

DASGIP BioLector

Calibration Data Sheet for *pH & DO optodes*

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

Lot.-No.: 1105

Filter: STD

Date of calibration: 2011/04/14

pH calibration parameters

| Buffer | 150 mM Na-Phosphate buffer, <i>CertiPUR</i> buffer pH 4.01 (25°C), <i>CertiPUR</i> buffer pH 10.00 (25°C) (18 point calibration) | | | | | | |
|-------------|---|-------|-------|-------|-------|-------|-------|
| Temperature | 20°C | 21°C | 22°C | 23°C | 24°C | 25°C | 26°C |
| ϕ min | 53.46 | 53.41 | 53.35 | 53.30 | 53.24 | 53.19 | 53.13 |
| ϕ max | 15.71 | 15.68 | 15.64 | 15.61 | 15.57 | 15.54 | 15.51 |
| dpH | 0.53 | 0.53 | 0.53 | 0.54 | 0.54 | 0.54 | 0.54 |
| pHo | 6.09 | 6.08 | 6.07 | 6.06 | 6.05 | 6.04 | 6.03 |
| Temperature | 27°C | 28°C | 29°C | 30°C | 31°C | 32°C | 33°C |
| ϕ min | 53.08 | 53.02 | 52.97 | 52.91 | 52.86 | 52.80 | 52.75 |
| ϕ max | 15.47 | 15.44 | 15.40 | 15.37 | 15.33 | 15.30 | 15.27 |
| dpH | 0.54 | 0.54 | 0.54 | 0.54 | 0.54 | 0.55 | 0.55 |
| pHo | 6.02 | 6.01 | 6.00 | 5.99 | 5.98 | 5.97 | 5.96 |
| Temperature | 34°C | 35°C | 36°C | 37°C | 38°C | 39°C | 40°C |
| ϕ min | 52.69 | 52.64 | 52.58 | 52.53 | 52.47 | 52.42 | 52.36 |
| ϕ max | 15.23 | 15.20 | 15.16 | 15.13 | 15.09 | 15.06 | 15.03 |
| dpH | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| pHo | 5.95 | 5.94 | 5.93 | 5.92 | 5.91 | 5.90 | 5.89 |

Sensor properties

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|---------------------|--|
| Dynamic range | pH 4.5-7.8 |
| Resolution | Up to 0.01 pH (software) |
| Accuracy | ± 0.10 pH (pH 5-7.5); ± 0.25 pH (> pH 7.5) (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 HP8-0919-01 |

Calibration

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|--------------------------|---|
| Buffer | CertiPUR Reference Material Buffer solutions Set 2 Lot No.: HC701006 (pH 4.01 ± 0.015 / pH 10.00 ± 0.03, 25°C); 150 mM Na-Phosphate buffer (16 solutions) |
| Settings | BioLector protocol = pH-DO-calibration, T = 20-40°C, 1000 rpm, 1000 µL/well, shaking diameter 3 mm, MTP-type = Flowerplate (MTP-48-BOH) |
| Calibration device | BioLector CX_054290 (BL019) |
| Calibration phase offset | pH 255.6 (pH(p) Ser.0086) |

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Lot.-No.: 1105
Filter: STD

Date of calibration: 2011/04/14

DO calibration parameters

| Buffer | Sulfite system | | | | | | |
|--------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Temperature | 20°C | 21°C | 22°C | 23°C | 24°C | 25°C | 26°C |
| ϕ cal0 | 66.12 | 66.09 | 66.05 | 66.01 | 65.97 | 65.93 | 65.89 |
| ϕ cal100 | 38.77 | 38.54 | 38.32 | 38.10 | 37.87 | 37.65 | 37.42 |
| Temperature | 27°C | 28°C | 29°C | 30°C | 31°C | 32°C | 33°C |
| ϕ cal0 | 65.85 | 65.81 | 65.77 | 65.73 | 65.69 | 65.66 | 65.62 |
| ϕ cal100 | 37.20 | 36.97 | 36.75 | 36.53 | 36.30 | 36.08 | 35.85 |
| Temperature | 34°C | 35°C | 36°C | 37°C | 38°C | 39°C | 40°C |
| ϕ cal0 | 65.58 | 65.54 | 65.50 | 65.46 | 65.42 | 65.38 | 65.34 |
| ϕ cal100 | 35.63 | 35.40 | 35.18 | 34.95 | 34.73 | 34.51 | 34.28 |

Sensor properties

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|----------------------|--|
| 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-0938-01 |

Calibration

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|--------------------------|---|
| 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, 1000 rpm, 1000 µL/well, shaking diameter 3 mm, MTP-type = Flowerplate (MTP-48-BOH) |
| Calibration device | BioLector CX_054290 (BL019) |
| Calibration phase offset | DO 332.3 (pO ₂ (p) Ser.0164) |

Sterilization procedure

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|-----------------------|----------------------------|
| Sterilization | Gamma irradiation (15 kGy) |
| BGS-certificate No | 301105208 |
| Date of sterilization | 2011/04/11 |