

**Calibration Data Sheet: pH & DO optodes Lot. No. 1304
(HC filter sets)**

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

Date of calibration: 2013/02/28

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	56.69	56.63	56.57	56.52	56.46	56.40	56.34
ϕ max	14.96	14.96	14.96	14.96	14.96	14.96	14.96
dpH	0.58	0.58	0.58	0.58	0.58	0.58	0.58
pHo	6.29	6.28	6.27	6.26	6.25	6.24	6.24
Temperature	27°C	28°C	29°C	30°C	31°C	32°C	33°C
ϕ min	56.29	56.23	56.17	56.12	56.06	56.00	55.95
ϕ max	14.96	14.96	14.96	14.96	14.96	14.96	14.96
dpH	0.58	0.58	0.58	0.58	0.58	0.58	0.58
pHo	6.23	6.22	6.21	6.20	6.19	6.18	6.18
Temperature	34°C	35°C	36°C	37°C	38°C	39°C	40°C
ϕ min	55.89	55.83	55.78	55.72	55.66	55.60	55.55
ϕ max	14.96	14.96	14.96	14.96	14.96	14.96	14.96
dpH	0.58	0.58	0.58	0.58	0.58	0.58	0.58
pHo	6.17	6.16	6.15	6.14	6.13	6.12	6.12

Sensor properties

Dynamic range	pH 4.00 - 8.35
Resolution	Up to 0.01 pH (software)
Accuracy	± 0.1 pH at pH 4.20 - 5.00; ± 0.02 pH at pH 5.00 – 7.00; ± 0.2 pH at pH 7.00 - 7.80 (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 HP8-1248-01 (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)

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DO calibration parameters

Buffer	Sulfite system						
Temperature	20°C	21°C	22°C	23°C	24°C	25°C	26°C
ϕ cal0	72.21	72.30	72.38	72.46	72.54	72.63	72.71
ϕ cal100	46.13	45.89	45.65	45.51	45.17	44.93	44.45
Temperature	27°C	28°C	29°C	30°C	31°C	32°C	33°C
ϕ cal0	72.79	72.87	72.96	73.04	73.12	73.21	73.29
ϕ cal100	44.45	44.21	43.97	43.73	43.49	43.26	43.02
Temperature	34°C	35°C	36°C	37°C	38°C	39°C	40°C
ϕ cal0	73.37	73.45	73.54	73.62	73.70	73.78	73.87
ϕ cal100	42.78	42.54	42.30	42.06	41.82	41.58	41.34

Sensor properties

Dynamic range	0 - 100 % air saturation (a.s.)
Resolution	Up to 0.1 % O ₂ (software)
Accuracy	± 2 % dissolved oxygen (batch calibration)
Drift at 0% oxygen	< 0.03% O ₂ within 30 days (sampling interval of 1 min)
Response time (t ₉₀)	< 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	33102608
Date of sterilization	2013/02/21