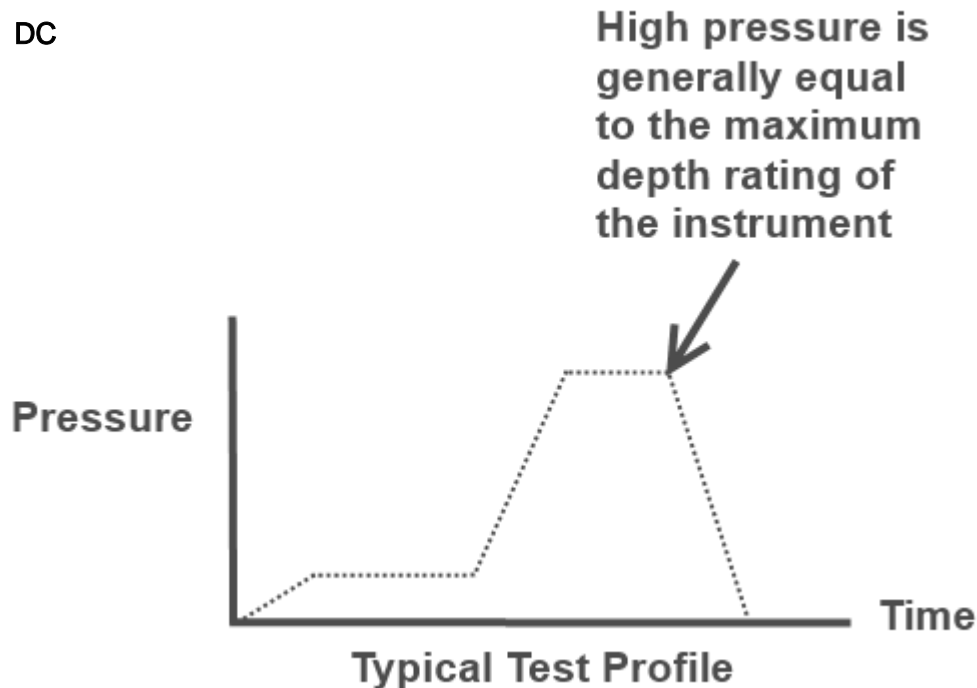
Pressure Test Protocol:

Low Pressure Test: **40** PSI Held For: **15** Minutes

High Pressure Test: **2300** PSI Held For: **15** Minutes

Passed Test: **Yes**

Tested By: **DC**





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SBE 56 ECO Temperature Logger

Instrument Configuration

Instrument Serial Number: 56-04627
Instrument Firmware Version: 0.96
Communications Format: RS232

Installed Devices/Sensors

<i>Data Format</i>	<i>Measurement</i>	<i>Sensor Type</i>	<i>Serial Number</i>	<i>Rating</i>
Count	Temperature	Internal	N/A	N/A

Maximum Depth: **1500m**

CAUTION - The maximum deployment depth will be limited by the measurement range of the pressure sensor, if installed, an attached sensor, if installed, or the housing.



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SENSOR SERIAL NUMBER: 04627
CALIBRATION DATE: 25-Jun-14

SBE 56 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

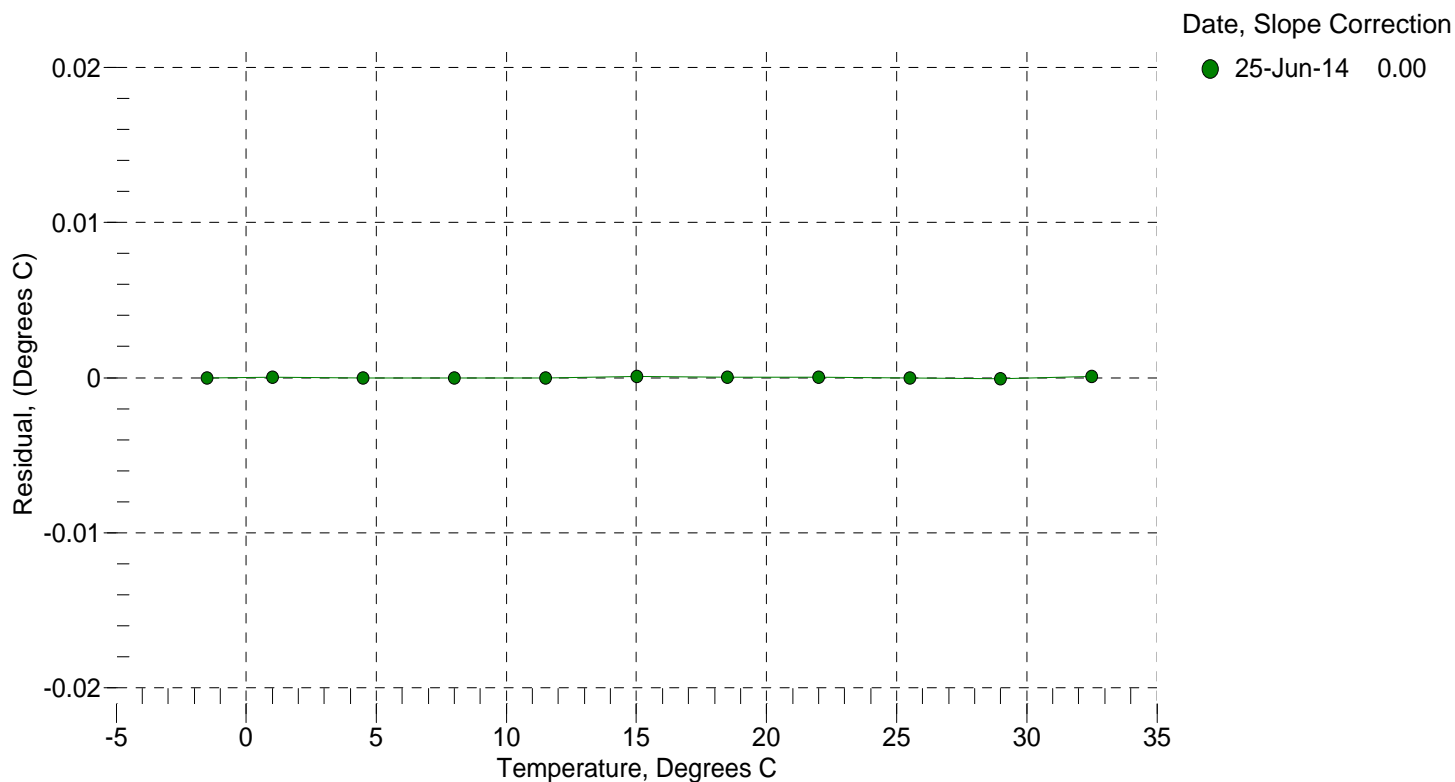
a0 = -1.164424e-003
a1 = 3.329992e-004
a2 = -5.826954e-006
a3 = 1.867131e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	20493204.9	-1.5000	-0.0000
1.0000	18290053.4	1.0000	0.0000
4.5000	15643702.1	4.5000	-0.0000
8.0000	13424923.2	8.0000	-0.0000
11.5000	11558232.1	11.5000	-0.0000
15.0000	9982442.1	15.0001	0.0001
18.5000	8647972.4	18.5000	0.0000
22.0000	7514190.4	22.0000	0.0000
25.5001	6547944.0	25.5001	-0.0000
29.0001	5722033.2	29.0000	-0.0001
32.5000	5013969.7	32.5001	0.0001

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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Pressure Test Certificate

Test Date: **06/17/14**

Description: **SBE-56 Temperature Sensor**

Sensor Information:

Model Number: **56**

Serial Number: **04627**

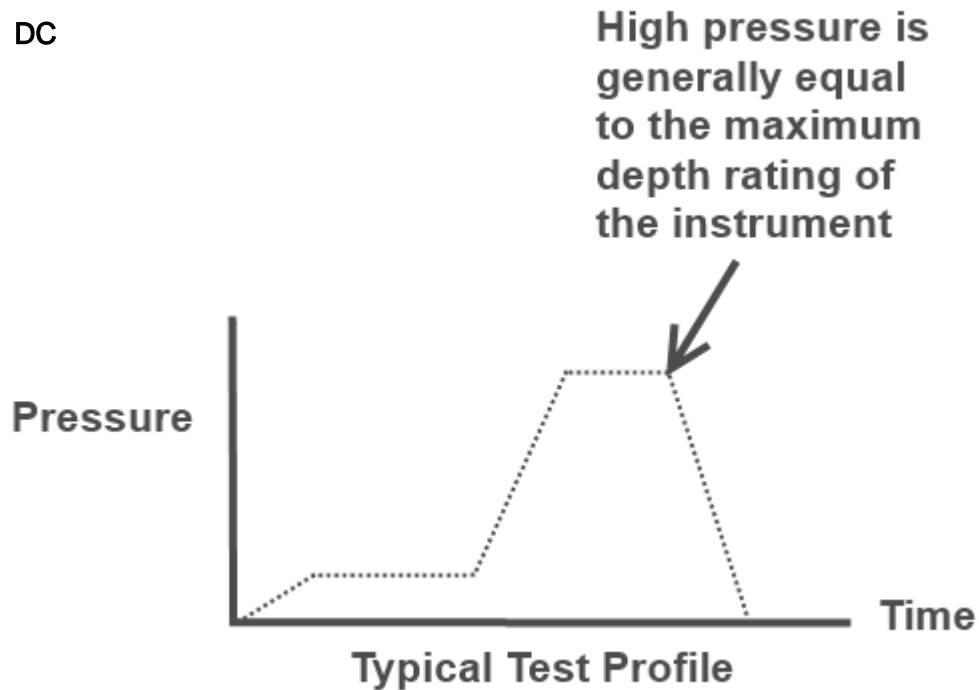
Pressure Test Protocol:

Low Pressure Test: **40** PSI Held For: **15** Minutes

High Pressure Test: **2300** PSI Held For: **15** Minutes

Passed Test: **Yes**

Tested By: **DC**





SBE 56 ECO Temperature Logger

Instrument Configuration

Instrument Serial Number: 56-04736
Instrument Firmware Version: 0.96
Communications Format: RS232

Installed Devices/Sensors

<i>Data Format</i>	<i>Measurement</i>	<i>Sensor Type</i>	<i>Serial Number</i>	<i>Rating</i>
Count	Temperature	Internal	N/A	N/A

Maximum Depth: **1500m**

CAUTION - The maximum deployment depth will be limited by the measurement range of the pressure sensor, if installed, an attached sensor, if installed, or the housing.

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SENSOR SERIAL NUMBER: 04736

CALIBRATION DATE: 09-Aug-14

SBE 56 TEMPERATURE CALIBRATION DATA

ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.166341e-003

a1 = 3.356546e-004

a2 = -6.067284e-006

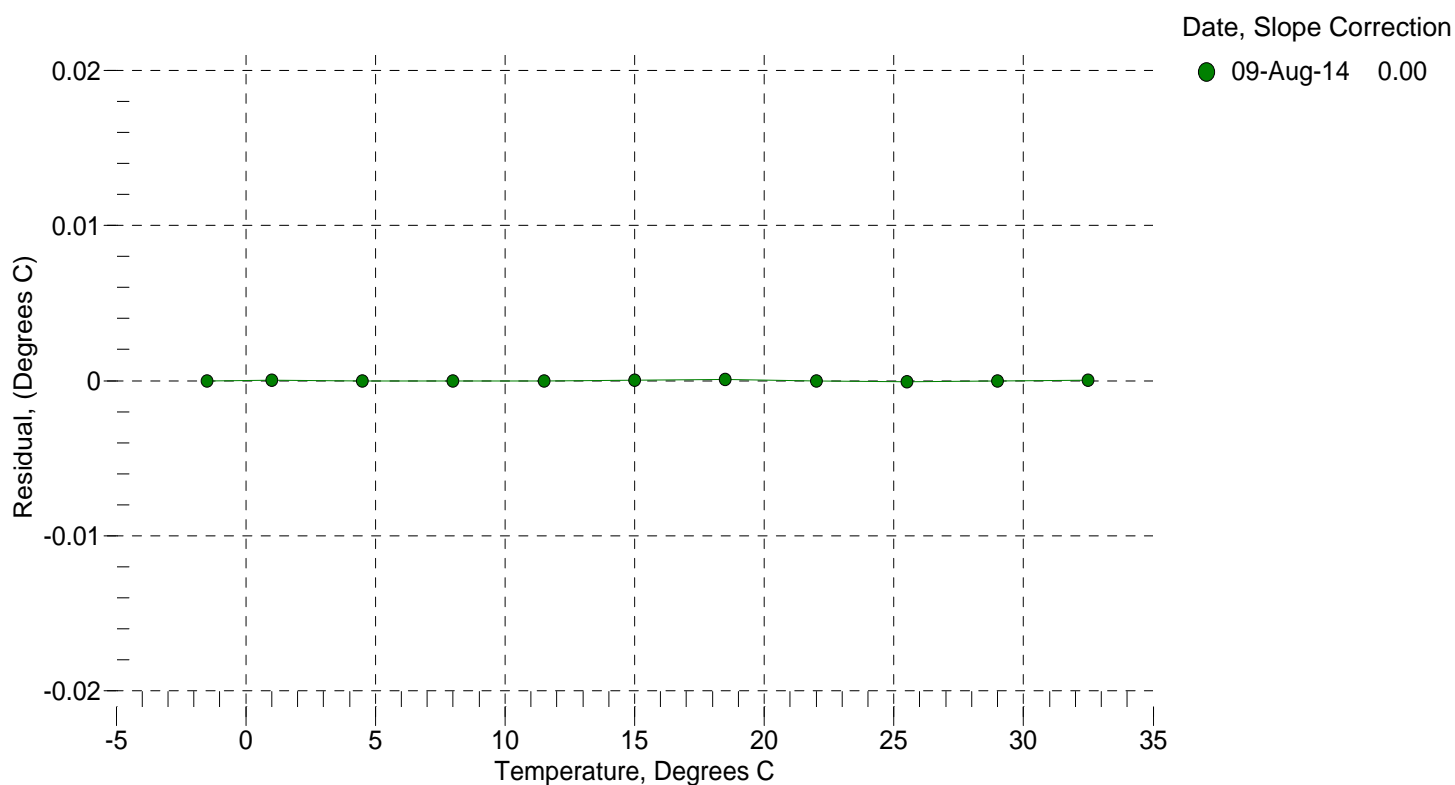
a3 = 1.906570e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	20952847.5	-1.5000	-0.0000
1.0000	18686341.3	1.0000	0.0000
4.5000	15966219.7	4.5000	-0.0000
8.0000	13687894.4	8.0000	-0.0000
11.5000	11773002.3	11.5000	-0.0000
15.0000	10158106.0	15.0000	0.0000
18.5000	8791780.6	18.5001	0.0001
22.0000	7632078.5	22.0000	-0.0000
25.5000	6644665.5	25.4999	-0.0001
29.0000	5801371.2	29.0000	-0.0000
32.5000	5079063.9	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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Pressure Test Certificate

Test Date: **08/04/14**

Description: **SBE-56 Temperature Sensor**

Sensor Information:

Model Number: **56**

Serial Number: **04736**

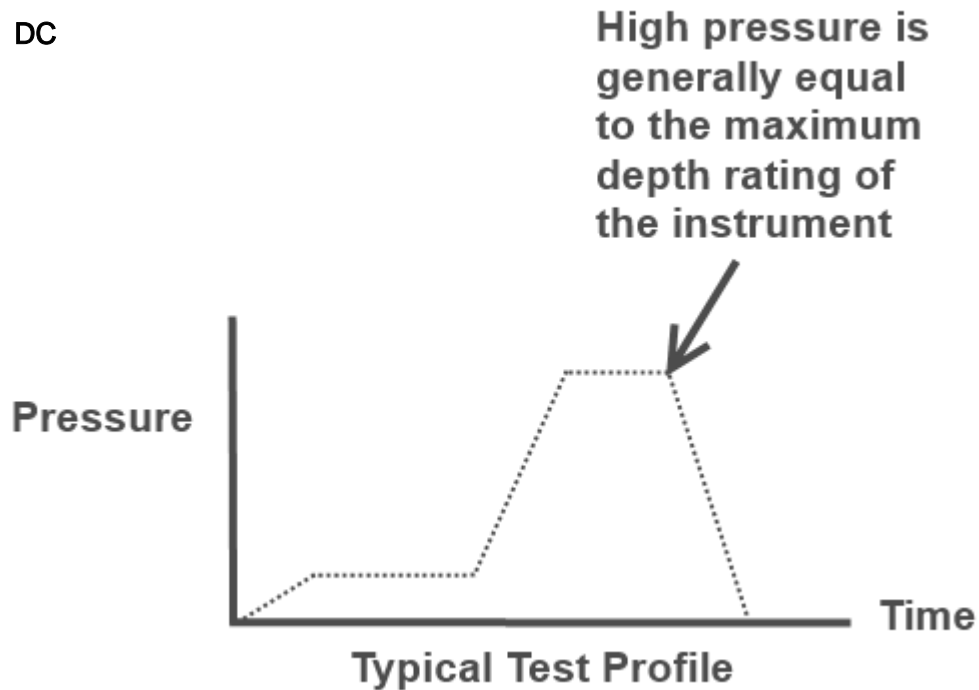
Pressure Test Protocol:

Low Pressure Test: **40** PSI Held For: **15** Minutes

High Pressure Test: **2300** PSI Held For: **15** Minutes

Passed Test: **Yes**

Tested By: **DC**





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SBE 56 ECO Temperature Logger

Instrument Configuration

Instrument Serial Number: 56-04737
Instrument Firmware Version: 0.96
Communications Format: RS232

Installed Devices/Sensors

<i>Data Format</i>	<i>Measurement</i>	<i>Sensor Type</i>	<i>Serial Number</i>	<i>Rating</i>
Count	Temperature	Internal	N/A	N/A

Maximum Depth: **1500m**

CAUTION - The maximum deployment depth will be limited by the measurement range of the pressure sensor, if installed, an attached sensor, if installed, or the housing.



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SENSOR SERIAL NUMBER: 04737

CALIBRATION DATE: 09-Aug-14

SBE 56 TEMPERATURE CALIBRATION DATA

ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.098515e-003

a1 = 3.240989e-004

a2 = -5.365460e-006

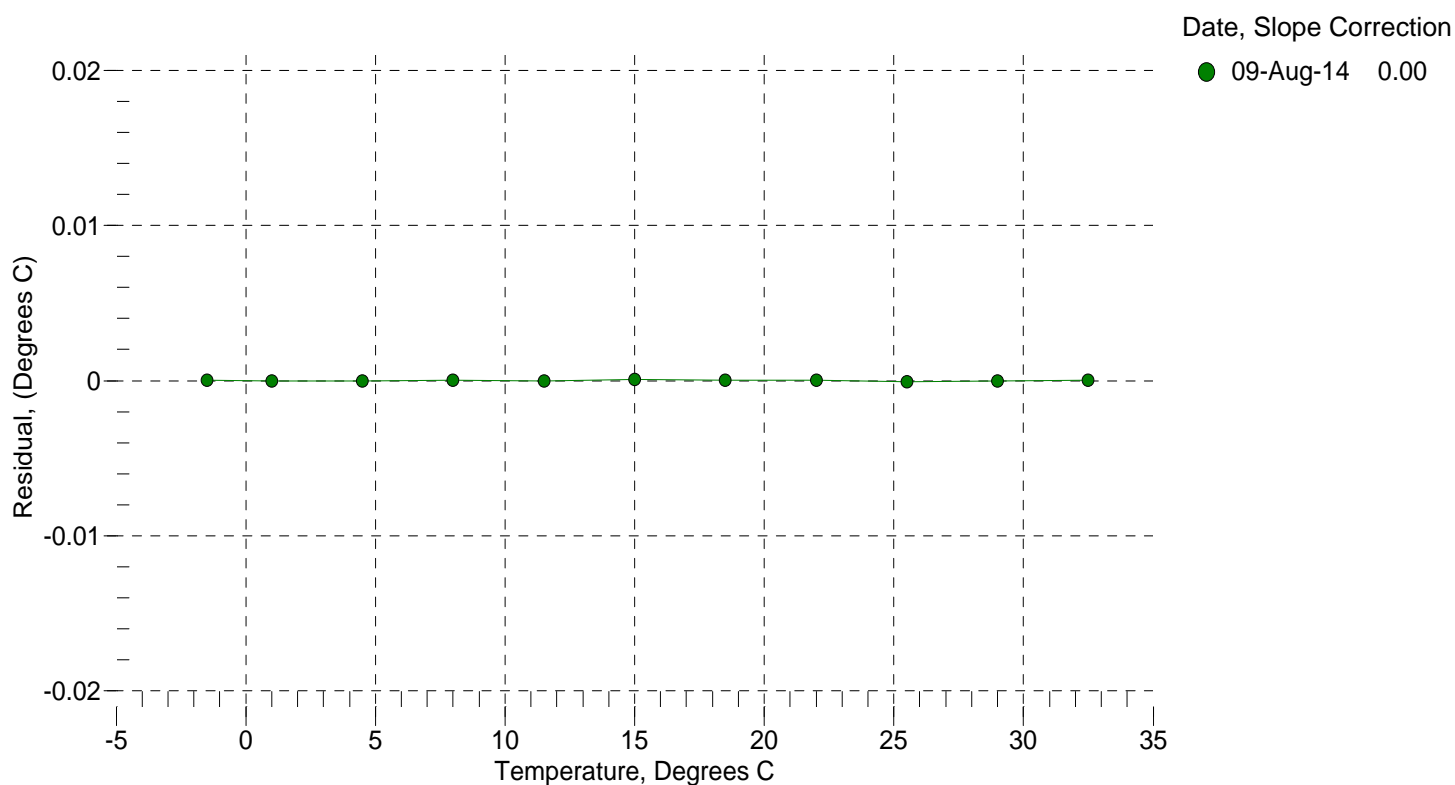
a3 = 1.771620e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	20403252.8	-1.5000	0.0000
1.0000	18199145.6	1.0000	-0.0000
4.5000	15553358.9	4.5000	-0.0000
8.0000	13336767.1	8.0000	0.0000
11.5000	11473388.7	11.5000	-0.0000
15.0000	9901572.5	15.0001	0.0001
18.5000	8571415.6	18.5000	0.0000
22.0000	7442122.7	22.0000	0.0000
25.5000	6480424.0	25.4999	-0.0001
29.0000	5658903.8	29.0000	-0.0000
32.5000	4955105.5	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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Pressure Test Certificate

Test Date: **08/04/14**

Description: **SBE-56 Temperature Sensor**

Sensor Information:

Model Number: **56**

Serial Number: **04737**

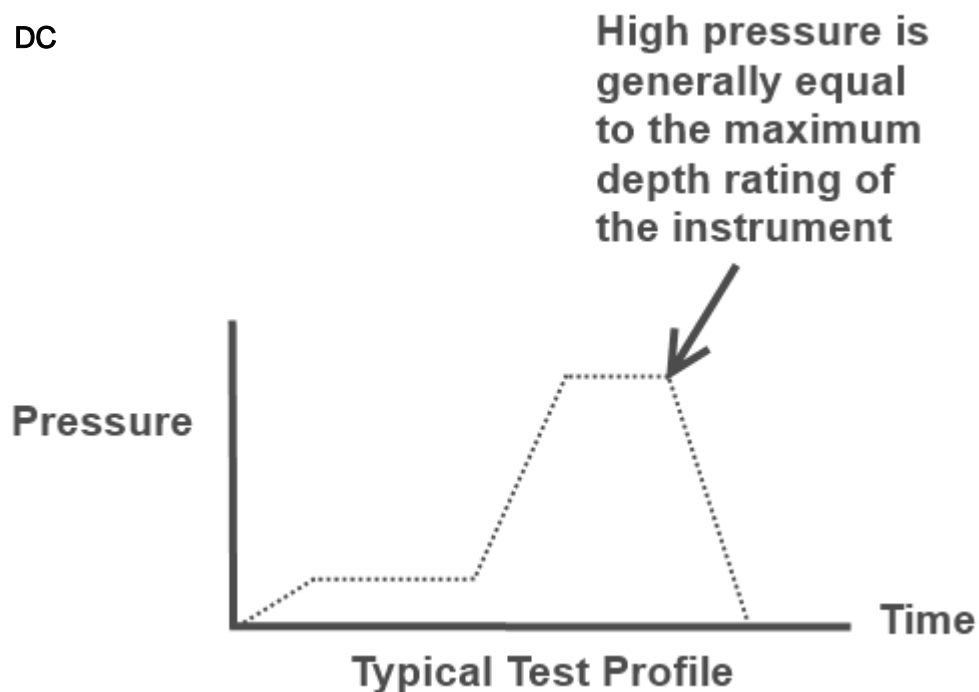
Pressure Test Protocol:

Low Pressure Test: **40** PSI Held For: **15** Minutes

High Pressure Test: **2300** PSI Held For: **15** Minutes

Passed Test: **Yes**

Tested By: **DC**





SBE 56 ECO Temperature Logger

Instrument Configuration

Instrument Serial Number: 56-04738
Instrument Firmware Version: 0.96
Communications Format: RS232

Installed Devices/Sensors

<i>Data Format</i>	<i>Measurement</i>	<i>Sensor Type</i>	<i>Serial Number</i>	<i>Rating</i>
Count	Temperature	Internal	N/A	N/A

Maximum Depth: **1500m**

CAUTION - The maximum deployment depth will be limited by the measurement range of the pressure sensor, if installed, an attached sensor, if installed, or the housing.

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SENSOR SERIAL NUMBER: 04738

CALIBRATION DATE: 09-Aug-14

SBE 56 TEMPERATURE CALIBRATION DATA

ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.167401e-003

a1 = 3.368812e-004

a2 = -6.158219e-006

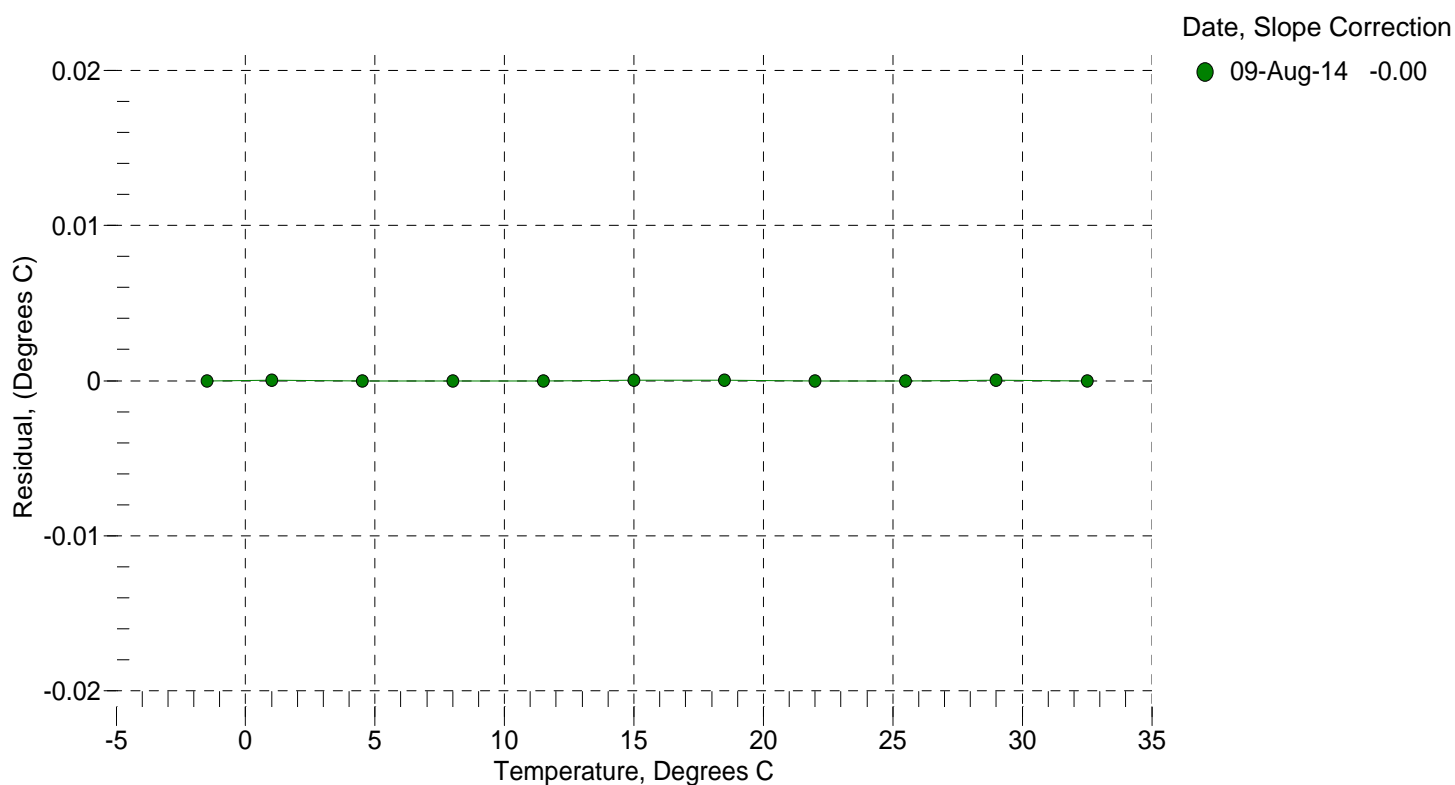
a3 = 1.923959e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	20802961.2	-1.5000	-0.0000
1.0000	18549691.3	1.0000	0.0000
4.5000	15845981.7	4.5000	-0.0000
8.0000	13581887.4	8.0000	-0.0000
11.5000	11679384.5	11.5000	-0.0000
15.0000	10075259.3	15.0000	0.0000
18.5000	8718347.0	18.5000	0.0000
22.0000	7566834.9	22.0000	-0.0000
25.5000	6586577.8	25.5000	-0.0000
29.0000	5749583.8	29.0000	0.0000
32.5000	5032829.1	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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Pressure Test Certificate

Test Date: **08/04/14**

Description: **SBE-56 Temperature Sensor**

Sensor Information:

Model Number: **56**

Serial Number: **04738**

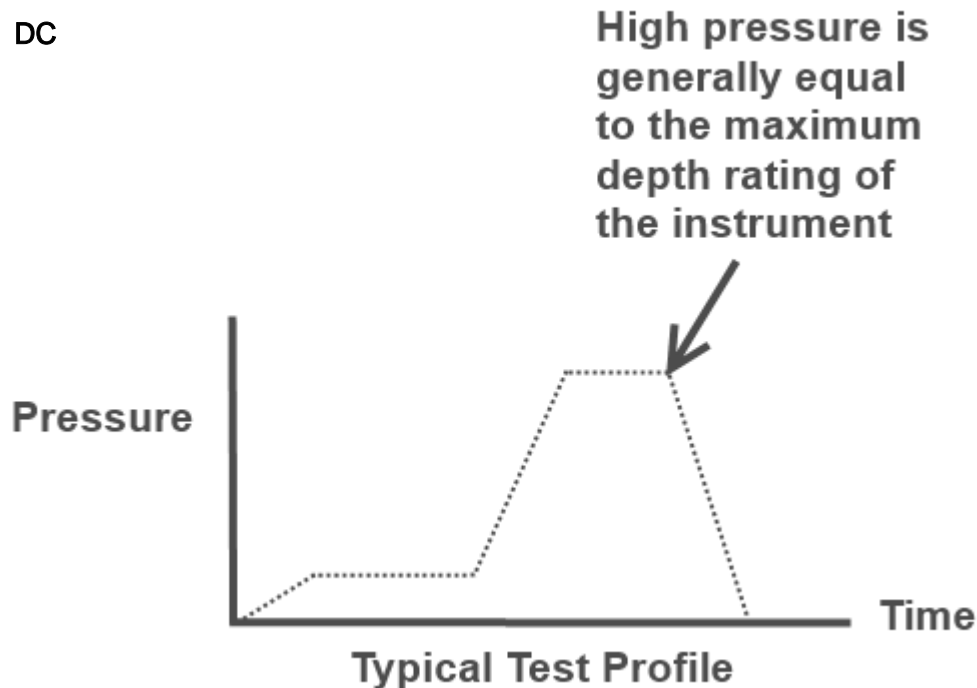
Pressure Test Protocol:

Low Pressure Test: **40** PSI Held For: **15** Minutes

High Pressure Test: **2300** PSI Held For: **15** Minutes

Passed Test: **Yes**

Tested By: **DC**





Sea-Bird Electronics, Inc.

Advancing the Science of Ocean Measurement

SBE 56 ECO Temperature Logger

Instrument Configuration

Instrument Serial Number: 56-04739
Instrument Firmware Version: 0.96
Communications Format: RS232

Installed Devices/Sensors

<i>Data Format</i>	<i>Measurement</i>	<i>Sensor Type</i>	<i>Serial Number</i>	<i>Rating</i>
Count	Temperature	Internal	N/A	N/A

Maximum Depth: **1500m**

CAUTION - The maximum deployment depth will be limited by the measurement range of the pressure sensor, if installed, an attached sensor, if installed, or the housing.



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SENSOR SERIAL NUMBER: 04739

CALIBRATION DATE: 09-Aug-14

SBE 56 TEMPERATURE CALIBRATION DATA

ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.136190e-003

a1 = 3.305572e-004

a2 = -5.732002e-006

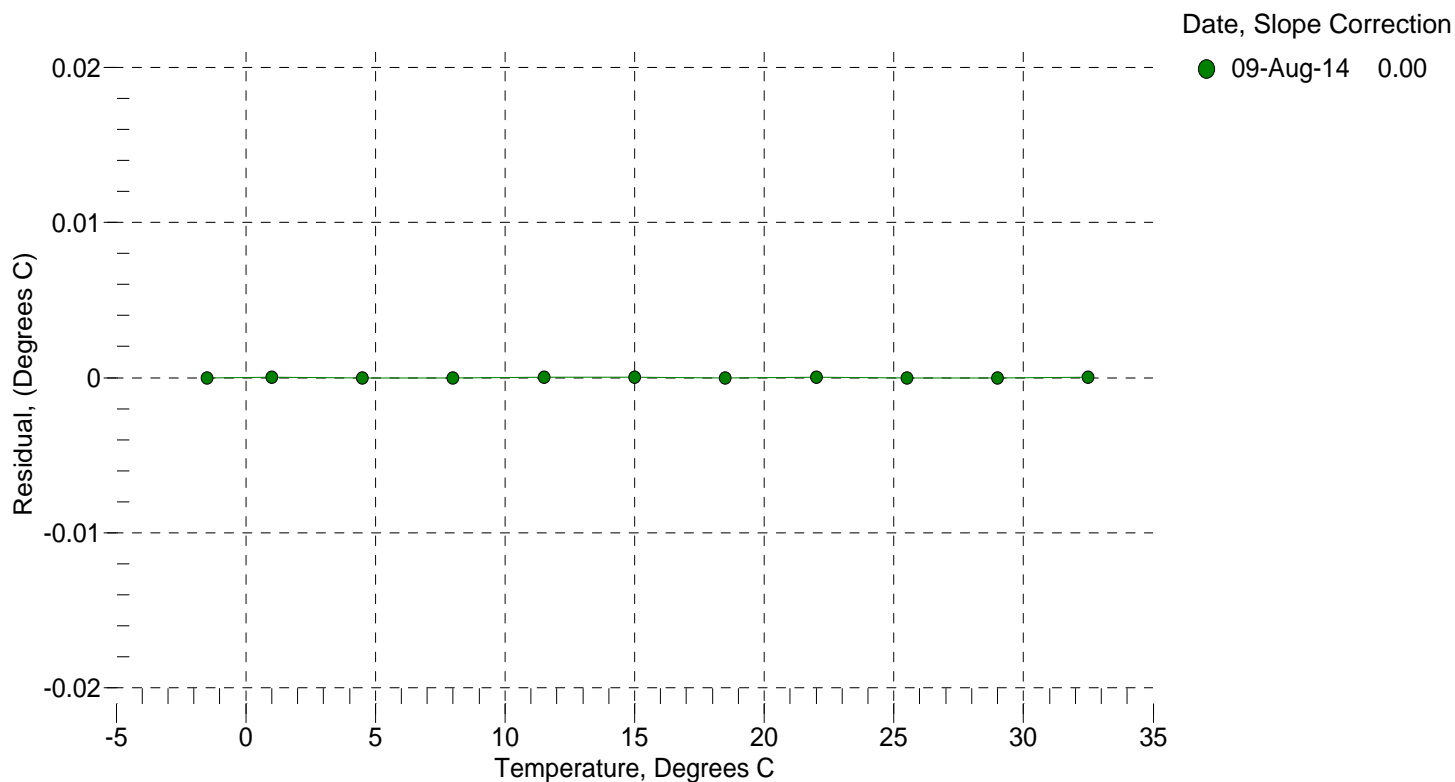
a3 = 1.841888e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	20355228.0	-1.5000	-0.0000
1.0000	18156800.0	1.0000	0.0000
4.5000	15517869.5	4.5000	-0.0000
8.0000	13306950.4	8.0000	-0.0000
11.5000	11448272.7	11.5000	0.0000
15.0000	9880440.6	15.0000	0.0000
18.5000	8553590.8	18.5000	-0.0000
22.0000	7427069.5	22.0000	0.0000
25.5000	6467706.5	25.5000	-0.0000
29.0000	5648191.0	29.0000	-0.0000
32.5000	4946070.3	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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Pressure Test Certificate

Test Date: **08/04/14**

Description: **SBE-56 Temperature Sensor**

Sensor Information:

Model Number: **56**

Serial Number: **04739**

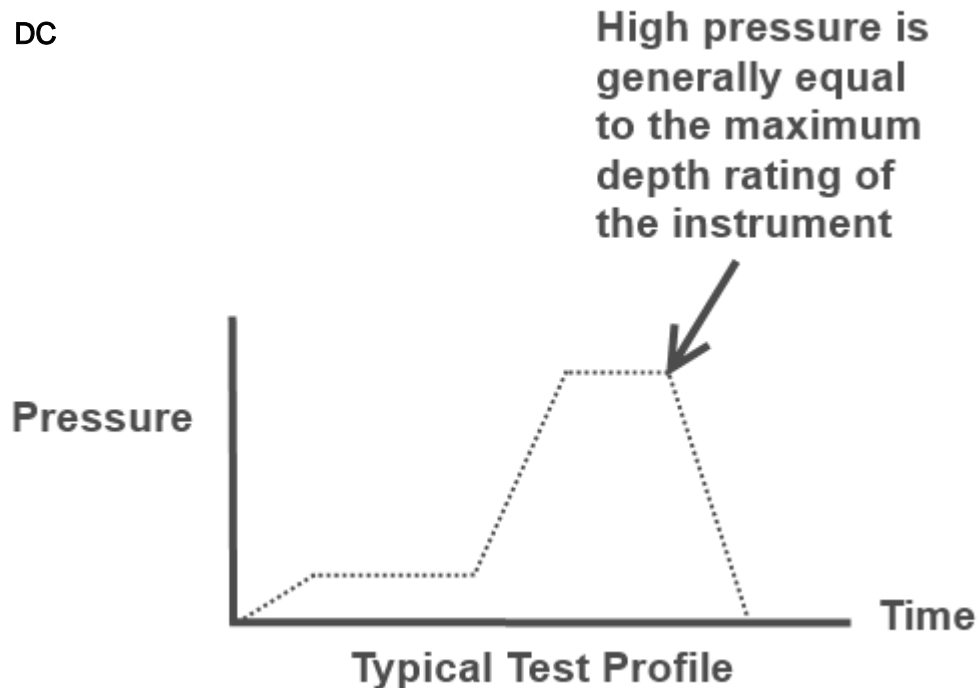
Pressure Test Protocol:

Low Pressure Test: **40** PSI Held For: **15** Minutes

High Pressure Test: **2300** PSI Held For: **15** Minutes

Passed Test: **Yes**

Tested By: **DC**





Sea-Bird Electronics, Inc.

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SBE 56 ECO Temperature Logger

Instrument Configuration

Instrument Serial Number: 56-04740
Instrument Firmware Version: 0.96
Communications Format: RS232

Installed Devices/Sensors

<i>Data Format</i>	<i>Measurement</i>	<i>Sensor Type</i>	<i>Serial Number</i>	<i>Rating</i>
Count	Temperature	Internal	N/A	N/A

Maximum Depth: **1500m**

CAUTION - The maximum deployment depth will be limited by the measurement range of the pressure sensor, if installed, an attached sensor, if installed, or the housing.



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SENSOR SERIAL NUMBER: 04740

CALIBRATION DATE: 09-Aug-14

SBE 56 TEMPERATURE CALIBRATION DATA

ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.144229e-003

a1 = 3.297887e-004

a2 = -5.654791e-006

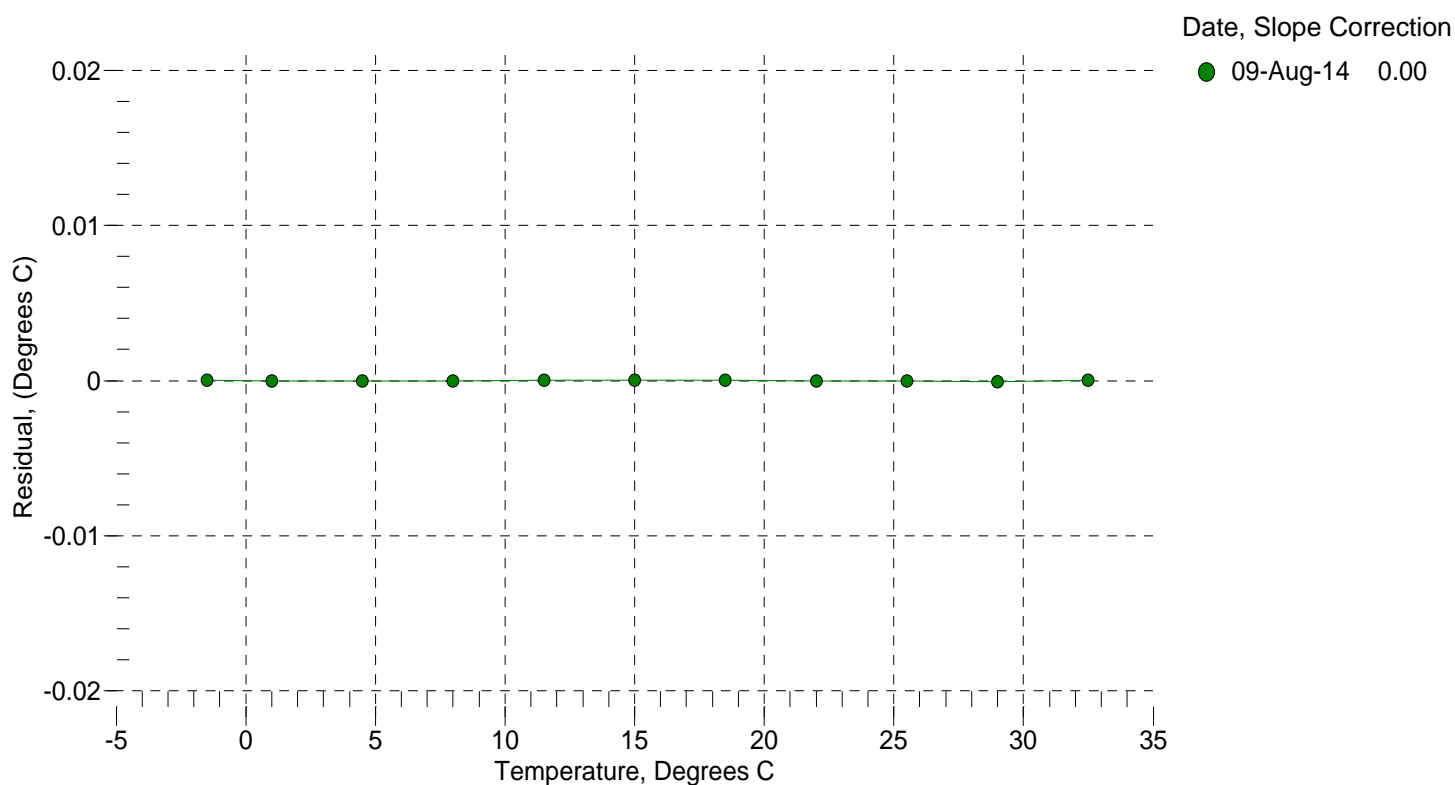
a3 = 1.825942e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	20823649.6	-1.5000	0.0000
1.0000	18579281.9	1.0000	-0.0000
4.5000	15884327.9	4.5000	-0.0000
8.0000	13625761.3	8.0000	-0.0000
11.5000	11726402.4	11.5000	0.0000
15.0000	10123712.7	15.0000	0.0000
18.5000	8766947.3	18.5000	0.0000
22.0000	7614694.5	22.0000	-0.0000
25.5000	6633078.5	25.5000	-0.0000
29.0000	5794325.3	28.9999	-0.0001
32.5000	5075491.3	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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Pressure Test Certificate

Test Date: **08/04/14**

Description: **SBE-56 Temperature Sensor**

Sensor Information:

Model Number: **56**

Serial Number: **04740**

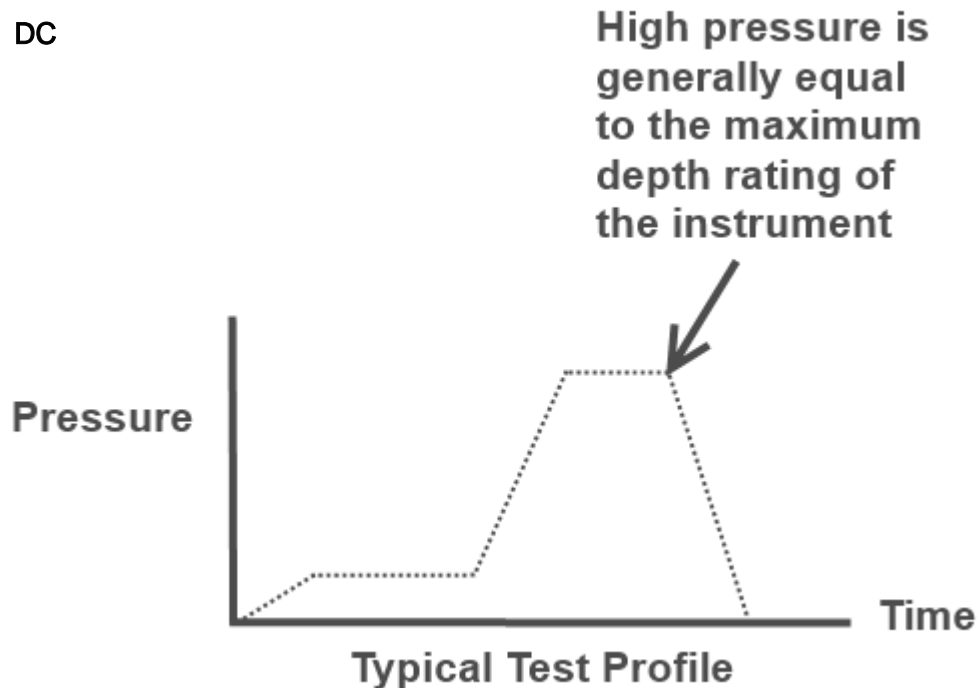
Pressure Test Protocol:

Low Pressure Test: **40** PSI Held For: **15** Minutes

High Pressure Test: **2300** PSI Held For: **15** Minutes

Passed Test: **Yes**

Tested By: **DC**





Sea-Bird Electronics, Inc.

Advancing the Science of Ocean Measurement

SBE 56 ECO Temperature Logger

Instrument Configuration

Instrument Serial Number: 56-04742
Instrument Firmware Version: 0.96
Communications Format: RS232

Installed Devices/Sensors

<i>Data Format</i>	<i>Measurement</i>	<i>Sensor Type</i>	<i>Serial Number</i>	<i>Rating</i>
Count	Temperature	Internal	N/A	N/A

Maximum Depth: **1500m**

CAUTION - The maximum deployment depth will be limited by the measurement range of the pressure sensor, if installed, an attached sensor, if installed, or the housing.



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SENSOR SERIAL NUMBER: 04742

CALIBRATION DATE: 09-Aug-14

SBE 56 TEMPERATURE CALIBRATION DATA

ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.042667e-003

a1 = 3.116191e-004

a2 = -4.565620e-006

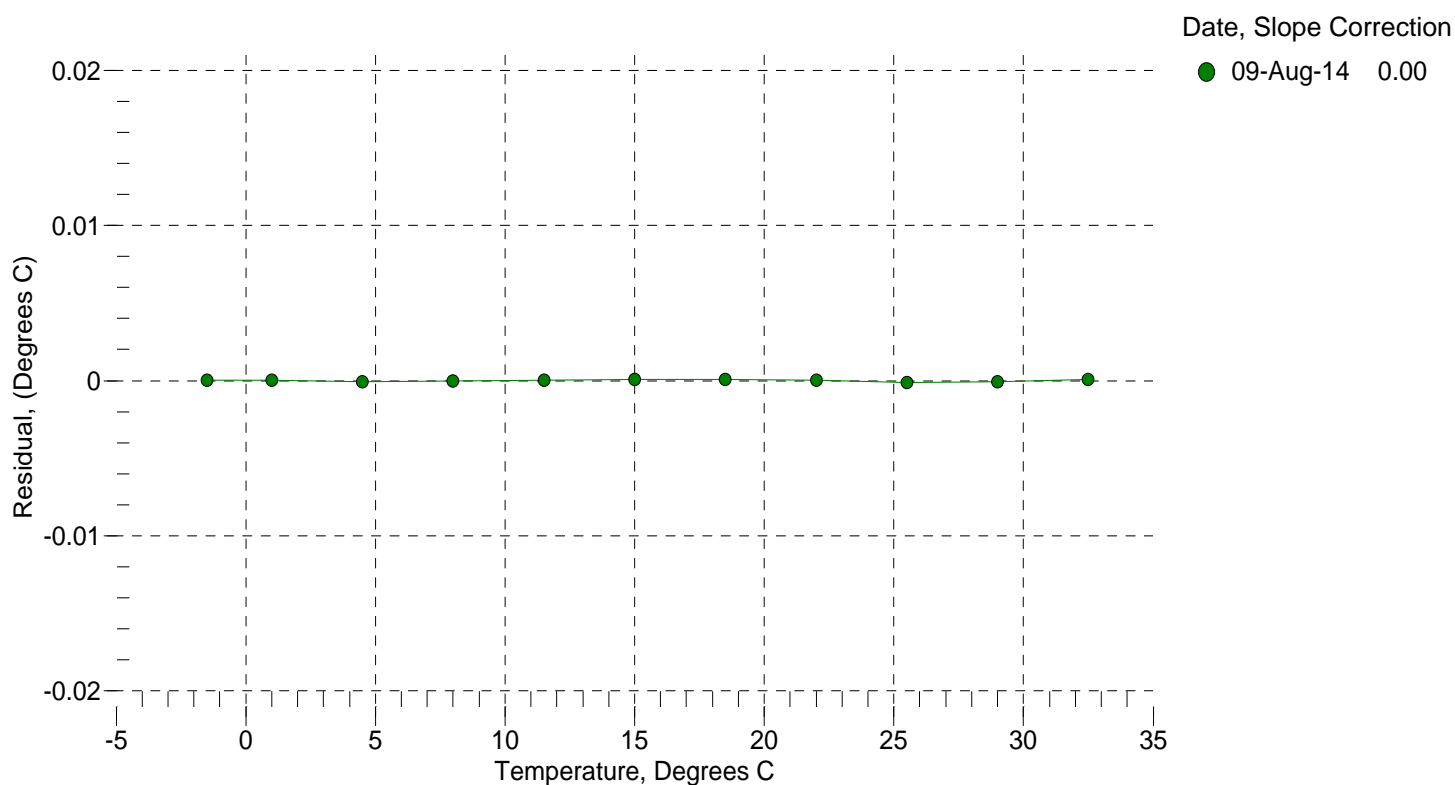
a3 = 1.610692e-007

BATH TEMP (ITS-90)	INSTRUMENT OUTPUT	INST TEMP (ITS-90)	RESIDUAL (ITS-90)
-1.5000	20706227.1	-1.5000	0.0000
1.0000	18475674.3	1.0000	0.0000
4.5000	15797127.2	4.4999	-0.0001
8.0000	13552055.4	8.0000	-0.0000
11.5000	11663847.1	11.5000	0.0000
15.0000	10070392.7	15.0001	0.0001
18.5000	8721309.4	18.5001	0.0001
22.0000	7575480.3	22.0000	0.0000
25.5000	6599240.9	25.4999	-0.0001
29.0000	5764949.3	28.9999	-0.0001
32.5000	5049867.5	32.5001	0.0001

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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Pressure Test Certificate

Test Date: **08/04/14**

Description: **SBE-56 Temperature Sensor**

Sensor Information:

Model Number: **56**

Serial Number: **04742**

Pressure Test Protocol:

Low Pressure Test: **40** PSI Held For: **15** Minutes

High Pressure Test: **2300** PSI Held For: **15** Minutes

Passed Test: **Yes**

Tested By: **DC**

High pressure is generally equal to the maximum depth rating of the instrument

