

Supporting Information

Reliable and cheap dissolved oxygen sensing materials

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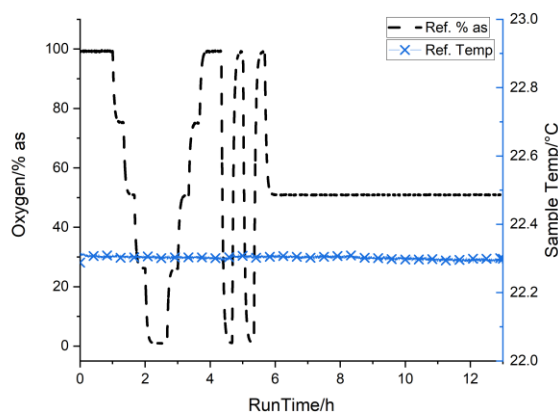
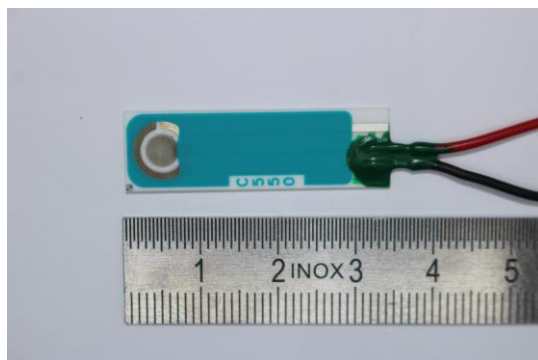
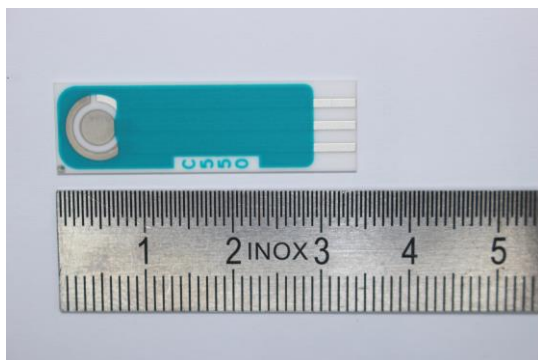


Fig. SI 1: Recorded air saturation for the mid-term measurement gas mixer protocol for air saturation control.



Fig. SI 2: Set-up of electrodes for chronoamperometric measurements with platinum wire couple on acrylic glass, fixed by lacquer (top left); screen-printed electrode before measurement (bottom left); screen-printed electrode soldered to copper wires and covered by lacquer with golden counter electrode after measurement (bottom right).



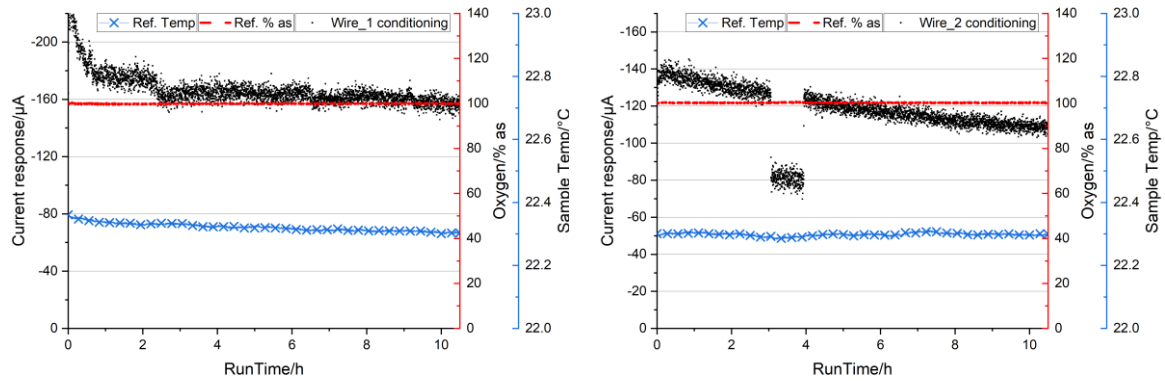


Fig. SI 3: Current response for chronoamperometric measurement in 1x PBS of Wire_1 (left) and Wire_2 (right) at 100 % air saturation for conditioning against a commercial dO₂ and temperature sensor.

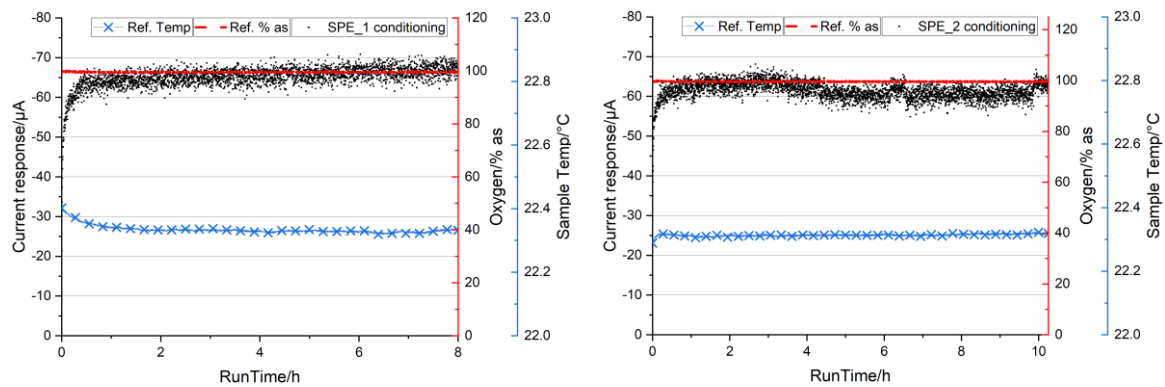


Fig. SI 4: Current response for chronoamperometric measurement in 1x PBS of SPE_1 (left) and SPE_2 (right) at 100 % air saturation for conditioning against a commercial dO₂ and temperature sensor.

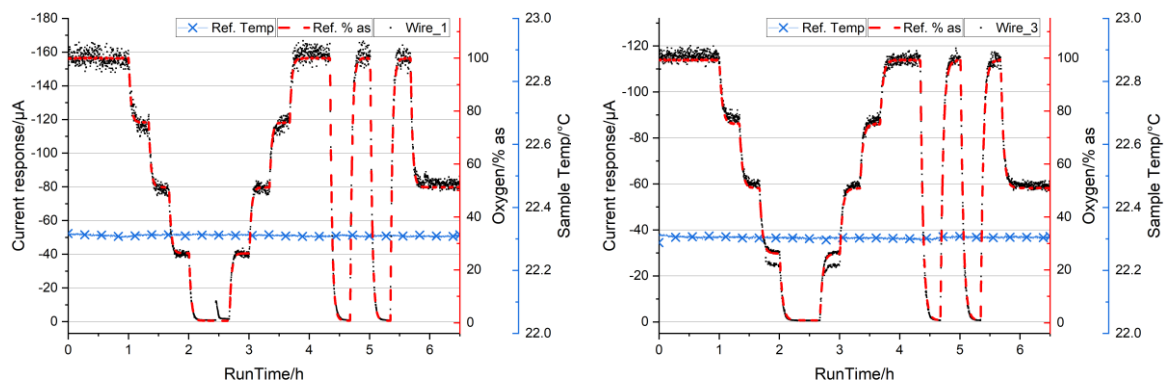


Fig. SI 5: Current response for chronoamperometric measurement in 1x PBS of Wire_1 (left) and Wire_3 (right) for different levels of air saturation against a commercial dO₂ and temperature sensor to characterize the sensor performance from the step responses.

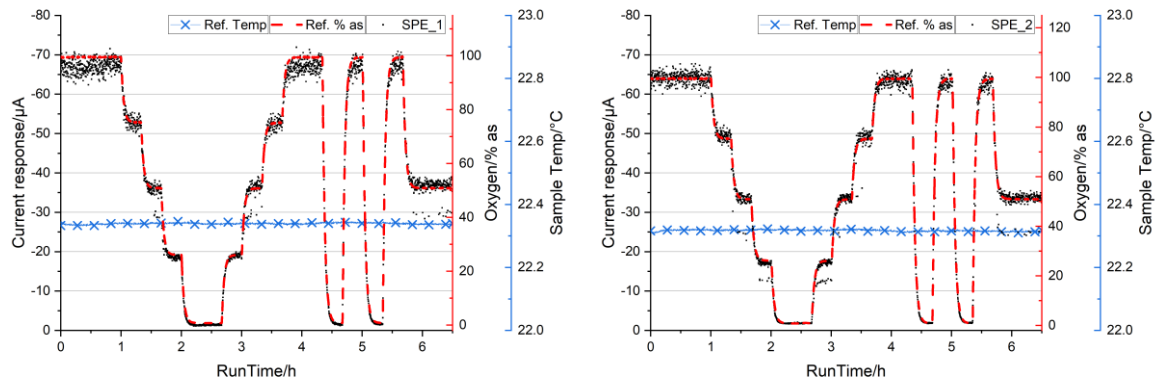


Fig. SI 6: Current response for chronoamperometric measurement in 1x PBS of SPE_1 (left) and SPE_2 (right) for different levels of air saturation against a commercial dO_2 and temperature sensor to characterize the sensor performance from the step responses.

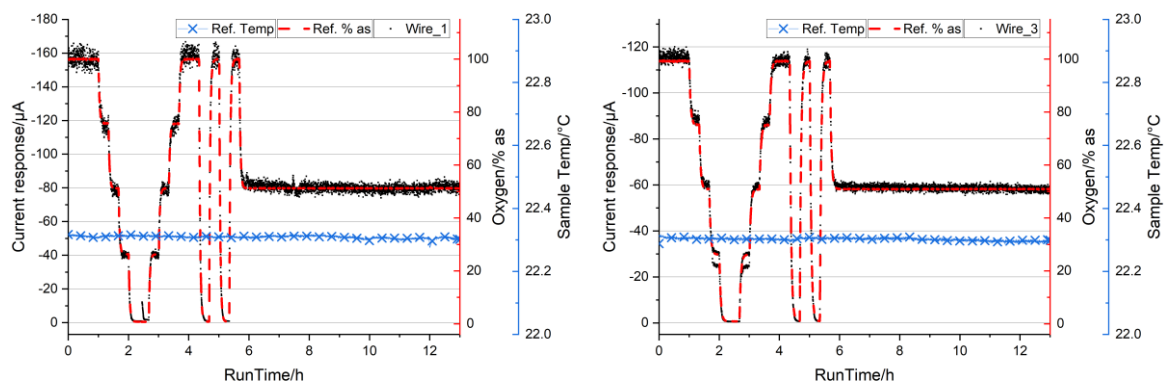


Fig. SI 7: Current response for the chronoamperometric mid-term measurements in 1x PBS of Wire_1 (left) and Wire_3 (right) for different levels of air saturation against a commercial dO_2 and temperature sensor.

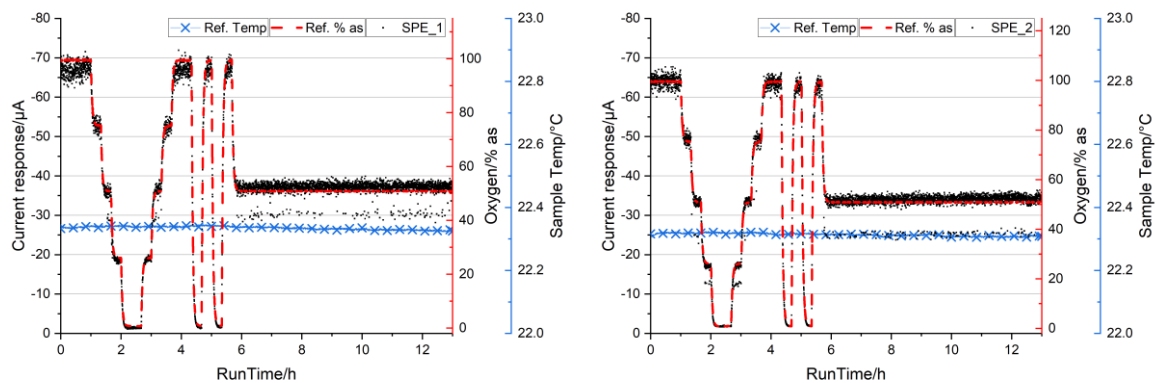


Fig. SI 8: Current response for the chronoamperometric mid-term measurements in 1x PBS of SPE_1 (left) and SPE_2 (right) for different levels of air saturation against a commercial dO_2 and temperature sensor.

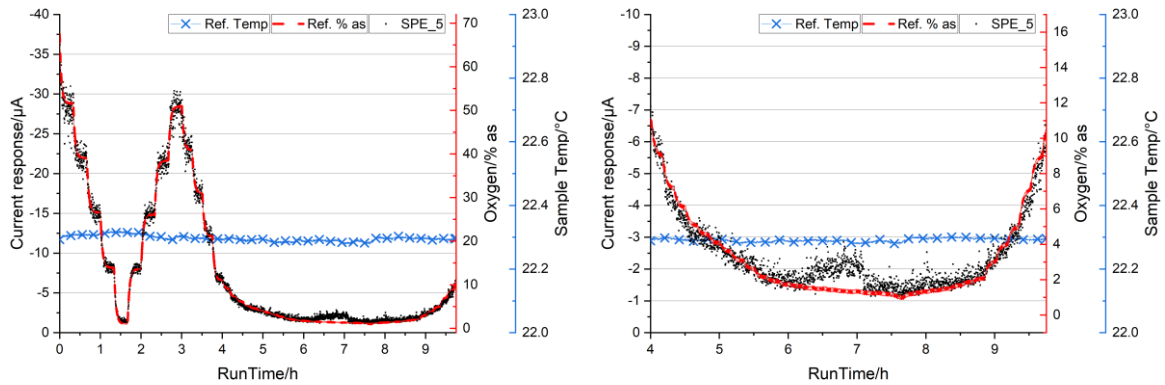


Fig. SI 9: Current response for chronoamperometric measurement in 1x PBS of SPE_5 for different lower levels of air saturation (left) and zoomed into the region below 10 % air saturation (right).

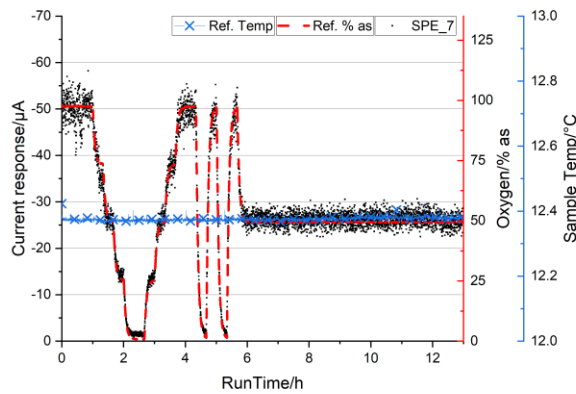
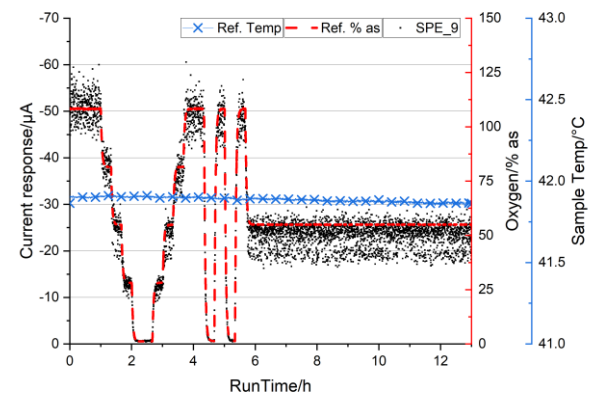
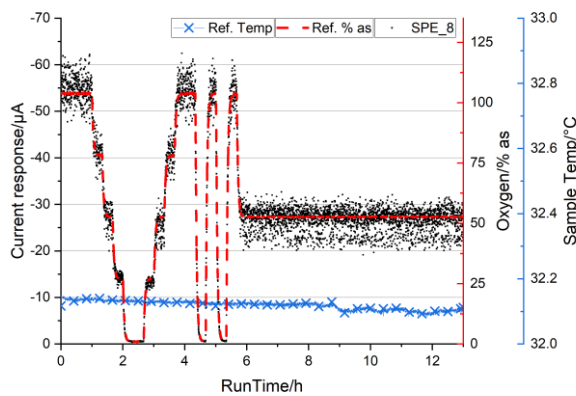


Fig. SI 10: Current response for the chronoamperometric mid-term measurements in 1x PBS of SPE_7 at 12 °C (top left), SPE_8 at 32 °C (bottom left) and SPE_9 at 42 °C (bottom right) for different levels of air saturation against a commercial dO₂ and temperature sensor.



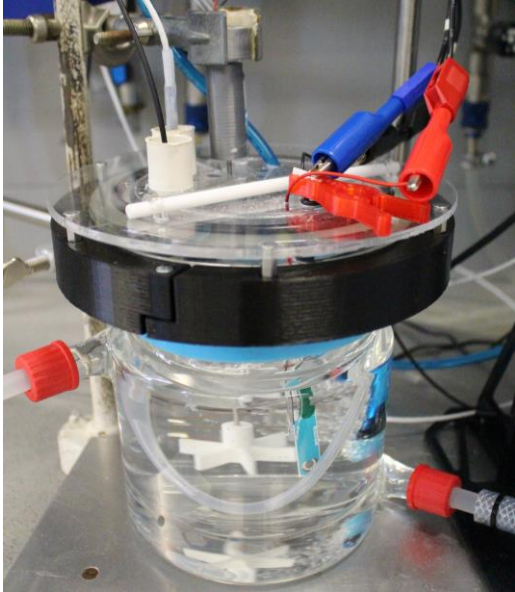


Fig. SI 11: Experimental setup in a double-walled, temperature-controlled vessel with 500 mL electrolyte solution closed by a custom flange lid containing ports for reference sensors in white septa, stirrer, gas inlet through blue PU tubing to a sparger and fixed positions for three electrode setups connected to potentiostat via clamps.