

Layout No: 1308E, 1299F
 Circuit Diagram No: V-3947 , V-8731 ;
 Software Version: 3 Build: 7.00

Product: Oxygen Optode 3835
 Serial No: 224

1. Visual and Mechanical Checks:

- 1.1 O-ring surface.....
- 1.2 Soldering quality.....
- 1.3 Visual surface.....
- 1.4 Pressure test (60MPa).....
- 1.5 Galvanic isolation between housing and electronics.....

2. Current Drain and Voltages:

- 2.1 Average current drain at 0.5Hz sampling (Max: 38mA) 33 mA
- 2.2 Current drain in sleep (Max: 300µA) 220 µA
- 2.3 Quiescent current drain from -9V (Max: 5µA) 0 µA
- 2.4 DSP voltage, IC5.1 (3.3 ±0.15V)..... 3.31 V
- 2.5 Excitation driver voltage, IC1.1 (3.3 ±0.15V)..... 3.31 V
- 2.6 Flash/RS232 driver voltage, IC7.4 (5 ±0.2V)..... 5.12 V

3. Receiver test:

- 3.1 Average of Receiver readings (0 ±50mV) -10 mV
- 3.2 Standard Deviation of Receiver readings (Max: 10mV) 2 mV

4. Performance Test in Air, 0°C Temperature:

Excitation: BLUE RED

- 4.1 Amplitude measurement (Blue: 220 – 470mV, Red: disabled) 350..... 0 mV
- 4.2 Phase measurement (Blue: 29 ±5°, Red: disabled) 30.7..... 0.00 °
- 4.3 Standard deviation of Phase measurement: (Max: 0.02°, Red: disabled) 0.001..... 0.000 °
- 4.4 Temperature measurement: (700 ±300mV)..... 715 mV
- 4.5 SR10 Output tested (Set_Output(-100)).....

5. Performance Test in Air, 20°C Temperature:

Excitation: BLUE RED


- 5.1 Amplitude measurement (Blue: 290 – 470mV, Red: disabled)..... 384..... 0 mV
- 5.2 Phase measurement (Blue: 24 ±5°, Red: disabled)..... 25.7..... 0.0 °
- 5.3 Standard deviation of Phase measurement: (Max: 0.02°, Red: disabled) 0.001..... 0.000 °
- 5.4 Temperature measurement: (100 ±300mV)..... 92 mV
- 5.5 SR10 Output tested (Set_Output(-100)).....

6. Performance Test in Air, 40°C Temperature:

Excitation: BLUE RED

- 6.1 Amplitude measurement (Blue: 330 – 510mV, Red: disabled)..... 364.3..... 0 mV
- 6.2 Phase measurement (Blue: 20 ±5°, Red: disabled)..... 22.7..... 0.0 °
- 6.3 Standard deviation of Phase measurement: (Max: 0.02°, Red: disabled) 0.001..... 0.000 °
- 6.4 Temperature measurement: (-500 ±300mV)..... -434 mV
- 6.5 SR10 Output tested (Set_Output(-100)).....

Date: 19 December 2005

Sign. Vidar Selsvik
 Production Engineer




Form No. 620
 November 2003

AANDERAA INSTRUMENTS AS

PO BOX 160 NESTTUN
 5852 BERGEN, NORWAY
 Fax. +47 55 10 99 10

NESTTUNBREKKEN 97
 5221 NESTTUN, NORWAY
 Tel. +47 55 10 99 00

E-mail: info@aanderaa.no
 Visit our Web Site at:
 http://www.aanderaa.com

Enterprise No: NO 943 521638
 Bank Account No: 5210.05.31267
 SWIFT code: DNBANOKK

AANDERAA Calibration Certificate

Page 1 of 2

Sensor Type: Oxygen Optode 3835

Serial No: 224

Certificate No: 3835 224 38702

Calibration Date: 16 December 2005

Sensing Foil Batch No: 4804

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

ASL Digital Thermometer model F250

Serial No. 06792/06

Platinum Resistance Thermometer

Serial No. 2H1072/1

Calibration Bath model FNT 321-1-40

Parameter: Internal Temperature

Calibration points and readings

Temperature (°C)	1.13	12.08	24.07	36.04
Reading (mV)	716.32	389.93	18.00	-331.88

Giving these coefficients

Index	0	1	2	3
TempCoef	2.46592E+01	-3.27879E-02	3.07023E-06	-4.40223E-09

Date: 19 December 2005

Sign. 
Tor Ove Kvalvaag
Calibration Manager

PO BOX 160 NESTTUN
5852 BERGEN, NORWAY
Fax. +47 55 10 99 10

NESTTUNBREKKEN 97
5221 NESTTUN, NORWAY
Tel. +47 55 10 99 00

E-mail: info@aanderaa.no
Visit our Web Site at:
<http://www.aanderaa.com>

Enterprise No: NO 943 521638
Bank Account No: 5210.05.31267
SWIFT code: DNBANOKK

Sensor Type: Oxygen Optode 3835
 Certificate No: 3835 224 38702
 Sensing Foil Batch No: 4804

Serial No: 224
 Calibration Date: 16 December 2005

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

Air Saturation
 Range: 0 - 120%
 Accuracy ¹⁾: $\pm 5\%$
 Resolution: $< 0.4\%$

Calibration points and readings ²⁾

	Air Saturated Water	Zero Solution (Na ₂ SO ₃)
Phase reading (°)	2.64933E+01	6.19229E+01
Temperature reading (°C)	2.08439E+01	2.12792E+01
Air Pressure (hPa)	9.91630E+02	

Giving these coefficients

Index	0	1	2	3
PhaseCoef	-3.95702E+00	1.17354E+00	0.00000E+00	0.00000E+00

¹⁾ Valid for salinity 33 - 37ppt

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

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 + CN ² + DN ³	Oxygen (%) = A + BN + CN ² + DN ³

³⁾ The default output setting is set to -1