Calibration Data Sheet: pH & DO optodes Lot. No. 1301
(HC filter sets)

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

Date of calibration: 2013/01/17

pH calibration parameters

Buffer	150 mM Na-Phosphate buffer, *CertiPUR* 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	56.83	56.77	56.72	56.67	56.61	56.56	56.51
ϕ max	16.39	16.40	16.40	16.40	16.40	16.40	16.40
dpH	0.60	0.60	0.60	0.60	0.60	0.60	0.60
pHo	6.37	6.36	6.35	6.35	6.34	6.33	6.32
Temperature	**27°C**	**28°C**	**29°C**	**30°C**	**31°C**	**32°C**	**33°C**
ϕ min	56.45	56.40	56.35	56.29	56.24	56.19	56.13
ϕ max	16.40	16.40	16.40	16.40	16.40	16.40	16.40
dpH	0.60	0.59	0.59	0.59	0.59	0.59	0.59
pHo	6.31	6.30	6.29	6.28	6.27	6.26	6.25
Temperature	**34°C**	**35°C**	**36°C**	**37°C**	**38°C**	**39°C**	**40°C**
ϕ min	56.08	56.03	55.97	55.92	55.87	55.81	55.76
ϕ max	16.40	16.40	16.40	16.40	16.40	16.40	16.41
dpH	0.59	0.59	0.59	0.59	0.59	0.59	0.59
pHo	6.24	6.23	6.22	6.22	6.21	6.20	6.19

Sensor properties

Dynamic range	pH 4.00 - 8.40
Resolution	Up to 0.01 pH (software)
Accuracy	± 0.1 pH at pH 4.35 - 5.20; ± 0.02 pH at pH 5.20 – 6.95; ± 0.2 pH at pH 6.95 - 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	CertiPUR 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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Date of calibration: 2013/01/17

DO calibration parameters

Buffer	Sulfite system						
Temperature	**20°C**	**21°C**	**22°C**	**23°C**	**24°C**	**25°C**	**26°C**
ϕ cal0	71.21	71.32	71.42	71.53	71.63	71.74	71.84
ϕ cal100	46.13	45.91	45.70	45.48	45.26	45.04	44.83
Temperature	**27°C**	**28°C**	**29°C**	**30°C**	**31°C**	**32°C**	**33°C**
ϕ cal0	71.95	72.05	72.15	72.26	72.36	72.47	72.57
ϕ cal100	44.61	44.39	44.18	43.96	43.74	43.53	43.31
Temperature	**34°C**	**35°C**	**36°C**	**37°C**	**38°C**	**39°C**	**40°C**
ϕ cal0	72.68	72.78	72.89	72.99	73.10	73.20	73.31
ϕ cal100	43.09	42.88	42.66	42.44	42.23	42.01	41.79

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 (t90)	< 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	33100692
Date of sterilization	2013/01/17