

Sensing Foil Batch No: 1023
Certificate No:

Product: Oxygen Optode 3835
Serial No: 1794
Calibration Date: 21 Feb 2013

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

Calibration Bath model FNT 321-1-40
ASL Digital Thermometer model F250 Serial: 6792/06

Parameter: Internal Temperature:

Calibration points and readings:

Temperature (°C)	0.95	11.89	23.84	35.87
Reading (mV)	726.25	380.49	-12.99	-382.15

Giving these coefficients

Index	0	1	2	3
TempCoef	2.34375E01	-3.08248E-02	2.85423E-06	-4.19843E-09

Parameter: Oxygen:

	O2 Concentration	Air Saturation
Range:	0-500 µM ¹⁾	0 - 120%
Accuracy ¹⁾ :	< ±8µM or ±5% (whichever is greater)	±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 (°)	3.19240E+01	6.49631E+01
Temperature reading (°C)	9.90280E+00	2.24060E+01
Air Pressure (hPa)	9.87468E+02	

Giving these coefficients

Index	0	1	2	3
PhaseCoef	-2.78776E00	1.15181E00	0.00000E00	0.00000E00

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

Sensing Foil Batch No: 1023
Certificate No:

Product: Oxygen Optode 3835
Serial No: 1794
Calibration Date: 21 Feb 2013

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

Date: 21 Feb 2013

Sign:



Tor-Ove Kvalvaag, Calibration Engineer

AANDERAA DATA INSTRUMENTS AS

Sensing Foil Batch No: 1023
Certificate No:

Product: Oxygen Optode 3835
Serial No: 1795
Calibration Date: 21 Feb 2013

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

Calibration Bath model FNT 321-1-40
ASL Digital Thermometer model F250 Serial: 6792/06

Parameter: Internal Temperature:

Calibration points and readings:

Temperature (°C)	0.95	11.89	23.84	35.87
Reading (mV)	727.31	381.53	-12.08	-381.48

Giving these coefficients

Index	0	1	2	3
TempCoef	2.34659E01	-3.08149E-02	2.84835E-06	-4.19161E-09

Parameter: Oxygen:

	O2 Concentration	Air Saturation
Range:	0-500 µM ¹⁾	0 - 120%
Accuracy ¹⁾ :	< ±8µM or ±5% (whichever is greater)	±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 (°)	3.16327E+01	6.47314E+01
Temperature reading (°C)	9.89946E+00	2.24234E+01
Air Pressure (hPa)	9.87510E+02	

Giving these coefficients

Index	0	1	2	3
PhaseCoef	-2.37846E00	1.14953E00	0.00000E00	0.00000E00

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

Sensing Foil Batch No: 1023
Certificate No:

Product: Oxygen Optode 3835
Serial No: 1795
Calibration Date: 21 Feb 2013

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

Date: 21 Feb 2013

Sign:



Tor-Ove Kvalvaag, Calibration Engineer

AANDERAA DATA INSTRUMENTS AS

Sensing Foil Batch No: 1206
Certificate No:

Product: Oxygen Optode 3835
Serial No: 1797
Calibration Date: 21 Feb 2013

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

Calibration Bath model FNT 321-1-40
ASL Digital Thermometer model F250 Serial: 6792/06

Parameter: Internal Temperature:

Calibration points and readings:

Temperature (°C)	0.95	11.89	23.84	35.87
Reading (mV)	724.17	375.66	-20.66	-391.53

Giving these coefficients

Index	0	1	2	3
TempCoef	2.32051E01	-3.05925E-02	2.83384E-06	-4.18425E-09

Parameter: Oxygen:

	O2 Concentration	Air Saturation
Range:	0-500 µM ¹⁾	0 - 120%
Accuracy ¹⁾ :	< ±8µM or ±5% (whichever is greater)	±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 (°)	3.19935E+01	6.55397E+01
Temperature reading (°C)	9.90066E+00	2.24562E+01
Air Pressure (hPa)	9.87510E+02	

Giving these coefficients

Index	0	1	2	3
PhaseCoef	-1.07835E00	1.11307E00	0.00000E00	0.00000E00

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

Sensing Foil Batch No: 1206
Certificate No:

Product: Oxygen Optode 3835
Serial No: 1797
Calibration Date: 21 Feb 2013

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

Date: 21 Feb 2013

Sign:



Tor-Ove Kvalvaag, Calibration Engineer

AANDERAA DATA INSTRUMENTS AS



a xylem brand

CALIBRATION CERTIFICATE

Form No. 621, Dec 2005

Certificate No: 3853_1206_41134
Batch No: 1206

Product: O2 Sensing Foil PSt3 3853
Calibration Date: 13 Aug 2012

Calibration points and phase readings (degrees)

Temperature (°C)		3.27	10.01	19.72	29.36	38.83
Pressure (hPa)		978.50	978.50	978.50	978.50	978.50
O2 in % of O2+N2	0.00	73.27	72.78	71.94	71.02	70.02
	1.00	68.43	67.47	66.00	64.53	63.02
	2.00	65.03	63.83	62.03	60.23	58.45
	5.00	56.82	55.18	52.84	50.64	48.58
	10.00	47.49	45.66	43.16	40.89	38.86
	20.90	36.28	34.57	32.25	30.27	28.58
	30.00	31.02	29.39	27.31	25.56	24.08
	0.00	0.00	0.00	0.00	0.00	0.00

Giving these coefficients ¹⁾

Index	0	1	2	3
C0 Coefficient	4.80074E+03	-1.95329E+02	4.86670E+00	-5.03484E-02
C1 Coefficient	-2.68024E+02	1.07066E+01	-2.88523E-01	3.16416E-03
C2 Coefficient	6.10125E+00	-2.39181E-01	6.95300E-03	-7.98418E-05
C3 Coefficient	-6.50012E-02	2.49664E-03	-7.76409E-05	9.21493E-07
C4 Coefficient	2.65501E-04	-9.97211E-06	3.29503E-07	-4.00407E-09

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

Date: 4/9/2013

Sign:

Tor-Ove Kvalvaag, Calibration Engineer

AANDERAA DATA INSTRUMENTS AS



a xylem brand

CALIBRATION CERTIFICATE

Form No. 621, Dec 2005

Certificate No: 3853_1023_40408
Batch No: 1023

Product: O2 Sensing Foil PSt3 3853
Calibration Date: 18 Aug 2010

Calibration points and phase readings (degrees)

Temperature (°C)		3.81	10.40	19.94	29.39	38.67
Pressure (hPa)		970.25	970.25	970.25	970.25	970.25
O2 in % of O2+N2	0.00	72.97	72.50	71.81	71.02	70.09
	1.00	68.13	67.16	65.72	64.27	62.70
	2.00	64.72	63.48	61.63	59.79	57.95
	5.00	56.48	54.75	52.40	50.16	48.05
	10.00	47.08	45.17	42.67	40.36	38.33
	20.90	35.87	34.01	31.74	29.73	28.04
	30.00	30.48	28.83	26.79	25.03	23.56

Giving these coefficients ¹⁾

Index	0	1	2	3
C0 Coefficient	4.27019E+03	-1.32724E+02	2.15630E+00	-1.40276E-02
C1 Coefficient	-2.29730E+02	5.74242E+00	-6.85358E-02	1.88612E-04
C2 Coefficient	5.06402E+00	-9.62085E-02	5.22181E-04	7.70890E-06
C3 Coefficient	-5.26332E-02	7.15467E-04	3.31185E-06	-1.86124E-07
C4 Coefficient	2.10917E-04	-1.84088E-06	-4.28646E-08	1.11120E-09

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

Date: 4/9/2013

Sign:

Tor-Ove Kvalvaag, Calibration Engineer

AANDERAA DATA INSTRUMENTS AS