Calibration Data Sheet: pH and DO optodes Lot No. 1708 (HP8 & PSt3)
(BioLector® II/Pro calibration for HC filter sets)

from microreactor to process

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

pH calibration parameters Lot No. 1708 (BioLector® II/Pro, filter module ID-202)

Temperature	**20°C**	**21°C**	**22°C**	**23°C**	**24°C**	**25°C**	**26°C**
ϕ min	66.07	65.96	65.85	65.75	65.64	65.53	65.43
ϕ max	20.06	20.04	20.02	19.99	19.97	19.95	19.93
dpH	0.51	0.51	0.51	0.51	0.51	0.51	0.51
pH_0	6.66	6.66	6.65	6.64	6.64	6.63	6.63
Temperature	**27°C**	**28°C**	**29°C**	**30°C**	**31°C**	**32°C**	**33°C**
ϕ min	65.32	65.22	65.11	65.00	64.90	64.79	64.68
ϕ max	19.91	19.89	19.86	19.84	19.82	19.80	19.78
dpH	0.51	0.51	0.51	0.51	0.51	0.51	0.51
pH_0	6.62	6.61	6.61	6.60	6.60	6.59	6.58
Temperature	**34°C**	**35°C**	**36°C**	**37°C**	**38°C**	**39°C**	**40°C**
ϕ min	64.58	64.47	64.37	64.26	64.15	64.05	63.94
ϕ max	19.76	19.73	19.71	19.69	19.67	19.65	19.63
dpH	0.51	0.51	0.51	0.51	0.51	0.51	0.51
pH_0	6.58	6.57	6.57	6.56	6.55	6.55	6.54

pH sensor properties

Dynamic range	pH 4.00 - 8.70
Resolution	Up to 0.01 pH (software)
Accuracy	± 0.25 pH at pH 4.45- 5.10; ± 0.1 pH at pH 5.10 – 7.55; ± 0.25 pH at pH 7.55 - 8.20 (batch calibration)
Response time (t90)	At 25 °C < 30 s
Drift at pH = 7	< 0.005 pH per day (sampling interval of 6 min)
Temperature range	5 °C to 50 °C
Compatibility	Aqueous solutions, ethanol, methanol (max. 5 % v/v)
Sensor stability	sensor material can be degraded by some microorganisms
Cross-sensitivity	Reduced to ionic strength (salinity); high concentration of fluorescent molecules in the visible range can interfere (GFP, (e)YFP); complex media can cause a pH-shift (peptone, yeast extract)
Basic material	pH sensor HP8-1427-02_3 (at least stable for 7 days with CertiPUR-buffer) **pH sensors are light-sensitive; please protect them from direct light!**

pH calibration

Buffer	CertiPUR Reference Material Buffer solutions Set (pH 3.00 ± 0.01 / pH 4.00 ± 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	Hardware ID: BL-02-000F-0033
Calibration phase offset	pH -1.83(pH Ser.3144-RD, gain 7)
Date of calibration	2017/05/16

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

DO calibration parameters Lot No. 1708 (BioLector® II/Pro, filter module ID-203)

Temperature	20°C	21°C	22°C	23°C	24°C	25°C	26°C
ϕ cal0	72.82	72.75	72.68	72.61	72.54	72.47	72.40
ϕ cal100	44.21	43.99	43.77	43.56	43.34	43.12	42.90

Temperature	27°C	28°C	29°C	30°C	31°C	32°C	33°C
ϕ cal0	72.33	72.26	72.19	72.12	72.05	71.98	71.91
ϕ cal100	42.69	42.47	42.25	42.03	41.82	41.60	41.38

Temperature	34°C	35°C	36°C	37°C	38°C	39°C	40°C
ϕ cal0	71.84	71.77	71.70	71.63	71.56	71.49	71.42
ϕ cal100	41.17	40.95	40.73	40.51	40.30	40.08	39.86

DO sensor properties

Dynamic range	0 - 100 % air saturation (a.s.)
Resolution	Up to 0.1 % O_2 (software)
Accuracy	± 5% dissolved oxygen (batch calibration)
Drift at 0% oxygen	< 0.5% O_2 per day (sampling interval of 6 min)
Response time (t90)	< 30 s
Temperature range	5 – 50°C
Sensor stability	sensor material can be degraded by some microorganisms
Cross-sensitivity to	Organic solvents, such as acetone, toluene, chloroform or methylene chloride, Chlorine gas; high concentration of fluorescent molecules in the visible range can interfere (mCherry, tdTomato, dsRed, nile red); complex media can cause a DO-shift
Basic material	Oxygen sensor PSt3-HG-1426-03_3 (at least stable for 7 days with CertiPUR-buffer) **DO sensors are light-sensitive; please protect them from direct light!**

DO calibration

Calibration	0.5 M Sulfite system (Two-point calibration with oxygen-free environment (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	Hardware ID: BL-02-000F-0033
Calibration phase offset	DO -360.85 (DO Ser.4154-RD, gain 7)
Date of calibration	2017/05/16

Sterilization procedure

Sterilization	Gamma irradiation (15 kGy)
BGS-certificate No	367465
Date of sterilization	2017/05/09

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