

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

**pH calibration parameters Lot No.2114221 (BioLector® XT, filter module ID-521)**

| Temperature     | 20°C  | 21°C  | 22°C  | 23°C  | 24°C  | 25°C  | 26°C  |
|-----------------|-------|-------|-------|-------|-------|-------|-------|
| φ min           | 70.07 | 69.97 | 69.86 | 69.75 | 69.65 | 69.54 | 69.44 |
| φ max           | 14.98 | 14.86 | 14.75 | 14.63 | 14.52 | 14.41 | 14.29 |
| dpH             | 0.76  | 0.76  | 0.76  | 0.76  | 0.76  | 0.76  | 0.76  |
| pH <sub>0</sub> | 6.45  | 6.45  | 6.44  | 6.44  | 6.43  | 6.42  | 6.42  |

| Temperature     | 27°C  | 28°C  | 29°C  | 30°C  | 31°C  | 32°C  | 33°C  |
|-----------------|-------|-------|-------|-------|-------|-------|-------|
| φ min           | 69.33 | 69.22 | 69.12 | 69.01 | 68.91 | 68.80 | 68.69 |
| φ max           | 14.18 | 14.06 | 13.95 | 13.83 | 13.72 | 13.61 | 13.49 |
| dpH             | 0.76  | 0.76  | 0.76  | 0.76  | 0.76  | 0.76  | 0.76  |
| pH <sub>0</sub> | 6.41  | 6.40  | 6.40  | 6.39  | 6.39  | 6.38  | 6.37  |

| Temperature     | 34°C  | 35°C  | 36°C  | 37°C  | 38°C  | 39°C  | 40°C  |
|-----------------|-------|-------|-------|-------|-------|-------|-------|
| φ min           | 68.59 | 68.48 | 68.38 | 68.27 | 68.17 | 68.06 | 67.95 |
| φ max           | 13.38 | 13.26 | 13.15 | 13.03 | 12.92 | 12.80 | 12.69 |
| dpH             | 0.76  | 0.76  | 0.76  | 0.76  | 0.76  | 0.76  | 0.76  |
| pH <sub>0</sub> | 6.37  | 6.36  | 6.36  | 6.35  | 6.34  | 6.34  | 6.33  |

**pH sensor properties**

|                     |                                                                                                                                                                                                 |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dynamic range       | pH 4.05 - 8.60                                                                                                                                                                                  |
| Resolution          | Up to 0.01 pH (software)                                                                                                                                                                        |
| Accuracy            | ± 0.25 pH at pH 4.75 - 5.15 ; ± 0.1 pH at pH 5.15 - 7.45 ; ± 0.25 pH at pH 7.45 - 7.90 (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 LG1-1939-01_2 (at least stable for 7 days with CertiPUR-buffer)<br><b>pH sensors are light-sensitive; please protect them from direct light!</b>                                      |

**pH calibration**

|                          |                                                                                                                                                                                |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Buffer                   | CertiPUR Reference Material Buffer solutions Set (pH 2.00 ± 0.02 / pH 3.00 ± 0.02 / pH 9.00 ± 0.03 / pH 10.00 ± 0.03, 20 °C); 150 mM Citrat-Na-Phosphate buffer (16 solutions) |
| Settings                 | BioLector protocol = MF_pH_DO_calibration_BOH2 ,T = 20-40 °C, 800 rpm, 1000 µL/well, shaking diameter 3 mm, MTP-type = Microfluidic Flower Plate (MTP-MF32C-BOH2)              |
| Calibration device       | Hardware ID: 03166164                                                                                                                                                          |
| Calibration phase offset | pH -360.45 (pH Ser. 3513, gain 8)                                                                                                                                              |
| Date of calibration      | 2021-10-19                                                                                                                                                                     |

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

**DO calibration parameters Lot No.2114221 (BioLector® XT, filter module ID-528)**

| Temperature | 20°C   | 21°C   | 22°C   | 23°C   | 24°C   | 25°C   | 26°C   |
|-------------|--------|--------|--------|--------|--------|--------|--------|
| A           | -1874  | -1840  | -1806  | -1772  | -1738  | -1704  | -1670  |
| B           | 14465  | 14197  | 13930  | 13663  | 13395  | 13128  | 12861  |
| C           | -12804 | -12562 | -12321 | -12079 | -11837 | -11595 | -11353 |

| Temperature | 27°C   | 28°C   | 29°C   | 30°C   | 31°C   | 32°C  | 33°C  |
|-------------|--------|--------|--------|--------|--------|-------|-------|
| A           | -1636  | -1602  | -1568  | -1534  | -1500  | -1466 | -1432 |
| B           | 12593  | 12326  | 12059  | 11791  | 11524  | 11257 | 10989 |
| C           | -11111 | -10870 | -10628 | -10386 | -10144 | -9902 | -9661 |

| Temperature | 34°C  | 35°C  | 36°C  | 37°C  | 38°C  | 39°C  | 40°C  |
|-------------|-------|-------|-------|-------|-------|-------|-------|
| A           | -1398 | -1364 | -1330 | -1296 | -1262 | -1228 | -1194 |
| B           | 10722 | 10455 | 10187 | 9920  | 9653  | 9385  | 9118  |
| C           | -9419 | -9177 | -8935 | -8693 | -8451 | -8210 | -7968 |

**DO sensor properties**

|                                  |                                                                                                                                                                                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dynamic range                    | 0 - 100 % oxygen                                                                                                                                                                                                                                    |
| Resolution                       | Up to 0.1 % O <sub>2</sub> (software)                                                                                                                                                                                                               |
| Accuracy                         | ± 5% dissolved oxygen (batch calibration)                                                                                                                                                                                                           |
| Drift at 0% oxygen               | < 0.5% O <sub>2</sub> per day (sampling interval of 6 min)                                                                                                                                                                                          |
| Response time (t <sub>90</sub> ) | < 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 RF-21160296 (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 = MF_pH_DO_calibration_BOH2 ,T = 20-40 °C, 800 rpm, 1000 µL/well, shaking diameter 3 mm, MTP-type = Microfluidic Flower Plate (MTP-MF32C-BOH2) |
| Calibration device       | Hardware ID: 03166164                                                                                                                                             |
| Calibration phase offset | DO -360.45 (DO Ser. 4452, gain 4)                                                                                                                                 |
| Date of calibration      | 2021-10-19                                                                                                                                                        |

**Sterilization procedure**

|                       |                           |
|-----------------------|---------------------------|
| Sterilization         | Beta irradiation (20 kGy) |
| BGS-certificate No    | 952124                    |
| Date of sterilization | 2021-10-05                |

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