



a xylem brand

# CALIBRATION CERTIFICATE

Form No 830, March 2021

INSTALLED IN 1029

4/24/24

Certificate no: 4831\_1127\_00217746  
Foil batch no: 2310M

Product: 4831  
Calibration date: 13.08.2023

Serial no: 1127  
Page 1 of 2

Index	Temperature reference(°C)	[O2] Reference(µM)	Temperature raw data(mV)	Phase reading(°)
0	30.254	0.98	-59.493	59.82
1	20.282	0.55	256.000	60.72
2	10.223	0.41	572.493	61.50
3	0.871	0.72	843.253	62.14
4	0.948	20.37	841.180	59.43
5	1.121	38.50	836.447	57.17
6	1.192	59.26	834.500	54.84
7	1.202	107.44	834.233	50.27
8	1.292	142.33	831.773	47.51
9	1.309	214.31	831.307	42.93
10	1.324	321.78	830.900	37.93
11	1.347	410.13	830.280	34.93
12	1.331	511.76	830.713	32.24
13	10.582	15.47	561.440	58.61
14	10.402	30.92	566.960	55.87
15	10.345	47.23	568.727	53.35
16	10.306	79.85	569.900	49.12
17	10.293	117.81	570.307	45.18
18	10.223	165.02	572.460	41.36
19	10.209	246.68	572.900	36.47
20	10.187	328.17	573.547	32.98
21	10.150	411.15	574.673	30.34
22	20.433	11.78	251.160	57.71
23	20.280	24.65	256.060	54.53
24	20.262	39.75	256.660	51.41
25	20.243	63.97	257.300	47.26
26	20.246	92.67	257.193	43.33
27	20.249	133.01	257.100	39.10
28	20.276	196.83	256.220	34.37
29	20.280	262.22	256.100	30.97
30	20.288	328.75	255.800	28.43
31	30.465	9.63	-66.013	56.61
32	30.446	20.29	-65.400	53.14
33	30.444	31.97	-65.387	49.95
34	30.449	53.28	-65.500	45.24
35	30.456	74.68	-65.707	41.56
36	30.461	109.96	-65.900	37.00
37	30.465	163.52	-66.000	32.27
38	30.482	215.86	-66.520	29.14
39	30.499	272.52	-67.060	26.68

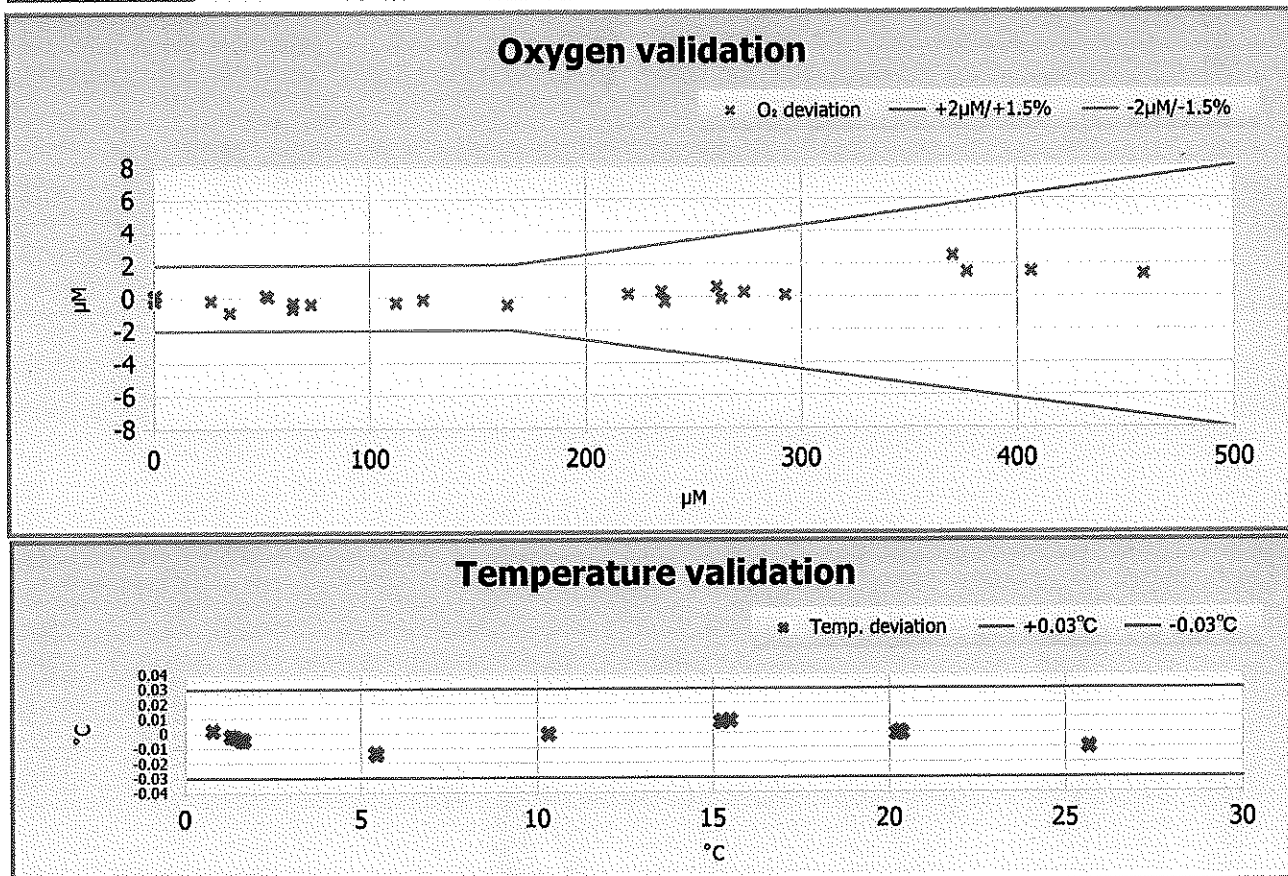
Certificate no: 4831\_1127\_00217746  
Foil batch no: 2310M

Product: 4831  
Calibration date: 13.08.2023

Serial no: 1127  
Page 2 of 2

### Giving these coefficients

Index	0	1	2	3	4	5	6
SVUFoilCoef	2.78155E-03	1.17441E-04	2.38753E-06	1.59143E02	-2.07467E-01	-3.55619E01	3.18457E00
TempCoef	2.83354E01	-3.20166E-02	3.42501E-06	-4.83594E-09	0.00000E00	0.00000E00	



### With following settings

Index	0	1	2	3
PhaseCoef	-1.15200E00	1.00000E00	0.00000E00	0.00000E00

Index	0 (Offset)	1 (Slope)
ConcCoef	0.00000E00	1.00000E00
Salinity	0.00	

Firmware Version	5.3.1
------------------	-------

Date:13.08.2023

*Tor-Ove Kvalvaag*  
Tor-Ove Kvalvaag, Calibration Engineer

**Program Version:** V5.3.1

**Product:** Oxygen Optode 4831IW

**Serial No:** 1127

**Visual and Mechanical Checks:**

- 1.1 Soldering quality
- 1.2 Visual surface
- 1.3 Galvanic isolation between housing and electronics

**Current Drain and Voltages:**

2.1	Average current drain at 0.5 Hz sampling (Max.: 33 mA)	22.2	mA
2.2	CANBus Current drain at 0.5 Hz sampling (Max.: 33 mA)		mA
2.3	Current drain in sleep (Max.: 270 $\mu$ A)	257	$\mu$ A
2.4	CANBus Current drain in sleep (Max.: 180 $\mu$ A)		$\mu$ A
2.5	DSP IO voltage, J4.18 (3.3 $\pm$ 0.15V)	3.29	V
2.6	DSP Core voltage, J4.17(1.8 $\pm$ 0.05 V)	1.80	V
2.7	Excitation driver voltage, C4 Analog Board (4.3 $\pm$ 0.1 V)	4.29	V

**Performance test:**

	Channel:	Blue	Red
3.1	Average of Receiver readings (0 $\pm$ 150mV)	4.6 mV	1.6 mV
3.2	Standard Deviation of Receiver readings (Max.: 45mV/10mV)	2.32 mV	0.33 mV
3.3	Amplitude measurement with non-fluorescence foil (<60mV/650-1200mV)	10.2 mV	831.7 mV
3.4	CANBus Output test		

**Function test from 0 to 40°C:**

	Channel:	Blue	Red
4.1	Minimum amplitude measurement (Blue: >550 mV, Red >550 mV)	764.8 mV	650.2 mV
4.2	Maximum amplitude measurement (Blue: <1600 mV, Red <1400 mV)	1206.5 mV	1057.3 mV
4.3	Minimum phase measurement (Blue: >32°, Red: >3°)	33.94 °	7.48 °
4.4	Maximum phase measurement (Blue: <45°, Red: <10°)	41.27 °	8.06 °
4.5	Maximum standard deviation of Phase measurement: (< 0.07°)	0.05 °	0.04 °
4.6	Minimum temperature raw data measurement: (<-200 mV)		-397.7 mV
4.7	Maximum temperature raw data measurement: (>450 mV)		795 mV

Date: 01 Sep 2023

Sign:

*Laila A. Skålnes*

Laila Skålnes, Production Engineer



a xylem brand

# PRESSURE CERTIFICATE

Form No. 667, Sept 2009

**Product:** Oxygen Optode 4831IW

**Certificate No:** 2184852601127

**Serial No:** 1127

**Date:** 10.08.2023

This is to certify that this product has been pressure tested with the following instrument, and we confirm that no irregularities were found during the test:

Autoklav 800 bar – sn: 0210005

**Pressure readings:**

Pressure (Bar)	Pressure time (hour)
300	1

Date: 01 Sep 2023

Sign:

Laila A. Skålnes

Laila Skålnes, Production Engineer

Product Name	4831	1127	Oxygen Optode												
Product Number	4831	1127	4831												
Serial Number	4831	1127	1127												
SW ID	4831	1127	1940031												
ersion	4831	1127	5	3	1										
Node Description			4831	1127	Oxygen Optode #1127										
Owner	4831	1127													
Salinity[PSU]	4831	1127	35.00												
PhaseCoef	4831	1127	-1.152000E+00 1.000000E+00 0.000000E+00 0.000000E+00												
FoilID	4831	1127	2310M												
FoilCoefA	4831	1127	-4.429471E-06 -9.934120E-06 2.539297E-03 -2.623883E-01												
9.495663E-04	-1.385170E-06	1.384506E+01	-7.820107E-02 2.077827E-04 1.951742E-07												
-3.815226E+02	2.968714E+00	-4.551691E-03	-3.449760E-04												
FoilCoefB	4831	1127	5.200052E-06 4.547302E+03 -4.453296E+01 -1.936771E-01												
2.230949E-02	-4.134188E-04	1.497347E-06	0.000000E+00 0.000000E+00 0.000000E+00												
0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00 0.000000E+00												
FoilPolyDegT	4831	1127	1	0	0	0	1	2	0	1	2				
3	0	1	2	3	4	0	1	2	3	4	5				
0	0	0	0	0	0	0	0	0	0	0	0				
FoilPolyDegO	4831	1127	4	5	4	3	3	3	2	2	2				
2	1	1	1	1	0	0	0	0	0	0	0				
0	0	0	0	0	0	0	0	0	0	0	0				
SVUFoilCoef	4831	1127	2.781554E-03 1.174408E-04 2.387533E-06 1.591431E+02												
-2.074667E-01	-3.556189E+01	3.184566E+00													
ConcCoef	4831	1127	0.000000E+00 1.000000E+00												
NomAirPress[hPa]		4831	1127	1013.25											
NomAirMix	4831	1127	0.20946												
CalDataSat[Deg]	4831	1127	0.00 0.00												
CalDataAPress[hPa]		4831	1127	1013.250											
CalDataZero[Deg]		4831	1127	0.000 0.000											
Mode	4831	1127	Smart Sensor Terminal												
Enable Sleep	4831	1127	No												
Enable Polled Mode		4831	1127	No											
Enable Text	4831	1127	No												
Enable Decimalformat		4831	1127	Yes											
Analog TempLimit[Deg.C]	4831	1127	-5.00 35.00												
Analog Conclimit[uM]		4831	1127	0.00 800.00											
Analog SatLimit[%]		4831	1127	0.00 200.00											
Analog PhaseLimit[Deg.]	4831	1127	10.00 70.00												
Analog Output	4831	1127	O2Concentration												
Analog1 Coef	4831	1127	0.000000E+00 1.000000E+00												
Analog2 Coef	4831	1127	0.000000E+00 1.000000E+00												
Enable AirSaturation		4831	1127	Yes											
Enable O2Content		4831	1127	No											
Enable Rawdata	4831	1127	Yes												
Enable Temperature		4831	1127	Yes											
Enable HumidityComp		4831	1127	Yes											
Enable SVUformula		4831	1127	Yes											
Interval[s]	4831	1127	2.000												
Location	4831	1127													
Geographic Position		4831	1127	60.323605,5.37225											
Vertical Position		4831	1127												
Reference	4831	1127													