

**Calibration Data Sheet: pH & DO optodes Lot. No. 1302  
(HC filter sets)**

Please enter these **calibration parameters** and the **Lot.-No.** in the BioLection software!

Date of calibration: 2013/02/04

**pH calibration parameters**

Buffer	150 mM Na-Phosphate buffer, <i>CertiPUR</i> buffer: pH 3.00, pH 4.01, pH 9.00, pH 10.00 (25°C) (20 point calibration)						
Temperature	20°C	21°C	22°C	23°C	24°C	25°C	26°C
φ min	56.36	56.30	56.24	56.18	56.12	56.06	56.00
φ max	15.24	15.24	15.24	15.24	15.24	15.24	15.24
dpH	0.57	0.57	0.57	0.57	0.57	0.57	0.57
pHo	6.34	6.33	6.32	6.31	6.30	6.29	6.29
Temperature	27°C	28°C	29°C	30°C	31°C	32°C	33°C
φ min	55.95	55.89	55.83	55.77	55.71	55.65	55.59
φ max	15.23	15.23	15.23	15.23	15.23	15.23	15.23
dpH	0.57	0.57	0.57	0.57	0.57	0.57	0.57
pHo	6.28	6.27	6.26	6.25	6.24	6.23	6.22
Temperature	34°C	35°C	36°C	37°C	38°C	39°C	40°C
φ min	55.53	55.48	55.42	55.36	55.30	55.24	55.18
φ max	15.23	15.23	15.23	15.23	15.23	15.23	15.23
dpH	0.57	0.57	0.57	0.57	0.56	0.56	0.56
pHo	6.21	6.20	6.19	6.18	6.18	6.17	6.16

**Sensor properties**

Dynamic range	pH 4.00 - 8.40
Resolution	Up to 0.01 pH (software)
Accuracy	± 0.1 pH at pH 4.30 - 5.10; ± 0.02 pH at pH 5.10 – 7.00; ± 0.2 pH at pH 7.00 - 7.85 (batch calibration)
Response time (t90)	At 25 °C < 30 s
Drift at pH = 7	< 0.005 pH per day (sampling interval of 1 min)
Temperature range	5 °C to 50 °C
Compatibility	Aqueous solutions, ethanol, methanol (max. 10 % v/v)
Cross-sensitivity	Reduced to ionic strength (salinity); a high concentration of fluorescent molecules in the visible range can interfere
Basic material	pH sensor HP8-1142-08_3 (at least stable for 2 days of cultivation)

**calibration**

Buffer	<i>CertiPUR</i> Reference Material Buffer solutions Set (pH 3.00 ± 0.01 / pH 4.01 ± 0.015 / pH 9.00 ± 0.01 / pH 10.00 ± 0.03, 20 °C); 150 mM Na-Phosphate buffer (16 solutions)
Settings	BioLector protocol = pH-DO-calibration, T = 20-40 °C, 800 rpm, 1000 µL/well, shaking diameter 3 mm, MTP-type = Flowerplate (MTP-48-BOH)
Calibration device	BioLector CX_1102AB (BL068)
Calibration phase offset	pH 256.3 (pH Ser.3053-hc, gain 21)

**Calibration Data Sheet: pH & DO optodes Lot. No. 1302  
(HC filter sets)**

Please enter these **calibration parameters** and the **Lot.-No.** in the BioLection software!

Date of calibration: 2013/02/04

**DO calibration parameters**

Buffer	Sulfite system						
Temperature	20°C	21°C	22°C	23°C	24°C	25°C	26°C
ϕ cal0	72.12	72.21	72.31	72.40	72.49	72.59	72.68
ϕ cal100	46.12	45.89	45.66	45.43	45.20	44.97	44.75
Temperature	27°C	28°C	29°C	30°C	31°C	32°C	33°C
ϕ cal0	72.77	72.86	72.96	73.05	73.14	73.24	73.33
ϕ cal100	44.52	44.29	44.06	43.83	43.60	43.37	43.15
Temperature	34°C	35°C	36°C	37°C	38°C	39°C	40°C
ϕ cal0	73.42	73.51	73.61	73.70	73.79	73.88	73.98
ϕ cal100	42.92	42.69	42.46	42.23	42.00	41.77	41.54

**Sensor properties**

Dynamic range	0 - 100 % air saturation (a.s.)
Resolution	Up to 0.1 % O <sub>2</sub> (software)
Accuracy	± 2 % dissolved oxygen (batch calibration)
Drift at 0% oxygen	< 0.03% O <sub>2</sub> within 30 days (sampling interval of 1 min)
Response time (t <sub>90</sub> )	< 30 s
Temperature range	0 – 50°C
Cross-sensitivity to	Organic solvents, such as acetone, toluene, chloroform or methylene chloride Chlorine gas
Basic material	Oxygen sensor PSt3-HG-1113-01_3 (at least stable for 2 days of cultivation)

**calibration**

Calibration	0.5 M Sulfite system (Two-point calibration with oxygen-free environment (nitrogen, sodium sulfite) and air-saturated environment)
Settings	BioLector protocol = pH-DO-calibration, T = 20-40 °C, 800 rpm, 1000 µL/well, shaking diameter 3 mm, MTP-type = Flowerplate (MTP-48-BOH)
Calibration device	BioLector CX_1102AB (BL068)
Calibration phase offset	DO 332.5 (DO Ser.4053-hc, gain 43)

**Sterilization procedure**

Sterilization	Gamma irradiation (15 kGy)
BGS-certificate No	33101381
Date of sterilization	2013/01/30