AADI CALIBRATION CERTIFICATE

Form No. 710, Dec 2005

a xylem brand

		Product:	4330I
Sensing Foil Batch No:	1023E	**Serial No:**	199
Certificate No:	4330IE 199 2079	**Calibration Date:**	December 7, 2012

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

Parameter: Internal Temperature*:*

Calibration points and readings:

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

Giving these coefficients

Index	0	1	2	3
TempCoef	2.30117E+01	-3.03997E-02	2.81608E-06	-4.12565E-09

*Note: Temperature calibration not performed.

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 readings[2)]:

	Air Saturated Water	Zero Solution (Na_2SO_3)
Phase reading (°)	3.10816E+01	6.16560E+01
Temperature reading (°C)	1.08455E+01	2.33809E+01
Air Pressure (hPa)	1.01664E+03	

Giving these coefficients

Index	0	1	2	3
PhaseCoef	-2.80822E+00	1.04548E+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:
December 7, 2012

Sign: Shawn A. Sneddon

Service and Calibration Engineer

Aanderaa Data Instruments, Inc.
182 East Street, Suite B Attleboro, MA 02703 Tel. +1 (508) 226-9300 email: infoUSA@xyleminc.com

CALIBRATION CERTIFICATE

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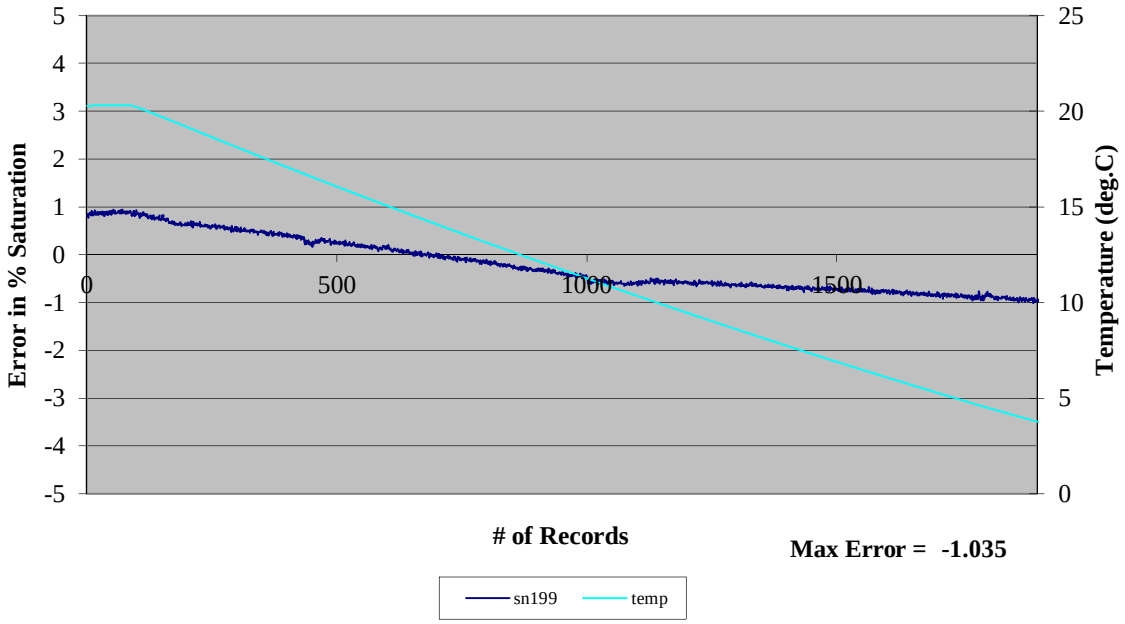
Sensing Foil Batch No:	1023E	**Product:**	4330I
Certificate No:	4330IE 199 2079	**Serial No:**	199
		Calibration Date:	December 7, 2012

Data from Cool Down Test:

Cool Down Test



Max Error = -1.035

Date:
December 7, 2012

Sign: Shawn A. Sneddon

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TEST & SPECIFICATIONS

Form No. 712, July 2008

Product: 4330I
Serial No: 199

1.	**Visual and Mechanical Checks:**			
1.1.	O-ring surface		N/A	
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: 100mA)		26.1	mA
2.2.	Current drain in sleep (Max: 160uA)		114	uA
3.	**Performance Test in Air, 20°C Temperature w/fluorescence foil:**	Blue	Red	
3.1.	Amplitude measurement (Blue and Red: 700 – 1200mV)	730.6	829.9	mV
3.2.	Phase measurement (TC: 27 ±5°)	29.045		°
3.3	Temperature Measurement (100 ± 300mV)		58.1	mV
3.4	AiCap Mode Tested (output(200))		OK	
4.	**Firmware:**			
4.1.	Firmware upgrade		N/A	

Date:
December 7, 2012

Sign: Shawn A. Sneddon

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CALIBRATION CERTIFICATE

Form No. 770, Jun 2008

a xylem brand

Certificate No: 3853_1023E_40413 **Product: O2 Sensing Foil PSt3**

Batch No: 1023E **Calibration Date: 23 August 2010**

Calibration points and phase readings (degrees)

Index	Temperature (°C)	Phase Reading (°)	Oxygen reference (µM)	Index	Temperature (°C)	Phase Reading (°)	Oxygen reference (µM)
0	3.235	63.147	0.00	32	39.382	33.884	85.70
1	3.229	58.878	18.96	33	39.372	25.748	179.15
2	3.231	55.875	37.91	34	39.372	22.226	257.16
3	3.237	48.935	94.76	35	6.653	62.918	0.00
4	3.231	41.229	189.56	36	6.651	58.425	17.42
5	3.233	32.081	396.16	37	6.652	55.336	34.85
6	3.239	27.938	568.55	38	6.655	48.150	87.11
7	10.071	62.690	0.00	39	6.650	40.324	174.24
8	10.072	57.973	15.89	40	6.656	31.274	364.12
9	10.072	54.798	31.78	41	6.658	27.164	522.63
10	10.073	47.366	79.46	42	14.974	62.331	0.00
11	10.069	39.420	158.93	43	14.982	57.348	14.30
12	10.079	30.467	332.09	44	14.979	54.028	28.59
13	10.077	26.389	476.70	45	14.980	46.388	71.48
14	19.878	61.973	0.00	46	14.983	38.401	142.96
15	19.891	56.723	12.70	47	14.986	29.569	298.74
16	19.885	53.258	25.40	48	14.986	25.584	428.83
17	19.888	45.410	63.50	49	24.774	61.602	0.00
18	19.896	37.381	126.98	50	24.779	56.071	11.54
19	19.893	28.671	265.40	51	24.779	52.471	23.08
20	19.895	24.780	380.95	52	24.781	44.482	57.71
21	29.669	61.232	0.00	53	24.781	36.457	115.42
22	29.668	55.420	10.38	54	24.781	27.882	241.22
23	29.673	51.684	20.77	55	24.778	24.088	346.27
24	29.675	43.554	51.92	56	34.531	60.691	0.00
25	29.666	35.533	103.85	57	34.529	54.718	9.48
26	29.669	27.092	217.04	58	34.528	50.887	18.95
27	29.661	23.396	311.59	59	34.526	42.675	47.39
28	39.393	60.151	0.00	60	34.524	34.709	94.78
29	39.390	54.017	8.57	61	34.521	26.420	198.09
30	39.383	50.091	17.14	62	34.517	22.811	284.37
31	39.377	41.797	42.86	63			

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Giving these coefficients

Index	FoilCoefA	FoilCoefB
0	-3.604788E-06	-7.934825E-07
1	-6.843659E-06	3.792412E+03
2	1.839203E-03	-4.935136E+01
3	-1.984442E-01	6.335210E-01
4	8.121225E-04	-1.085494E-02
5	-1.220733E-06	1.218953E-04
6	1.086894E+01	-7.344973E-07
7	-7.093984E-02	0.000000E+00
8	2.810467E-04	0.000000E+00
9	-1.328850E-06	0.000000E+00
10	-3.093750E+02	0.000000E+00
11	2.923687E+00	0.000000E+00
12	-2.222011E-02	0.000000E+00
13	2.146338E-04	0.000000E+00

Using the following monomial degrees

Index	FoilPolyDegT	FolyPolyDegO
0	1	4
1	0	5
2	0	4
3	0	3
4	1	3
5	2	3
6	0	2
7	1	2
8	2	2
9	3	2
10	0	1
11	1	1
12	2	1
13	3	1
14	4	1
15	0	0
16	1	0
17	2	0
18	3	0
19	4	0
20	5	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0