



CALIBRATION CERTIFICATE

AANDERAA DATA INSTRUMENTS

Sensing Foil Batch No: 2408
Certificate No: 3835 22 1095

Product: 3835
Serial No: 22
Calibration Date: June 17, 2011

This is to certify that this product has been calibrated using the following instruments:

Fluke CHUB E-4	Serial No. A7C677
Fluke 5615 PRT	Serial No. 849155
Fluke 5615 PRT	Serial No. 802054
Honeywell PPT	Serial No. 44074
Calibration Bath model FNT 321-1-40	1

Parameter: Internal Temperature:

Calibration points and readings:

Temperature (°C)	-	-	-	-
Reading (mV)	-	-	-	-

Giving these coefficients

Index	0	1	2	3
TempCoef	1.96541E+01	-3.03184E-02	2.84862E-06	-4.09935E-09

Parameter: Oxygen:

	O2 Concentration	Air Saturation
Range:	0-500 μM ¹⁾	0 - 120%
Accuracy ¹⁾ :	< $\pm 8\mu\text{M}$ or $\pm 5\%$ (whichever is greater)	$\pm 5\%$
Resolution:	< 1 μM	< 0.4%
Settling Time (63%):	< 25 seconds	

Calibration points and readings²⁾:

	Air Saturated Water	Zero Solution (Na ₂ SO ₃)
Phase reading (°)	2.74527E+01	6.03340E+01
Temperature reading (°C)	1.20129E+01	2.30032E+01
Air Pressure (hPa)	9.93200E+02	

Giving these coefficients

Index	0	1	2	3
PhaseCoef	3.90215E+00	1.14244E+00	0.00000E+00	0.00000E+00

¹⁾ Valid for 0 to 2000m (6562ft) depth, salinity 33 - 37ppt

²⁾ The calibration is performed in fresh water and the salinity setting is set to: 0

Date:
June 17, 2011

Sign: Shawn A. Sneddon

Service and Calibration Engineer

Aanderaa Data Instruments, Inc.

182 East Street Attleboro, MA 02703 Tel. +1 (508) 226-9300 email: infoUSA@aadi.no



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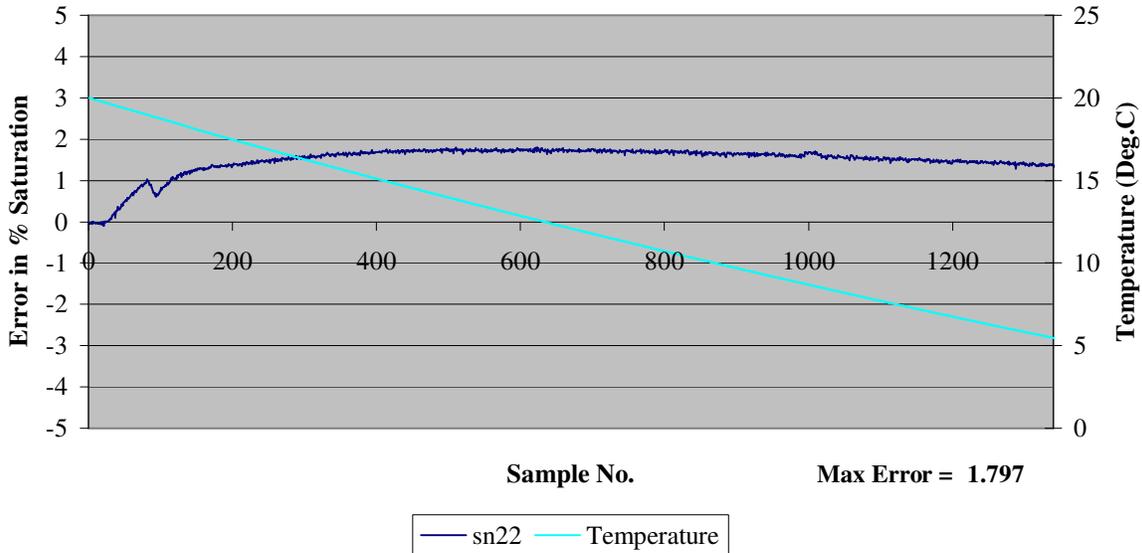
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Data from Cool Down Test:

Cool Down Test



SR10 Scaling Coefficients:

At the SR10 output the Oxygen Optode 3830 can give either absolute oxygen concentration in μM or air saturation in %. The setting of the internal property "Output"³⁾, controls the selection of the unit. The coefficients for converting SR10 raw data to engineering units are fixed.

Output = -1	Output = -2
A = 0	A = 0
B = 4.883E-01	B = 1.465E-01
C = 0	C = 0
D = 0	D = 0
Oxygen (μM) = A + BN + CN2 + DN3	Oxygen (%) = A + BN + CN2 + DN3

³⁾ The default output setting is set to -1

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TEST & SPECIFICATIONS

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Layout No:
Circuit Diagram No:
Program Version:

Product: 3835
Serial No: 22

1. Visual and Mechanical Checks:	
1.1. O-ring surface	OK
1.2. Soldering quality	N/A
1.3. Visual surface	OK
1.4. Pressure test (60MPa)	N/A
1.5. Galvanic isolation between housing and electronics	OK
2. Current Drain and Voltages:	
2.1. Average current drain at 0.5Hz sampling (Max: 38mA)	33.3 mA
2.2. Current drain in sleep (Max: 300uA)	194 uA
3. Performance Test in Air, 20°C Temperature:	
3.1. Amplitude measurement (Blue: 290 – 470mV)	34.94 mV
3.2. Phase measurement (Blue: 27 ±5°)	24.32 °
3.3. Temperature Measurement (100 ± 300mV)	-130.93 mV
4. Firmware:	
4.1. Firmware upgrade	3.11

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CALIBRATION CERTIFICATE

Form No. 621, Dec 2005

AANDERAA DATA INSTRUMENTS

Certificate No: 3853_2408_39876
Batch No: 2408

Product: O2 Sensing Foil PSt3 3853
Calibration Date: 4 Mars 2009

Calibration points and phase readings (degrees)

Temperature (°C)		3.30	10.16	20.02	29.87	39.61
Pressure (hPa)		975.00	975.00	975.00	975.00	975.00
O2 in % of O2+N2	0.00	74.08	73.55	72.67	71.72	70.56
	1.00	70.01	69.12	67.75	66.34	64.90
	2.00	66.39	65.23	63.48	61.77	60.08
	5.00	57.81	56.21	53.94	51.82	49.89
	10.00	48.48	46.70	44.30	42.12	40.25
	20.90	37.53	35.86	33.69	31.84	30.27
	30.00	32.48	30.96	29.04	27.40	26.03

Giving these coefficients ¹⁾

Index	0	1	2	3
C0 Coefficient	5.21413E+03	-1.67321E+02	3.14576E+00	-2.57702E-02
C1 Coefficient	-2.84238E+02	7.89369E+00	-1.39348E-01	1.09312E-03
C2 Coefficient	6.23425E+00	-1.46694E-01	2.40267E-03	-1.75678E-05
C3 Coefficient	-6.34528E-02	1.24323E-03	-1.86980E-05	1.21236E-07
C4 Coefficient	2.46614E-04	-3.92225E-06	5.32181E-08	-2.70264E-10

¹⁾ Ask for Form No 621S when this O2 Sensing Foil is used in Oxygen Sensor 3830 with Serial Numbers lower than 184.

Date: 8/14/2009

Sign:

Tor-Ove Kvalvaag, Calibration Engineer